



## A new species of *Streothrips* (Thysanoptera: Aeolothripidae) from Malaysia, with description of male and key to species

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### Abstract

*Streothrips moundi* sp. n. is described from Malaysia based on both sexes, and a key is provided to the three known species of this Asian genus. This is the first record of any Aeolothripidae from Malaysia, and the first description of a male *Streothrips*. The male has a pair of tubercles on the posterolateral angles of the seventh abdominal segment, unlike any other recorded male in the Aeolothripidae.

**Key words:** *Streothrips moundi*, new species, male description, Aeolothripinae, Malaysia

### Introduction

The distribution of the Thysanoptera family Aeolothripidae is uneven, with most species confined to the northern temperate zone and relatively few known from Southeastern Asia. This family comprises about 200 species placed in 28 genera (Mound, 2011). *Aeolothrips* is the largest genus, with 96 species that live mainly in flowers and are almost entirely Holarctic, and in Australia a rather similar genus, *Desmothrips*, includes 18 endemic species. In contrast, *Franklinothrips* is found worldwide, and comprises 16 predatory species with important potential as biological control agents (Araraki & Okajima, 1998; Mound & Reynaud, 2005; Pizzol et al., 2008) (Table 1). In Southeastern Asia, only a few species of Aeolothripidae are recorded: two from the Philippines (*Franklinothrips rarosae* and *Streothrips alaris*), one from Indonesia (*Mymarothrips bicolor*), one from Taiwan (*Franklinothrips suzukii*), and one from Thailand (*Franklinothrips vespiformis*). This paper records the first member of the family Aeolothripidae from Malaysia.

The genus *Streothrips* was erected by Bhatti (1971) for the single species *Aeolothrips arorai*, because the metanotal sculpture comprises rows of fine U-shaped transverse striations. This species is known only from India. Similar metanotal sculpture occurs in the single species of the genus *Aduncothrips*, but that has the forewing with a longitudinal dark area, pale at base and apex, the antennal sensoria unusually elongate, and the third maxillary palp segment multi-segmented (L.A. Mound, per comm. 2011). Reyes (1994) described a second species of *Streothrips* from the Philippines, *S. alaris*, and here we describe a third species in the genus and provide for the first time a description of a male in this genus. This male has a pair of posterolateral tubercles on the eighth abdominal segment (Fig. 12), unlike anything previously recorded for any species of Aeolothripidae. The new species is named in recognition of the encouragement provided by Laurence Mound in developing the taxonomy of Thysanoptera in Malaysia.

### Key to *Streothrips* species

1. Forewing including apex dark, medially with small transverse pale band, also pale at extreme base and part of clavus . . . *alis*
- