

**New Genera and Species of Jumping Plant-lice from the  
Hawaiian Islands with Descriptions of Several  
Immature Stages (Homoptera: Psyllidae)**

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(Presented by O. H. Swezey at the meeting of October 5, 1939)

Through the courtesy of Mr. O. H. Swezey the writer has had the privilege of examining a very interesting collection of jumping plant-lice from the Hawaiian Islands. All this material, unless otherwise noted in the script, was collected by Mr. Swezey and all types unless otherwise noted are deposited in the collection of the Hawaiian Entomological Society at Honolulu, Hawaii.

Several species represent forms that are definitely not congeneric with known forms either from the Islands or any part of the world, although all are apparently related to the genus *Trioza*. In 1918 Mr. D. L. Crawford reported the presence of five related genera on the Islands, and in 1927 the first genus not related to *Trioza* was reported. With the addition of four more genera by this paper a generic key is presented to facilitate recognition.

SYNOPTIC KEY TO KNOWN GENERA

1. Frons not visible ..... 2  
Frons visible as a distinct sclerite ..... **Paurocephala**
2. Vertex not produced in front ..... 3  
Vertex produced in front into two protuberances ..... **Cerotrioza**
3. Forewing with radius, medius, and cubitus arising from the basal vein at a common point ..... 4  
Forewing with radius, medius, and cubitus arising from the basal vein at separate points ..... **Ceropsylla**
4. Forewing without pterostigma ..... 5  
Forewing with pterostigma present ..... **Crawforda**
5. Forewing with radius continued to costa; genal cones seldom longer than vertex ..... 6  
Forewing with radius not continued to costa; genal cones very much longer than vertex, curved forward ..... **Swezeyana**
6. Hind tibiae with four or less apical spines; veins of forewing without prominent setae ..... 7  
Hind tibiae with five or more apical spines; veins of forewing with prominent setae ..... **Hevaheva**
7. Genae produced into definite cones ..... 8  
Genae not produced into definite cones ..... 9
8. Hind tibiae with basal spur ..... **Megatrioza**  
Hind tibiae without basal spur ..... **Trioza**
9. Forewing clear; vertex not rounded forward ..... **Kuwayama**  
Forewing subopaque; vertex rounded forward ..... **Paurotriozana**

**Swezeyana n. gen.**

Head perpendicular, prothorax very strongly descending. Genal cones much longer than length of vertex, not appressed, curving forward. Fore-

wings long, slender, acute apically; marginal spots not visible; continuity of radius to costa indefinite, either represented by one or more pseudocrossveins or four or more definite crossveins. Posterior coxae without spurs; tibiae without basal spur, with apical spur ratio of 2:1; basal tarsi without claws.

Type: *Swezeyana elongagena*.

***Swezeyana elongagena* n. sp.**

Length to tip of forewing, male 3 mm., female 4.5 mm.; forewing, male 2.5 mm., female 4 mm.

General color brownish-green with apical half of antennae and foretarsi blackish.

Head almost perpendicular to body. Genal cones one and a half times as long as vertex, slender, curving forward, slightly divergent from cephalic aspect. Antennae longer than width of head.

Body elongate, unarched. Forewing hyaline, almost four times as long as broad, acute apically; radius not reaching costa but represented by one or more pseudocrossveins. Posterior coxae without spurs; tibiae with apical ratio of spurs 2:1.

Forceps of male slender and curving to acute points directed forward.

Dorsal valve of female with bluntly hooked apex; anal opening shape of "hour-glass." Ventral valve deeply notched at apex with prong of either fork appearing very slender in ventral aspect.

Female holotype, male allotype, five female paratypes, and nine male paratypes from Haelaau, Maui, 12-19-28, on *Sideroxylon* sp.; one female paratype from Kalalau Trail, Kauai, 6-23-32, on *Sideroxylon*. Paratypes of both sexes are retained by the writer.

Nymph: Estimated to be mature or fifth stage. Length 3 mm. Triozone in form with the humeral angle of fore wingpads not indicated but continued forward as a shield over the head. Entire margin of body beset with sectasetae very similar in appearance to those of *Ceropsylla sideroxyli* Riley. Anal opening set away from abdominal apex and surrounded by a continuous ring of slit-like pores that are interrupted medianly on the posterior side.

