On Some Psocidae from the Hawaiian Islands

BY NATHAN BANKS

Museum of Comparative Zoology, Harvard University, Cambridge, Mass.

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The material is from two sources; some sent several years ago by Dr. Perkins, and others recently sent by Dr. F. X. Williams. In the museum collection is a set of the material used by Dr. Perkins for the Fauna Hawaiiensis.

Psocus distinguendus Perkins.

Mahena, Maui, Dec. 10.

Psocus kauiensis Perkins.

Manoa, Oahu, Jan.; Waipio Rdg., Oahu, Aug. 28.

Kilauella vinosa McLach.

Ulupalakua, Maui, Dec. 11.

Kilauella debilis Perkins. (Pl. VII, fig. 6).

Honolulu, April 11. Fully distinct from *K. vinosa*.

Kilauella micramaura Perkins. (Pl. VII, fig. 7).

Honolulu. I give a figure of my specimen which agrees closely with Perkins; the figure of Enderlein is of another species; Perkins distinctly mentions the union of areola postica with media.

Caecilius analis sp. nov. (Pl. VII, fig. 2; Pl. VIII, fig. 2; Pl. IX, fig. 3).

Body and legs pale; thorax above with a large dark stripe on each side, usually occupying most of the notum; clypeus of female usually brown, and sometimes a line up from it; antennae of male dark. Wings a nearly uniform grayish hyaline, the costal area and stigma more yellowish; the anal margin (axillar cell) fumose, almost dark brown; hindwings hyaline. Venation similar to *C. ceylonensis,* but areola postica larger, and fork of radius longer than its pedicel. In the female the clypeus appears very large and prominent, the eyes scarcely projecting; in the male the eyes are enlarged, and less than diameter apart; the male antennae are thickened more than in female.

Length 3 mm.

From Manoa, Oahu, Jan.; Palolo, Oahu; and Honolulu, on sugar cane.

Hageniola gen. nov.

In Caecilinae; media and radius connected by a cross-vein; media with one branch, that going to the hind margin, forming a large cell; areola postica very small. The shape of the median fork is so different from Hemicaecilius that I cannot consider it the same, more probably it is an offshoot from Kilauella or Hageniella.

It might be mentioned that Hagen's *P. lanatus* is not a Hageniella (as supposed by Enderlein) but a Hemicaecilius.

Hageniola solitaria sp. nov. (Pl. VII, fig. 5).

Head, thorax, and abdomen brownish yellow, scarcely marked; head with fine, short, white hair; clypeus of female very prominent. Antennae pale yellow on basal third, beyond black. Legs pale. Wings faintly yellowish brown, veins scarcely darker, bristles on margin and veins, membrane with fine, short, brown hairs.

Length 2.6 mm.

From Honolulu, on cane, Jan. 17 (Williams).

Hemipsocus roseus Hagen. (Pl. VIII, fig. 1; Pl. IX, figs. 1, 2).

Honolulu, Jan., Feb., and April.

These agree with the Philippine specimens, and with the types from Ceylon. This genus should be placed in the Caecilinae.

Ectopsocus hawaiiensis Enderl.

Honolulu (Perkins).

Ectopsocus fullawayi Enderl. (Pl. VIII, fig. 4; Pl. IX, fig. 6).

Honolulu, Feb. 11; Kailua, Oahu, March 26. A very handsome species.

Ectopsocus perkinsi sp. nov. (Pl. VII, fig. 4).

Head, thorax above, and abdomen black; legs and antennae brown. Wings fumose, veins black in black parts. Several large white spots much as in *E. fullawayi*, but no basal pale band, and the band from stigma does not go obliquely across, and is interrupted; a large pale spot on hind margin just beyond end of anal vein, another larger one in second median cell reaching up across the fifth radial cell; a still larger spot beyond end of stigma; small spots in ends of outer radial cells. Hind-wings a uniform grayish. Head, antennae, and thoracic notum hairy.

Length 1.75 mm.

From Honolulu Mts., 1500 ft.

Psylloneura williamsi sp. nov. (Pl. VII, figs. 8, 9; Pl. VIII, fig. 6; Pl. IX, fig. 7).

Head and thorax yellow-brown, clypeus paler, head with scattered, short, white hairs. Head not as broad as in *P. simbayana.* Legs pale, tibia nearly white, tarsi brownish. Antennae pale, the elongate joints with short fine hairs. Abdomen yellow-brown. Wings hyaline, veins yellowish-brown; media and radius connected by a fairly long cross-vein; areola postica very long; in hind-wings the anal vein is a white line.

