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Ulidiinae (Diptera, Otitidae) of Australasian Regions

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INTRODUCTION

By far the greater part of the Otitidae of the Australasian regions—which include the Oriental, the Australian, the Indo-Malayan, and the Oceanic—pertain to the subfamily Platystominae. However, a few are to be referred to the Ulidiinae, a subfamily sometimes given the rank of family as Ulidiidae, though in my experience the distinctions are not sharp enough to warrant it.

The Ulidiinae find their greatest development in the American tropics. They may be distinguished from other Otitidae by the following characters: (a) first longitudinal wing vein ( $R_{1+2}$ ) bare, if with setulae (*Neoeuxesta*, *Pareuxesta*) the following characters are present; (b) anal cell of wing drawn out at posterior apex into a sharp point or even into a long narrow extension; (c) subcostal cell of wing (stigma) not enlarged; (d) integument largely of metallic coloration.

At the time of Hendel's review of the group (*Genera Insectorum*, fasc. 106, 1910) only the following four species were known from the Australasian regions: *Physiphora aenea*, *P. longicornis*, *Pseudeuxesta prima*, *Acrosticta apicalis*. Malloch has published several records, and I am here describing a few new species. The list now stands as follows.

CHECKLIST OF AUSTRALASIAN ULIDIINAE

- \*1. *Acrosticta apicalis* (Williston).
2. *Euxesta hyalipennis* Malloch.

3. *Euxesta laffooni*, new species.
4. *Euxesta pruinosa* Malloch.
- \*5. *Euxesta quadrivittata* (Macquart).
6. *Neoeuxesta fumicosta* Malloch.
7. *Neoeuxesta guamana*, new species.
- \*8. *Notogramma stigma* (Fabricius).
9. *Perissoneura diversipennis* Malloch.
- \*10. *Physiphora aenea* (Fabricius).
11. *Physiphora aperta*, new species.
12. *Physiphora longicornis* (Hendel).
13. *Pseudeuxesta prima* (Osten-Sacken).

Those species preceded by an asterisk, and probably others, have almost certainly been distributed by commerce, as they breed in a wide variety of decaying vegetable matter and, to a lesser extent, in substances of animal origin.

The following key to genera includes, for comparative purposes, the genus *Pareuxesta*, which is endemic to the Galapagos Islands. There has been some disagreement as to generic limits, chiefly between Hendel and Malloch. My views, which have been strongly influenced by geographical considerations, will be apparent from the key.

KEY TO AUSTRALASIAN GENERA OF ULIDIINAE

- 1 (2). Mesofrons wholly bare, smooth, with a transverse concavity, above which the upper frons is divided into four convex longitudinal parts by three shallow grooves; wing with first posterior cell usually closed or nearly so.....*Physiphora* Fallén.
- 2 (1). Mesofrons bearing setulae, either flat or strongly wrinkled or pitted; first posterior cell never closed.
- 3 (6). Mesofrons strongly wrinkled or pitted.
- 4 (5). Marginal cell less than half as wide as submarginal; wings with blackish anterior margin and spots in submarginal and first posterior cells; vertex sharply angulate.....*Notogramma* Loew.
- 5 (4). Marginal cell never much narrower than submarginal; wings with blackish anterior margin not extending beyond stigma and well separated from an apical wing spot; vertex rounded ..... *Acrosticta* Loew.
- 6 (3). Mesofrons flat.
- 7 (10). First longitudinal vein of wing with small but constant and distinct setulae in a regular series in apical half above.
- 8 (9). Fifth vein terminating abruptly at, or just beyond, the outer cross vein (Galapagos Islands).....*Pareuxesta* Coquillett.

- 9 (8). Fifth vein continued beyond outer cross vein to, or almost to, wing margin ..... **Neoeuxesta** Malloch.
- 10 (7). First wing vein bare, at most with a few setulae on upper side apically.
- 11 (12). Stigmal section of costa much less than half as long as preceding section; posterior orbits rather broadly visible in whole extent from side view..... **Pseudeuxesta** Osten-Sacken.
- 12 (11). Stigmal section of costa half or almost half as long as preceding section; upper posterior orbits very narrow or not visible from side view.
- 13 (14). Male, and rarely the female, with a spur vein on terminal section of fourth vein; propleura with two quite stout and moderately long, closely spaced bristles..... **Perissoneura** Malloch.
- 14 (13). Neither sex with a spur vein as described above; propleural bristle very fine and short, only exceptionally duplicated ..... **Euxesta** Loew.