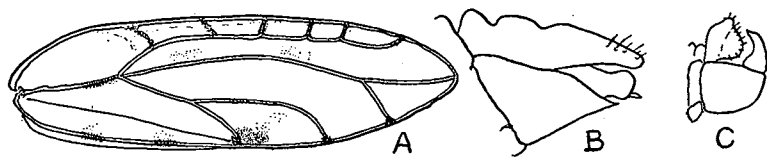


FIG. 1. *Swezeyana reticulata*. A, forewing; B, female genitalia; C, male genitalia.

***Swezeyana reticulata* n. sp. (Text figure 1)**

Length to tip of forewing, male 2.4 mm., female 3 mm.; forewing, male 2 mm., female 2.5 mm.

General color gray with brown lines on thorax; vertex with brown extending midlength; genal cones brown; antennae with base of segments narrowly black. Forewings with black cross veins and apical termination of other veins dark; anal vein twice interrupted with black and a large dark area at apex of clavus.

Characters of the genus well developed. Forewing very faintly clouded,

with four to six crossveins extending from radial sector to costa forming four to six marginal cells.

Forceps of male short, stout basally, with acute apices directed forward.

Dorsal valve of female straight, apex rather blunt. Anal opening shape of "hour-glass." Ventral valve notched at apex.

Female holotype, male allotype, fourteen female and eight male paratypes from Kalalau Trail, Kauai, 6-23-32, on *Sideroxylon*. Paratypes of both sexes retained by the writer.

### **Kuwayama pisonia n. sp.**

Length to tip of forewing, male 4 mm., female 5 mm.; forewing, male 3.5 mm., female 4.2 mm.

General color of head and thorax yellow to brown, abdomen always darker. Tip of antennae black. Radial vein black with membrane embrowned on either side.

Head not especially declivous. Vertex with deep impressions on either side of median line. Genae quite swollen around antennal bases, appearing semiglobular. Antennae slightly longer than width of head.

Thorax arched, pubescent. Forewing little over twice as long as broad, twice as long and twice as broad as hindwing, broadly rounded apically; costa with very fine fringe of setae.

Forceps of male slightly arcuate and narrowed apically in lateral aspect; apices projecting inward and caudad. Proctiger with large, broadly rounded caudal projecting lobes.

Dorsal valve of female with apical fourth greatly constricted styliform. Anal opening shape of "keyhole." Ventral valve very large in lateral aspect.

Male holotype, female allotype, twenty male paratypes, and fourteen female paratypes from Halona Val., Oahu, 3-12-33, on *Pisonia* sp. Paratypes of both sexes are retained by the writer.

Nymph: Estimated to be in late third or early fourth stage. Form very broadly oval, almost circular. Humeral angle of forewings well up on head. Entire margin of body beset with sectasetae of a peculiar type somewhat resembling those of *S. elongagena*. Anal opening set well in from abdominal apex. Tarsi without visible claws; pulvilli appearing circular.

### **Kuwayama pisonia minutura n. var.**

Length to tip of forewing, male 3 mm., female 3.3 mm.; forewing, male 2.5 mm., female 2.7 mm.

General color: Dorsum blackish with legs and venter yellow to greenish. Radial vein of forewing not darkened.

Structurally resembling the species except for smaller size.

Male holotype from Haleauau, Oahu, 1-22-29 on *Pisonia sandwicensis*, and three male paratypes with same data, one female paratype from same locality, 11-13-34. Female allotype from Piko Trail, Waianae Mts., 12-30-33, on *Pisonia*, and three male paratypes with same data; also two female paratypes from Kukuiala Val., Oahu, 2-9-36.

The greatly swollen genae on this variety and the species suggests

a close relationship with *Trioza*, on the other hand the nymph suggests relationship to *Ceropsylla*.

**Kuwayama tipicola** n. sp.

Length to tip of forewing, male 2.7 mm., female 3 mm.; forewing, male 2.5 mm., female 2.7 mm.

General color light brown; female with mesonotum yellow.

Head scarcely deflexed, about as broad as thorax. Foveae on vertex shallow. Genae scarcely swollen. Clypeus not prominent. Antennae about one and a half times as long as width of head.

