A REVIEW OF THE FRUIT FLY TRIBE TEPHRELLINI (DIPTERA: TEPHRITIDAE: TEPHRITINAE) IN THE INDO-AUSTRALIAN REGION

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Abstract

Eight genera and 17 species of Indo-Australian Tephritidae are placed in the tribe Tephrellini. *Pristaciura* Hendel and *Indaciura* Hering are removed from synonymy with *Oxyaciura* Hendel and *Indaciura* is placed as a new synonym of *Pristaciura*, resulting in three new combinations: *P. formosae* (Hendel), *P. monochaeta* (Bezzi) and *P. xanthotricha* (Bezzi). *Pristaciura incisa* Hendel, stat. rev. is removed from synonymy with *P. xanthotricha*, with which it has been widely confused. A key to the genera is included.

Introduction

The fruit fly tribe Tephrellini is a primarily Afrotropical group of generally black flies with extensively black-patterned wings (Hancock 1990, 1991, Hancock *et al.* 2003). They are only moderately represented in the Palaearctic, Oriental and Indo-Australian regions. The six groups of genera recognised by Hancock (1990) were condensed to three groups by Hancock *et al.* (2003), reflecting their host plant preferences of Acanthaceae, Lamiaceae or Verbenaceae. Only the *Metasphenisca* and *Sphaeniscus* groups occur in the Indo-Australian region; the Verbenaceae-feeding *Munroella* group is entirely Afrotropical. Eight genera and 17 species (one undescribed) are known from the region.

Key to Indo-Australian genera

1 Wing with only one hyaline indentation from costa beyond stigma [cell sc]; two pairs each of frontal and scutellar setae ..... *Sphaeniscus* Becker

\- Wing with two hyaline indentations from costa beyond stigma; three (or more) pairs of frontal setae and one or two pairs of scutellar setae 2

2 Two pairs of scutellar setae (apicals and basals) 3

\- One pair of scutellar setae (basals only) 4

3 Wing base with a narrow, complete dark costal band connecting with the dark stigma; discal cell without isolated hyaline spots, at most with small posterior indentations ..... *Metasphenisca* Hendel

\- Wing base hyaline without a dark costal band; discal cell with two large, rounded hyaline spots ..... *Pediapelta* Munro

4 Wing with three narrow posterior hyaline indentations, the basal pair extending weakly into discal cell; cell r_{4+5} without a large isolated hyaline spot beyond apex of discal cell ..... *Tephraciura* Hering

\- Wing with posterior hyaline indentations not entering discal cell; cell r_{4+5} with a large isolated hyaline spot beyond apex of discal cell 5

5 Wing base largely dark, normally with a hyaline indentation across cell c and base of cell r_1; discal cell with one large isolated hyaline spot near apex; frons with thick, pale pubescence 6

- Wing base largely hyaline, at most with cell bc darkened or with a short, isolated costal band; discal cell normally with two isolated hyaline spots; frons without thick, pale pubescence 7

6 Two pairs of orbital setae ..... *Curticella* Hardy

- Only one pair of orbital setae ..... *Pristaciura* Hendel

7 Wing base with a dark costal spot at apex of cell bc; four posterior hyaline indentations ..... *Tephrella* Bezzi

- Wing base with cell bc darkened or with a short, isolated costal band; three posterior hyaline indentations 8

8 Wing base with cell bc darkened; two pairs of orbital setae; ocellar setae well developed ..... *Aciura* Robineau-Desvoidy

- Wing base with a narrow costal band over cell bc and basal half of cell c, separated from stigma by a hyaline gap; only one pair of orbital setae; ocellar setae vestigial ..... *Oxyaciura* Hendel*

* Not yet recorded but *Oxyaciura tibialis* (Robineau-Desvoidy) is known as far east as Afghanistan and NW China (Xinjiang) and might occur within the region.

The Indo-Australian fauna

Metasphenisca group of genera

Host plants are the flowerheads or seedpods of Acanthaceae.

Metasphenisca Hendel

Metasphenisca nigricans (Wiedemann) [= *bifaria* (Munro)] is known from southern India (Hancock 2007) and Sri Lanka (Hering 1956). It has only two hyaline indentations on the posterior margin of the wing, has been bred from the pods of *Barleria* sp. (Munro 1947) and was illustrated by Munro (1947).

Metasphenisca reinhardi (Wiedemann) [= *malayana* Hering] is known from Pakistan, India, Sri Lanka, Burma, Thailand and Cambodia. It has three hyaline indentations on the posterior margin of the wing and was illustrated by Munro (1947) and Hardy (1973).

Tephraciura Hering

Tephraciura basimacula (Bezzi) [= *basivitta* Hering] is known from southern India, including the Lakshadweep Islands, and Sri Lanka. The legs are mostly black. Illustrated by Hering (1951).

Tephraciura pachmarica Agarwal & Kapoor is known from central India. The legs are mostly yellow. Illustrated by Agarwal and Kapoor (1988).

Sphaeniscus group of genera

Host plants are the flowerheads of Lamiaceae.

Aciura Robineau-Desvoidy

Aciura afghana (Hering) [= *kashmirica* Zaka-ur-Rab] is known from NE Afghanistan and Kashmir, NW India (Hancock and McGuire 2002). It has pale postocular setae. Illustrated by Hering (1961) and Zaka-ur-Rab (1977).

Curticella Hardy

Curticella approximans (Walker) is known from Sulawesi and West Papua in Indonesia, mainland Papua New Guinea and Deslacs Island in the Bismarck Archipelago. All head setae are dark and the third antennal segment is comparatively elongate, four to five times longer than wide. Illustrated by Hardy (1959, 1987).

Hendel (1915: 460) noted only 1 pair of orbital setae for *C. approximans* and 2 pairs for '*Aciura*' *formosae* Hendel, presumably a *lapsus* as these species have 2 and 1 pair of orbital setae respectively. This species differs little from those placed in *Pristaciura* and the two genera are possibly synonymous.

Pediapelta Munro

Pediapelta ternaria (Loew) is an African species known in the Indo-Australian region from a single specimen from SE Queensland, Australia (Hancock and Drew 2003), where it appears to have been accidentally introduced. It has dark postocular setae and four posterior hyaline indentations on the wing. Collected on *Ocimum suave* in Africa (Munro 1947) and illustrated by Munro (1947) and Hancock and Drew (2003).

This and other African species currently included in *Pediapelta* Munro (see Munro 1947, Hancock *et al.* 2003) differ from the genotype (*P. spadicescens* Munro) in significant wing characters. In *P. spadicescens* the wing base is infuscated and cell c has a dark costal patch medially, while the large hyaline spot in cell r_{4+5} lies before, not beyond, the apex of the discal cell. These characters suggest that all other species are currently misplaced and, as Munro (1947) suggested, show a greater affinity with those placed in *Dicheniotes* Munro. However, pending further study the current arrangement is maintained.

Pristaciura Hendel, stat. rev.

Indaciura Hering is regarded here as a new synonym of *Pristaciura*; the relationship of its type species, *Aciura formosae* Hendel, with *Pristaciura incisa* Hendel and '*Oxyaciura*' *monochaeta* (Bezzi) was discussed by Hancock (1990), who placed all three species in *Oxyaciura* Hendel. However, the type species of *Oxyaciura*, *O. tibialis*, has a mostly hyaline wing base (with a short, isolated costal band) and a strongly angled apex to cell bcu; it appears to be more closely related to species placed in *Aciura*, differing in the single pair of orbital setae and vestigial ocellar setae.

In *Pristaciura* (and *Curticella*) the lateral vertical setae are weak or vestigial, the ocellar setae are weak but distinct, the frontal pubescence is thick and pale (thin and dark in *Oxyaciura* and its allies) and wing cell bcu is weakly angled apically. Accordingly, *Pristaciura* is reinstated as a valid genus to include five Indo-Australian species, with *Curticella* as its closest ally.

Pristaciura formosae (Hendel), **comb. n.** is known from Taiwan and the Ryukyu Islands, Japan. It has the postocellar, paravertical and uppermost occipital seta flattened and whitish, the postocular setae thin and black and four posterior hyaline indentations on the wing; the first, in the middle of cell cu_1, is short and almost at right angles to the cell; the third, basally in cell m, is relatively narrow and almost perpendicular. Illustrated by Shiraki (1968). Formerly placed in *Oxyaciura* and type species of *Indaciura*.