Length 1.3 mm.

From Ewa, Oahu, March 18, and Waialua, Oahu, Jan. 29, on sugar cane.

Echmepteryx costalis sp. nov. (Pl. VII, fig. 3; Pl. VIII, fig. 3; Pl. IX, fig. 4).

Wing with dark brown scales in middle, metallic and iridescent, of a nearly uniform color; along the costa is a narrow stripe of white, and along hind margin a broader stripe of white; the costal fringe is white, but just as the wing narrows there is a patch of brown, and that along the outer half of the narrowed tip is also brown; the fringe on hind margin is also white except that along the narrowed part is brown. The narrowed part of the wing is longer than that of any other species, about as long as width of wing. The head and thorax are clothed with grayish white hair and scales, the surface of head is pale yellowish. The antennae are thin, pale, and with short joints; the legs pale, with mostly white hair.

Length 2 mm.

From Ewa, Oahu, March 18, and Honolulu, Nov. 24, Jan. 12.

Echmepteryx marmorata sp. nov.

Wings rather broader than in *E. costalis,* with a narrowed tip hardly one-half as long as in *E. costalis,* the tip turned outward; clothed with scales of white, yellow or gold, brown, and black; a large area near the middle is dark, before it there is some white, some golden, but more pale brown scales, beyond it there are patches of white, with some of black scales, a band of golden scales just before the tip, with the fringes at this place also golden, the extreme tip black and with black hair. The costal fringe is mostly brown, but with some white and yellow; the fringe of hind margin is first brown, then white, then brown, then yellow; some of the erect hairs near base are white. Face with a broad, vertical stripe of white hair, on the sides dark brown; thorax with golden scales. Legs pale, each tibia with two dark bands, mid and hind tibia very bristly. Antennae rather short and thin.

Length 2.1 mm.

From Kualoa, Jan. 25, on Albizzia, and Honolulu, July 4.

Echmepteryx unicolor sp. nov.

In general shape of wings and in coloration it is very similar to *E. mihira* Enderl. The fore-wing is rather uniformly clothed with pale brown

or yellowish brown scales and hairs, the scales mostly elongate; costal fringe brown, at extreme tip almost black; fringe of hind margin also brown; hind wings with some dark hairs near tip, but extreme tip with snow-white hair. Surface of head brown, clypeus pale; most of face with brownish hair, but each side below there is white hair, and that on edge of vertex nearly yellow. Antennae pale, the elongate joints with inner bristles as long as the joints. Legs pale yellowish, femora hairy beneath, tibiae very bristly.

Length 2.3 mm.

From Honolulu, Hawaii (Perkins).

Cyptophania gen. nov.

Only fore-wings present, these appear as large scales, a little longer than the abdomen when dry (probably not when alive); about two and one-half times as long as broad, strongly convex, the tip pointed, clothed with curved, appressed hairs, and densely with erect ones of a nearly even length, some at tip nearly one-third the wing width; along costa, especially near the base, some of the appressed hairs are scale-like, but slender. No distinct stigma, nor areola postica; a diamond-shaped cell near middle of wing toward base, above it a curved vein makes a cell similar to Empheria, this gives off a branch to costa, beyond the cell the vein is soon forked and each forked again before tip. The apical venation and the cells are readily traced, but the venation of the posterior part is not as plain; from the cell are two branches, the outer one forked.

It is related to Psocinella, but shape of wings very distinct.

Cyptophania hirsuta sp. nov. (Pl. VII, fig. 1; Pl. VIII, fig. 7; Pl. IX, fig. 5).

Head with shaggy yellowish or golden hair; thoracic notum with yellowish hair; wings brown, finely, irregularly marmorate with yellowish in the apical half; legs pale yellowish. Antennae pale and thin, joints short, with short hair, at least thirty joints; no ocelli; eyes with many short hairs. Last joint of palpi broadened, triangular, hind legs much the longest, tibia much longer than femur; all femora compressed, and much broadened front femora not three times as long as broad; mid and especially hind femora with many long white bristles.

Length of fore-wing (when mounted) 1.5 mm.

From Honolulu, Nov. 10, and April, on sugar cane. Enderlein has described a Parempheria from the Islands (from alcoholic material); he says the venation is like *P. sauteri,* and it has hind wings, so it must be quite different from this form.

Explanation of Figures.

PLATE VII.

Fig. 1. *Cyptophania hirsuta,* wing, and a marginal hair.

Fig. 2. *Caecilius analis,* fore-wing.

Fig. 3. *Echmepteryx costalis,* fore-wing.

Fig. 4. *Ectopsocus perkinsi,* front-wing.