Thorax unarched; mesonotum short. Forewing over two and a half times as long as broad, acute apically. Hindwing reaching to end of  $Cu_2$  of forewing.

Forceps of male slender, acuminate. Proctiger without prominent caudal lobes.

Female genital segment almost as long as rest of abdomen in dried specimen. Dorsal valve long, tapered, acute apically. Ventral valve about as long as dorsal.

Female holotype, Niu Ridge, 6-4-32, out of gall on petiole of *Chrysophyllum*. Male holotype, Niu Ridge, 6-4-32, same host.

This species superficially resembles *K. oaxacensis* Crawford except for smaller size.

Nymph: Estimated to be fifth stage or mature. Length 1.5 mm. Triozine in form. Segmentation visible on dorsum at thoracic and abdominal conjunctives and on venter of abdomen. Entire body margined with sectaetae typical of type found on *Trioza*. The abdomen has a double row of sectaetae.

Gall: The gall is an open type appearing similar in outline to a volcanic peak with a large crater. In dried specimens they are about twice as thick as the petiole that bears them. The opening has about the same diameter as the petiole.

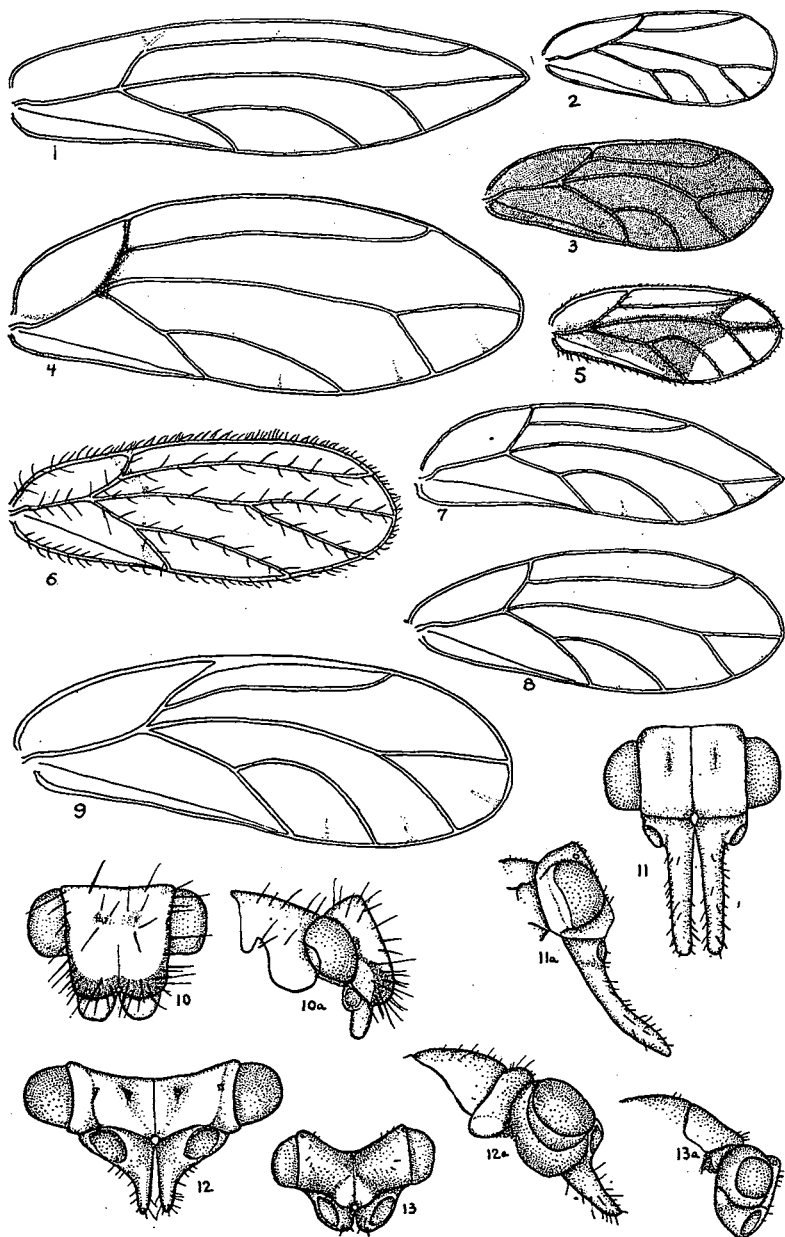
**Ceropsylla unica** n. sp.

Length to tip of forewing, male 1.7 mm., female 2 mm.; forewing, male 1.5 mm., female 1.7 mm.

PSYLLIDAE

Explanation of Plate 22

1. *Swezeyana elongagena*, forewing.
2. *Ceropsylla unica*, forewing.
3. *Paurotriozana adaptata*, forewing.
4. *Kuwayama pisonia*, forewing.
5. *Hevaheva maculata*, forewing.
6. *Hevaheva aloha*, forewing.
7. *Kuwayama tipicola*, forewing.
8. *Kuwayama pisonia minutura*, forewing.
9. *Crawforda triopsyllina*, forewing.
10. *Hevaheva aloha*, frontal view of head.
- 10a. *Hevaheva aloha*, profile of head and thorax.
- 11-11a. *Swezeyana elongagena*, same views as in 10.
- 12-12a. *Crawforda triopsyllina*, same views as above.
- 13-13a. *Paurotriozana adaptata*, same views as above.



General color: Head and thorax solid black, legs and abdomen yellowish. Antennae yellow except black apex. Forewing with black spot on anal vein.

Vertex broadly triangular, deeply impressed at median line with broad deep foveae on either side. Genal cones one-third as long as vertex, divergent. Antennae about twice as long as width of head.

Thorax arched, finely pubescent. Forewing slightly over twice as long as broad, broadly rounded apically; marginal cells subequal; radius, medius, and cubitus separating from basal vein at separate points. Apical spur ratio of posterior tibiae 2:1.

Forceps of male somewhat invert-spatulate. Proctiger "jug-shaped."

Dorsal valve of female with apical third bulbous, blunt.

Female holotype, male allotype, five male paratypes, and six female paratypes, "Trail Kokee to Kalalau, Kauai," 8-15-25, on *Cryptocarya*. Paratypes of both sexes are retained by the writer.

At the present there seems to be no other deposition for this species than *Ceropsylla*.

### ***Hevaheva aloha* n. sp.**

Length to tip of forewing 3.5 mm.; forewing 3 mm.

General color of head and thorax yellow, abdomen dark. The terminal segments of antennae black. Vertex heavily darkened on cephalic margin. Genae whitish. Thorax marked with brown. Forewing with a broken, transverse, narrow brown band one-third distance from base.

Vertex as long as broad, retangular except for bilobed cephalic margin; median line extending only half way to caudal margin. Genal cones set in from vertex, about one-fourth as long. Antennae about twice as long as width of head; segment III about as long as segments IV-X.