#### Genus **Acrosticta** Loew

##### 1. **Acrosticta apicalis** (Williston).

*Euxesta apicalis* Williston, Ent. Soc. London, Trans., 375, pl. 12, fig. 128, 1896.—Coquillett, U. S. Nat. Mus., Proc. 22:258, 1900.—Hendel, Genera Insectorum 106:26, 1910.—Curran, Am. Mus. Novitates 812:12, 1935.

*Acrosticta pallipes* Grimshaw, Fauna Hawaiiensis 3:44, 1901.—Hendel, Wien. ent. Zeitung 28:249, 1909; Genera Insectorum 106:52, 1910.—Bezzi, Diptera Brachycera and Athericera of the Fiji Islands, 89, 1928.—Curran, Am. Mus. Nat. Hist., Bull. 66 (3):427, 1934.

*Acrosticta apicalis* (Williston) Curran, Sci. Surv. Porto Rico 11 (1):116, 1928.—Malloch, Insects of Samoa 6 (5):217, 1930; B. P. Bishop Mus., Bull. 98:206, 1932.—Wolcott, Jour. Agric. Puerto Rico 22 (1):373, 1936.

This species is known from a number of tropical American localities and from Hawaii, Fiji, Samoa, the Marquesas, and the Society Islands. I have seen it from Guam and Saipan in the Marianas Islands and from Nauru Island, west of the Gilberts. The pitted or wrinkled frons and the blackish legs, with only the fore femora reddish, make the fly rather easily recognized in the Pacific region. The wings are hyaline with a brown basicostal mark and one apically between the third and fourth veins.

Genus **Euxesta** LoewKEY TO AUSTRALASIAN SPECIES OF **EUXESTA**

- 1 (2). Wings with four dark-brown cross bands, including apical marking; face reddish or yellowish under the pruinosity.....  
.....**E. quadrivittata** Macquart.
- 2 (1). Wings without distinct markings or with markings limited to costal region, not in the form of cross bands; face blackish under the pruinosity.
- 3 (4). Wings (fig. 1, *c*) with dark-brown costal markings; first vein with 1 to 4 setulae on upper side near tip.....**E. laffooni**, new species.
- 4 (3). Wings without distinct markings; first vein bare.
- 5 (6). Posteroventral surface of fore femora with a single series of well-developed bristles; mesonotum with rather light pruinosity  
.....**E. hyalipennis** Malloch.
- 6 (5). Posteroventral surface of fore femora with several series of quite long dense bristly hairs, most conspicuous basally, and apically with a few distinct bristles; mesonotum (and other parts) with dense pruinosity nearly obscuring the green ground color  
.....**E. pruinosa** Malloch.

The species here considered are the only ones which do not seem to be generically separable from the numerous American species.

2. **Euxesta hyalipennis** Malloch, B. P. Bishop Mus., Bull. 98: 209, 1932.

Paratypes of this species are available to me through the courtesy of Elwood C. Zimmerman. The only record is from the Marquesas Islands: Hatutu, altitude 800 and 1,080 feet near nests of the frigate bird, *Fregata minor*.

3. **Euxesta laffooni**, new species (fig. 1, *c*).

Male and female. Color in general black, with rather slight metallic bluish or greenish reflections. Frons, cheeks, antennae (third segment blackish apico-dorsally), and extreme knees, brown. Apical tarsal segments and fore coxae also sometimes brownish. Palpi yellowish, sometimes darkened above.

Head, except mesofrons, whitish pruinose. Two narrow parafrontal stripes also whitish pruinose. There are two strong reclinate fronto-orbital bristles, and mesofrons is rather evenly covered with quite coarse hairs. Third antennal segment is almost round in profile, only slightly longer than wide. Arista is inserted close to base of third segment and is bare and black, but yellowish basally. Cheeks are slightly less than one-fifth total head height. Face in profile is evenly concave.