Fig. 5. *Hageniola solitaria,* fore and hind-wing.

Fig. 6. *Kilauella debilis,* fore-wing.

Fig. 7. *Kilauella micramaura,* fore-wing.

Fig. 8. *Psylloneura williamsi,* fore-wing.

Fig. 9. *Psylloneura williamsi,* hind-wing.

PLATE VIII.

Fig. 1. *Hemipsocus roseus.*

Fig. 2. *Caecilius analis.*

Fig. 3. *Echmepteryx costalis.*

Fig. 4. *Ectopsocus fullawayi.*

Fig. 5. Very young psocid. Natural size is 0.57 mm.

Fig. 6. *Psylloneura williamsi.*

Fig. 7. *Cyptophania hirsuta.*

PLATE IX.

Fig. 1. *Hemipsocus roseus.* Covered egg-cluster affixed to sugar cane leaf. Length of cover about 3 millimeters.

Fig. 2. *Hemipsocus roseus.* Egg-cluster exposed in its cover.

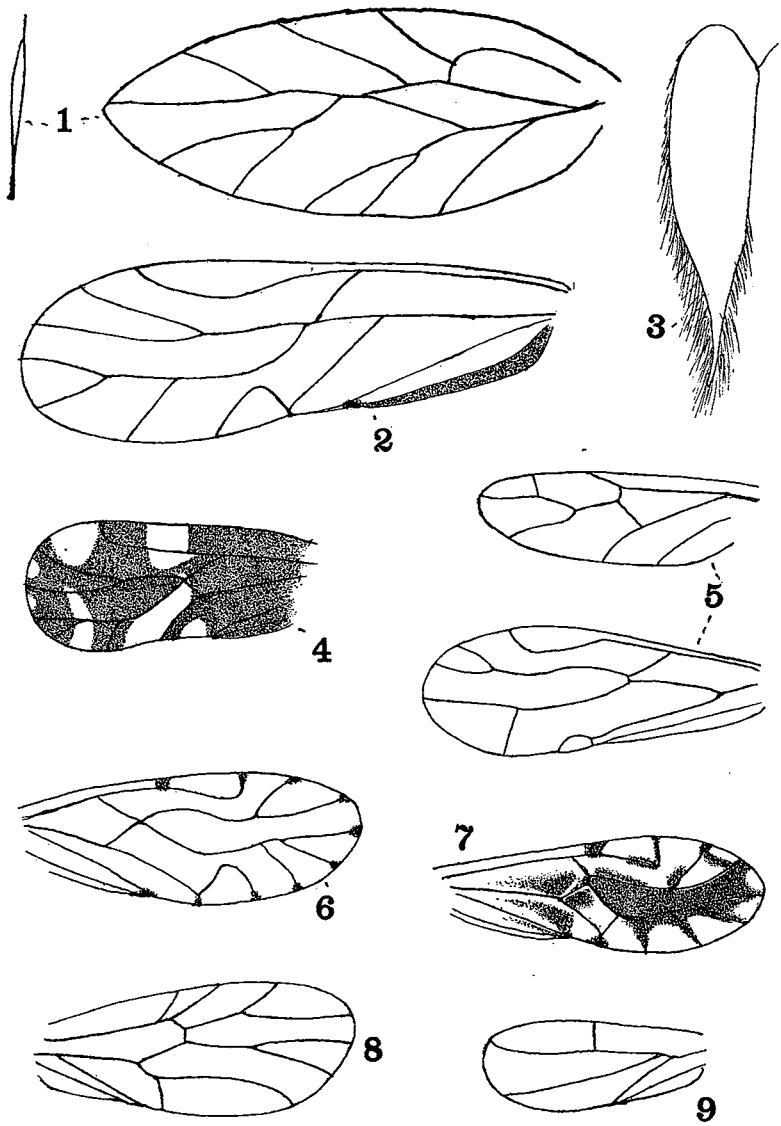
Fig. 3. *Caecilius analis.* Webbed-over cluster of hatched eggs on sugar cane leaf. Natural size of an egg is about 0.50 millimeters long.

Fig. 4. *Echmepteryx costalis.* The lower egg is hatched and shows the amniotic membrane from which the young has freed itself. Natural size of egg is about 0.40-0.50 millimeters long.

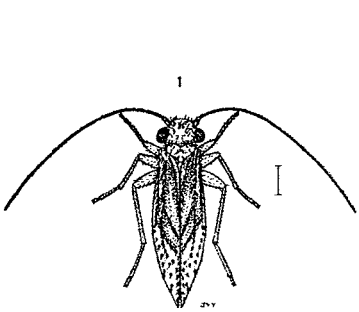
Fig. 5. *Cyptophania hirsuta.* On sugar cane tissue. Natural size of egg is about 0.45 millimeters long.