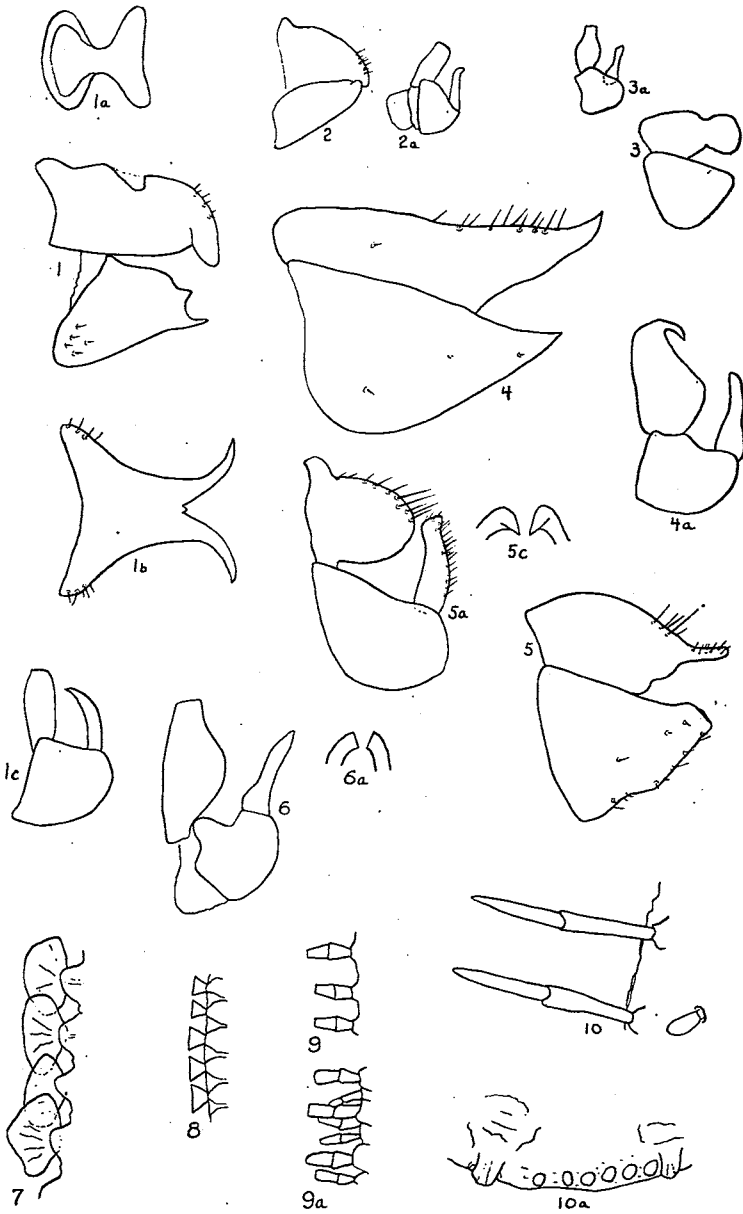
Whole insect with long, rather dense pubescence. Thorax rather flat. Forewing two and a half times as long as broad. Setae set alternate on sides of veins. Metacoxae lacking spurs; no basal spur on hind tibiae, but a group of spurs apically.

Genital plate of male notched on upper margins. Proctiger hemipyiform in lateral aspect. Forceps evenly arcuate with truncate apices in caudal aspect.

## PSYLLIDAE

### Explanation of Plate 23

1. *Swezeyana elongagena*, profile of female genitalia.
- 1a. Dorsal view of circumanal ring.
- 1b. Ventral view of ventral valve of female.
- 1c. Profile of male genitalia.
2. *Hevaheva maculata*, profile of female genitalia.
- 2a. Profile of male genitalia.
- 3-3a. *Ceropsylla unica*, same views as in 2.
- 4-4a. *Crawforda triopsyllina*, same as above.
- 5-5a. *Kuwayama pisonia*, same as above.
- 5c. Caudal view of apex of male forceps.
6. *Hevaheva aloha*, profile of male genitalia.
- 6a. Caudal view of apex of male forceps.
7. *Swezeyana elongagena*, marginal setasetae of nymph.
8. *Kuwayama pisonia*, same view as in 7.
9. *Kuwayama tipicola*, marginal setasetae on thorax of nymph.
- 9a. Marginal setasetae on abdomen of nymph.
10. *Crawforda triopsyllina*, marginal setasetae on thorax of nymph.
- 10a. Abdominal glands and tubes on abdomen of nymph.



Male holotype and two male paratypes, Mohihi, Kauai, 8-11-25, on *Xanthoxylum*.

**Hevaheva maculata** n. sp.

Length to tip of forewing, male 1.7 mm., female 2 mm.; forewing, male 1.5 mm., female 1.7 mm.

General color light gray with two dark spots on vertex, mesonotum, and metanotum. Forewing with a dark brown area extending along the medius to apex, along cubitus to end of  $Cu_2$ , and the intervening space.

Vertex about one half as long as broad, foveae on either side of median line very large and deep. Genal cones half as long as vertex, acute, closely appressed full length. Antennae as long as width of head.

Whole insect finely pubescent. Thorax rather flat yet strongly descending cephalad. Forewing two and a half times as long as broad, colored portion opaque. Hind tibiae with a group of apical spurs.

Forceps of male hooked caudad at the apices.

Female genital segment short. Ventral valve with "thumb-like" processes on either side near the apex.

Female holotype, male allotype and paratype, Kauaikinana, Kauai, 8-2-25, on *Pelea*.