Thorax rather heavily grayish to yellowish brown-pruinose dorsally, but otherwise with very little pruinosity. There is a pair of black dorsocentral stripes, best seen from the rear, which are parallel-sided for a short distance before scutellum, then taper to a narrow line halfway to transverse suture. The four scutellar, two prescutellar, two dorsocentral, two postalar, one supra-alar,

one humeral, and two notopleural bristles are strong. There is a well-developed patch of upper propleural setulae and one distinct, but small, propleural bristle.

Wings are pale brownish hyaline, with dark brown markings and venation as in figure 1, c. Squamae and their cilia pale yellowish. Halteres have a yellow stem and dark brown knob. First longitudinal vein has a few sporadic setulae on upper side near tip, usually only one or two, but one specimen has four on one wing.

Abdomen lacks distinct pruinosity, is wholly blackish in male, but in female has fifth tergite and most of fourth creamy yellow, the latter with black anterior corners and mediobasal spot.

Length of body, 4 to 5 mm.; length of wing, 4 mm.

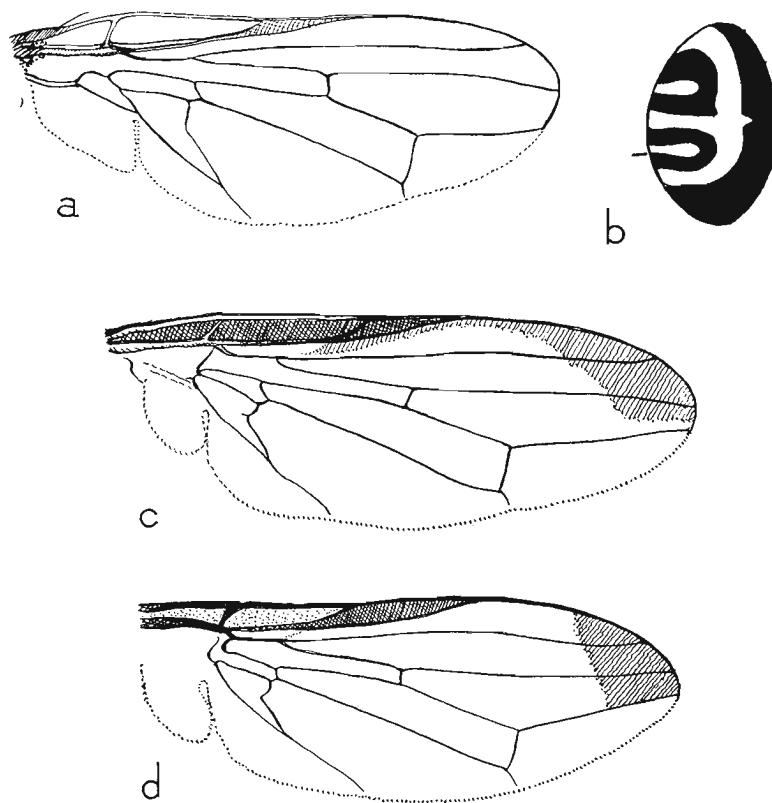


FIGURE 1.—a,b, *Physiphora aperta*: a, wing; b, eye pattern (profile of left eye with position of antennae indicated by dash). c, *Euxesta laffooni*, wing. d, *Neoeuxesta guamana*, wing.

Holotype female and allotype: Espiritu Santo, New Hebrides, "Nav. Med. Sch. Ser. no. 18," numbers 23 and 22 respectively, collected by Jean Laffoon, in the United States National Museum. Paratypes, females: one Espiritu Santo, Sept. 1944 (K. L. Knight), in United States National Museum; two, Espiritu Santo, Segond Channel, Sept. 1943 (J. Laffoon), in Bishop Museum.

Mr. Laffoon informs me that the notebook numbers indicate that the specimens were collected about one mile north of Segond Channel in a coconut grove, on September 29 (no. 23) and September 26-27 (no. 22), 1943.

4. *Euxesta pruinosa* Malloch, B. P. Bishop Mus., Bull. 98: 210, 1932. Marquesas Islands: Hivaoa, Mohotani, Eiao, seashore.

5. *Euxesta quadrivittata* (Macquart).

*Urophora quadrivittata* Macquart, Hist. nat. Dipt. 2: 456, 1835.

*Euxesta quadrivittata* (Macquart) Knab, Brooklyn Ent. Soc., Bull. 11: 44, 1916.—Bezzi, Diptera Brachycera and Athericera of the Fiji Islands, 88, 1928.

*Euxesta annonae* Loew (not Fabricius), Berliner ent. Zeitschrift 11: 305, pl. 2, fig. 13, 1867.—Loew, Smithsonian Misc. Coll. 256 (Monogr. N. Am. Dipt. 3) 11 (3): 162, pl. 9, fig. 13, (1873) 1874.—Grimshaw, Fauna Hawaiiensis 3: 44, 1901.—Hendel, Mus. Nat. Hungarici, Ann. 7: 155, 1909; Genera Insectorum 106: 26, 1910.—Severin and Hartung, Jour. Econ. Ent. 5: 448, 1912.—Curran, Am. Mus. Novitates 812: 11, 1935. Also a number of other American references.

*Euxesta exilis* Knab, Brooklyn Ent. Soc., Bull. 11: 45, 1916. *New synonym.*

This species is abundant in tropical and subtropical America. Grimshaw, apparently, first reported it from an extra-American locality, Hawaii; and Bezzi reported it from Fiji. My examination of the types of *E. exilis*, from the Philippine Islands, leads me to consider them as imperfectly colored specimens of the present species. The type of wing coloration exhibited by Knab's material (and figured by him) is of frequent occurrence in Otitidae with blackish wing markings. I have also seen the species from Guam.

Genus **Neoeuxesta** Malloch

## KEY TO THE KNOWN SPECIES OF NEOEUXESTA

- 1 (2). Anterior cross vein distinctly basad of middle of discal cell; a small dark spot present below stigma; apical wing spot extensive, ill-defined ..... **N. fumicosta** Malloch.
- 2 (1). Anterior cross vein at middle of discal cell; no spot present below stigma; apical spot less extensive, well-defined (fig. 1, *d*) ..... **N. guamana**, new species.

**6. Neoeuxesta fumicosta** Malloch, *Insects of Samoa* 6 (5) : 218, 1930.

Terzi's excellent figure of the wing of this species, which accompanies the description, should make recognition easy. The type is a male captured on Upolu, Samoa, at 2,000 feet.

**7. Neoeuxesta guamana**, new species (fig. 1, *d*).

Male and female. General color shining black, pruinose only on face (lightly below and on clypeus) and before scutellum (very lightly). Brassy and greenish reflections on thorax, and bluish or purplish reflections on legs and abdomen.

Frons with numerous coarse hairs. Cheeks a little less than one-fifth total head height, light brown in color. Palpi yellow. Antennae with oval third segment, which is dark brown in color and nearly 1.5 times as long as wide.

Thoracic chaetotaxy as in *Luxesta laffooni* (described above).

Legs black, with fore coxae, all knees, basal half of fore basitarsi and entire middle and hind basitarsi yellowish. Apical segments of middle and hind tarsi brownish.

Wings pale brownish hyaline. Venation and dark brown markings as in figure 1, *d*. Costal cell yellow. First vein with numerous distinct setulae on dorsal surface as far basad as level of tip of subcostal vein. Squamae, their cilia, and halteres pale yellowish.

Entire abdomen black, furnished with coarse black hairs.

Length of body, 4.0 to 4.5 mm.; length of wing, 3.8 mm.

Holotype female and allotype: Point Oca, Guam, Marianas Islands, May 21, 1945, dead mollusks (G. E. Bohart, J. L. Gressitt), in Bishop Museum. Paratypes: one male, same data as holotype, in my collection; one male and one female, Ritidian, Guam, January 1946 (Gressitt), in United States National Museum; two males and four females, Point Oca, Guam, May 1945 (Bohart and Gressitt), in United States National Museum.