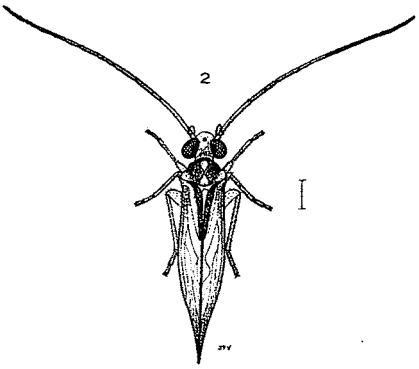
Fig. 6. *Ectopsocus fullawayi.* Natural size of egg about 0.35 millimeters long.

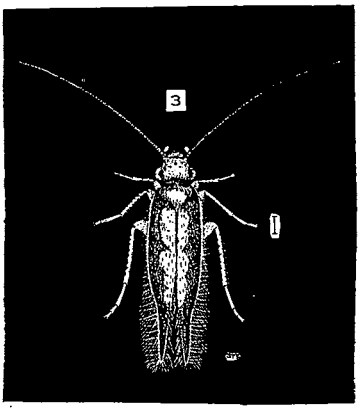
Fig. 7. *Psylloneura williamsi.* On sugar cane leaf. Natural size of egg is about 0.45 millimeters long.

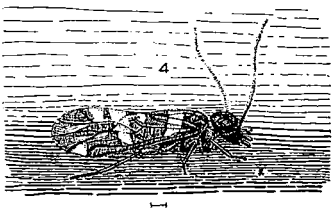


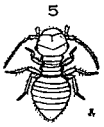
Hawaiian Psocidae.

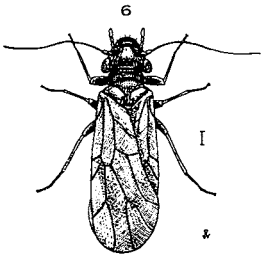


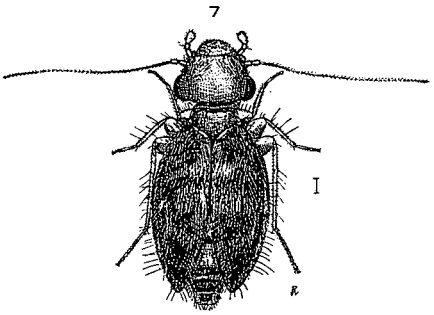




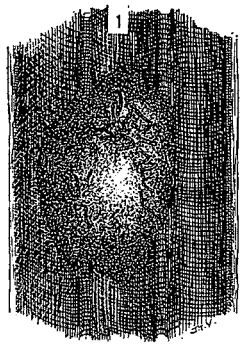


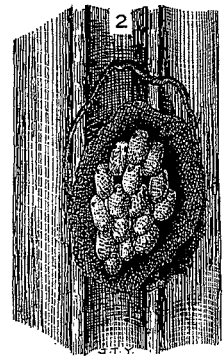


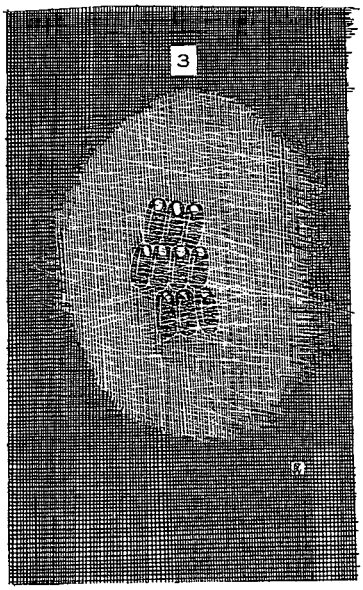


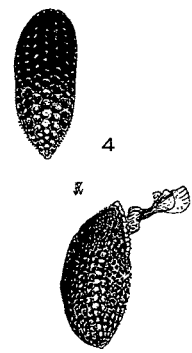


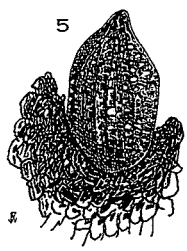
Hawaiian Psocidae.

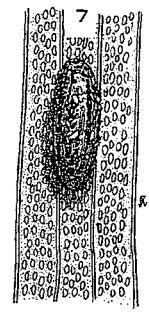












Eggs of Hawaiian Psocidae.