Pristaciura incisa Hendel, **stat. rev.** is known from Sri Lanka, southern India, southern Thailand, Vietnam, SE China (Hainan) and Java in Indonesia. It differs from *P. formosae* in having only three posterior hyaline indentations on the wing, that in the middle of cell cu_1 long and oblique. From both *P. formosae* and *P. xanthotricha* (see below) it differs in having the postocular setae also flattened and whitish and the posterior hyaline indentations broader, with that in cell m distinctly curved posteriorly. Originally described from Sri Lanka (Hendel 1928) and illustrated by Hardy (1973) and Wang (1998) [both as *P. xanthotricha*]. Formerly placed as a synonym of *P. xanthotricha* and type species of *Pristaciura*.

Pristaciura monochaeta (Bezzi), **comb. n.** is known from northern India and Nepal; a record from Sri Lanka (Hardy 1971) is based on a headless male and requires confirmation [*cf. P. incisa*, above]. A record from SW China (Wang 1998) belongs elsewhere (see below). All the head setae are black and narrow and there are three posterior hyaline indentations on the wing, that in the middle of cell cu_1 long and oblique and that in cell m distinctly curved. Illustrated by Bezzi (1913) and Hardy (1964). Formerly placed in *Oxyaciura*.

Pristaciura xanthotricha (Bezzi), **comb. n.** is known with certainty only from the types from northern India and southern Burma; other records appear to be misidentifications of *P. incisa*. It resembles *P. formosae* in having the postocellar, paravertical and uppermost occipital seta flattened and whitish and the postocular setae thin and black, and the posterior hyaline indentations on the wing relatively narrow, that in cell m almost perpendicular (see Bezzi 1913). It differs from *P. formosae* in having the basal hyaline indentation in cells c and r_1 narrow or absent and only three posterior hyaline indentations on the wing, that in the middle of cell cu_1 long and oblique. Illustrated by Bezzi (1913). Formerly placed in *Oxyaciura* or *Indaciura*.

An additional, undescribed species is known from southern China (Yunnan and Hong Kong), characterised by the following combination of characters: head setae as in *P. xanthotricha*; three posterior hyaline indentations on

the wing, that in cell m distinctly curved, that in the middle of cell cu_1 short and perpendicular; basal hyaline indentation in cells c and r_1 weak or absent; alula brown. Illustrated by Wang (1998, as '*Oxyaciura*' *monochaeta*).

Sphaeniscus Becker

Sphaeniscus atilius (Walker) is widespread in Southeast Asia from India to Japan and East Timor and in the Pacific, including New Guinea, Australia and New Caledonia. It has four posterior hyaline indentations on the wing and no isolated discal spots. It breeds in *Hyptis capitata* in Malaysia (Hardy 1955) and *Perilla frutescens* in eastern Asia (Wang 1998) and was illustrated by Hardy (1973, 1987) and Wang (1998).

Sphaeniscus binoculatus (Bezzi) is known only from Fiji, where it breeds in *Coleus blumei* (Hancock and Drew 1994). It resembles *S. atilius* but has the inner and outer of the four posterior hyaline indentations on the wing interrupted to produce a pair of large, isolated discal spots. Illustrated by Bezzi (1928) and Hardy (1955).

Sphaeniscus melanotrichotus Hering is known only from Sri Lanka. It resembles *S. atilius* but has the basal half of the hind tibiae black, not yellow and the basal dark transverse band on the wing is broader, occupying most of cell c rather than just the apical half. Illustrated by Hering (1956).

Sphaeniscus quadrincisus (Wiedemann) is known from Taiwan, India, Sri Lanka, Thailand, Vietnam and Java in Indonesia. It has only three posterior hyaline indentations on the wing. Collected on *Ocimum* sp. in Thailand (Hancock and McGuire 2002) and illustrated by Hardy (1973, 1987).

Tephrella Bezzi

Tephrella decipiens Bezzi is known only from NE India and Burma. It has pale postocular setae and was illustrated by Bezzi (1913) and Munro (1947). Only females have been recorded.

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