Genus **Notogramma** Loew**8. Notogramma stigma** (Fabricius).

*Musca stigma* Fabricius, *Ent. Syst.*, suppl. 563, 1798.

*Notogramma stigma* (Fabricius) Loew, Smithsonian Misc. Coll. 256 (Monogr. N. Am. Dipt. 3) 11 (3): 148, pl. 9, fig. 5, (1873) 1874.—Hendel, Genera Insectorum 106: 60, pl. 3, figs. 73-75, 1910.—Severin and Hartung, Jour. Econ. Ent. 5: 448, 1912.—Knab, Brooklyn Ent. Soc., Bull. 11: 41, 1916.—Swezey, B. P. Bishop Mus., Bull. 189: 199, 1946.

*Dacus obtusus* Fabricius, Syst. Antl., 278, 1805.

*Notogramma cimiciformis* Loew, Berliner ent. Zeitschrift 11: 289, pl. 2, fig. 3, 1867; Smithsonian Misc. Coll. 256 (Monogr. N. Am. Dipt. 3) 11 (3): 148, (1873) 1874 (synonymy).

This species, which should be easily recognized by the characters cited in the generic key, is another that was described from the American tropics. It has been recorded in the Australasian regions from the Philippine Islands, Hawaii, and Guam.

#### Genus *Perissoneura* Malloch

9. *Perissoneura diversipennis* Malloch, B. P. Bishop Mus. Bull. 98: 207, fig. 48, 1932.

Marquesas Islands. The wing markings and the spur on the fourth vein are very distinctive.

#### Genus *Physiphora* Fallén (*Chrysomyza* Fallén)<sup>1</sup>

All of our species have whitish or yellowish fore basitarsi.

#### KEY TO AUSTRALASIAN SPECIES OF PHYSIPHORA

- 1 (4). Head wholly or largely reddish yellow; mesonotum finely shagreened.
- 2 (3). Prelabrum and middle of epistoma blackish; first posterior cell petiolate.....*P. aenea* Fabricius.
- 3 (2). Prelabrum and face wholly yellowish; first posterior cell closed at margin or narrowly open (generitype; not yet known from Australasian regions).....(*P. demandata* [Fallén]).
- 4 (1). Head wholly black, with bluish or violet glint; mesonotum polished.
- 5 (6). First posterior cell nearly closed; third antennal segment at least twice as long as broad; face with inverted Y-shaped pruinose configuration or three elongated pruinose spots in an inverted-T arrangement below lunula.....*P. longicornis* (Hendel).
- 6 (5). First posterior cell broadly open; third antennal segment 1.5 times as long as broad; no pruinosity on face below lunula.....*P. aperta*, new species.

<sup>1</sup> *Chrysomyza* was proposed to replace *Physiphora*, which was supposedly preoccupied by *Physiphora* Förskål.



**10. *Physiphora aenea* (Fabricius).**

*Musca aenea* Fabricius, Syst. Ent. 4: 335, 1794.

*Chrysomyza aenea* (Fabricius) Hendel, Zool. Anzeiger 34: 614, 1909; Genera Insectorum 106: 6, 21, 1910.—Knab, Brooklyn Ent. Soc., Bull. 11: 42, 1916. Also many less important references.

*Physiphora (Cliochloria) aenea* (Fabricius) Hennig, Ent. Beihefte 8: 117, 1941.

This species is apparently abundant in all tropical and subtropical regions. In the Australasian regions it is known from India, Java, Sumatra, Borneo, New Guinea (Nadzab, Hollandia), Australia (New South Wales, Queensland, Northern Territory), New Caledonia (Noumea), New Hebrides (Espiritu Santo), Solomon Islands (Bougainville, Florida, Guadalcanal), Philippine Islands (Luzon, Leyte, Palawan), Formosa, Samoa, Marshall Islands (Majuro, Likiep), Marianas Islands (Guam: Point Oca, Point Ritidian, Agana), Hawaiian Islands.