**Paurotriozana** n. gen.

Head and pronotum perpendicularly inclined. Vertex definitely rolled roundly forward. Frons hidden by the genae. Genae greatly swollen but not into cones. Eyes prominent, hemispherical.

Forewings opaque, without cubital petiole or pterostigma. Posterior tibiae without basal spur; with two very small spurs on inside and one on outside at apex; basal tarsi without claws.

Type: *Paurotriozana adaptata*.

**Paurotriozana adaptata** n. sp.

Length to tip of forewing 2.7 mm.; forewing 2.5 mm.

General color blackish; legs and face dusky-green; forewing evenly dark brown.

Vertex almost three times as broad as long, very deeply depressed between the eyes, finely pubescent. Genae greatly swollen, visible from the side. Antennae little longer than width of head.

Thorax strongly arched, finely pubescent; mesonotum broader than long; metanotum short, strongly rounded. Forewing two and a half times as long as broad; setae scarcely visible on costa.

Forceps of male as long as proctiger, slender, evenly curved apically with sharp approximate apices in caudal aspect.

Male holotype near Kolekole Pass, Oahu, 8-7-32, collected by Otto Degener, reared out of gall on leaf of *Cryptocarya*.

Nymph: Estimated to be fifth stage or mature. Length 1.5 mm.; width 1.2 mm., thick through the body. This nymph is peculiarly adapted for its life in the gall. The heavily armored plates that block the entrance, or exit, in the gall are located rather caudally on the abdominal dorsum, necessitating a rather perpendicular position for the nymph. The cephalic end of the nymph is apparently the venter of the prothorax where the proboscis is located; the head being located dorsad and caudad from the anterior end. The forelegs are rather dorsally attached while the other two pairs are ven-



tral. The anal opening is at the extreme caudal end and is evidently surrounded by pores. No definite wingpads were visible on the single specimen examined.

Gall: The galls average about 2 mm. in diameter, are raised blister-like on both sides of the leaf and tend to be located along the midrib. The under blister contains a slightly elliptical opening which must serve as an exit for the mature nymph. This opening is apparently closed by the abdominal dorsum of the nymph being pressed against it giving the appearance of a jointed door.

#### **Crawforda n. gen.**

Head and thorax strongly descending. Head broader than thorax. Genae produced into cones, closely appressed. Eyes very prominent. Forewing with a definite pterostigma but without cubital petiole. Metacoxae with posterior spurs. Posterior tibiae without basal spur, with apical spur ratio of 3:1; basal tarsi without claws.

This genus is named in honor of Mr. D. L. Crawford, who has made very many valuable contributions to the taxonomy of the family *Psyllidae*.

Type: *Crawforda triopsyllina*.

#### **Crawforda triopsyllina n. sp.**

Length to tip of forewing, male 4 mm., female 4.5 mm.; forewing, male 3.5 mm., female 4 mm.

General color yellow over all.

Vertex twice as broad as long. Eyes stalked similar to *Psylla annulata* Fitch of North America. Genal cones as long as vertex, depressed from the plane, acutely pointed. Antennae one and a half times as long as width of head.

Pronotum not depressed below level of head although strongly descending. Forewing with pterostigma and three marginal spots, no cubital petiole present. Metacoxae with posterior spurs; posterior tarsi without basal spur, apical spur ratio 3:1; basal tarsi without claws.

Forceps of male slender, gently pyriform, slightly curved cephalad in lateral aspect. Proctiger swollen basally, with a caudal hook apically.

Dorsal valve of female acute and slightly turned up apically. Ventral valve equilaterally triangular in lateral aspect.

Male holotype, female allotype, thirteen male paratypes, and twenty-three female paratypes from Kainalu, Molokai, 7-24-27, elev. 1600, on *Tetraplasandra*, collected by both Mr. O. H. Swezey and Mr. E. H. Bryan. Paratypes of both sexes are retained by the writer.

Nymph: Estimated to be mature or fifth stage. Very broadly oval, triozine in form. Entire margin beset with extra long, jointed sectasetae(?). Abdomen containing eight large glands visible within, which open by means of short tubes on the lateral margin. Entire dorsum beset with small clavate setae. Anal opening on abdominal apex.