**11. *Physiphora aperta*, new species (fig. 1, *a, b*).**

Male and female. Color shining blue black with purplish and some aeneous reflections, except fore basitarsi (whitish), entire middle and hind tarsi (yellow), frons (dark brown or piceous in some specimens), and antennae (yellowish basally, third segment dark brown to black; arista yellowish basally). Wings hyaline with yellowish veins, except close to base, where veins and a small amount of membrane are blackish. Squamae and their fringes and halteres white.

On each frontal orbit midway between ocelli and anterior margin is a small white-pruinose spot and there is a stripe of grayish pruinosity in the bottom of the shallow antennal grooves.

Mesonotum with a fine and delicate areolation posteromedianly. Apparent ultimate abdominal tergite of male dull, owing to fine rugulosity.

Chaetotaxy not obviously different from that of *P. aenea*. All bristles and hairs black, except on fore basitarsi and plantar surface of hind basitarsi, where they are yellowish. Lower surface of scutellum bare, lacking tomentum. First abdominal tergite with many short hairs laterally and second tergite with anterolateral patches of rather long hairs.

Antennae with third segment 1.5 times as long as wide.

Eye pattern (from specimens relaxed a few weeks after capture) as in figure 1, *b*, the dark areas of figure dark purple dorsally, becoming greenish ventrally, the pale areas bluish green.

Wing venation as in figure 1, *a*.

Second abdominal tergite of female with a dull round spot on each side midway between meson and lateral margin at some distance from posterior margin.

Length of body, 4 to 5 mm.; length of wing, 3.7 to 4.3 mm.

Holotype male, allotype, and eight paratypes: Guadalcanal, Solomon Islands, 1944 (Clifford O. Berg); holotype, allotype, and two paratypes in collection of Bishop Museum; two paratypes in my collection; and four paratypes in Clifford O. Berg's collection. Two paratypes, Lunga River Valley, Guadalcanal, September and October 1944, collected by Jean L. Laffoon, in the United States National Museum.

A pair of spots on the second tergite of the female, similar to those described above, is also present in *P. aenea*, but situated much farther laterad.

**12. *Physiphora longicornis* (Hendel).**

*Chrysomyza longicornis* Hendel, Zool. Anzeiger 34: 621, 1909; Genera Insectorum 106: 22, 1910; Ent. Mitteil. 2 (2): 35, 1913.

*Physiphora (Physiphora) longicornis* (Hendel) Hennig, Ent. Beihefte 8: 117, 1941.

Hendel described this form from Formosa and Ceylon, without more definite locality data. The above citations give a number of Formosan localities, but the Ceylon data seem never to have been published. I have examined specimens in the United States National Museum determined by Hendel from Kankau; Formosa; and Trincomali [Trincomalee], Ceylon; this latter a male collected by Lieutenant Colonel Yerbury on August 10, 1890.

Genus ***Pseudeuxesta*** Hendel

**13. *Pseudeuxesta prima* (Osten-Sacken).**

*Euxesta prima* Osten-Sacken, Mus. Civ. Stor. Nat. Genova, Ann. 16: 470, 1881.—Kertész, Termész. Füzetek 22: 188, 1899.

*Pseudeuxesta prima* (Osten-Sacken) Hendel, Genera Insectorum 106: 30, pl. 2, figs. 27-28, 1910.—Malloch, Linnean Soc. New South Wales, Proc. 64: 98, 1939; Ann. Mag. Nat. Hist. XI, 6: 67, 1940.

*Euxesta semifasciata* Malloch, Insects of Samoa 6 (5): 216, fig. 1, 1930.—Hendel, Verh. zool. bot. Ges. Wien 81: 4, 1931 (synonymy).—Malloch, B. P. Bishop Mus., Bull. 98: 208, 1932 (synonymy).

This is an abundant species described from Celebes and since recorded or seen by me from the Seychelles, Ceram, New Guinea, the Solomon Islands (Tulagi, Russell, New Georgia, Guadalcanal), the Palau Islands, the Truk Islands (Moen), the Marshall Islands (Majuro, Jaluit, Kwajalein), the Marianas Islands (Guam), and the Hawaiian Islands (Honolulu).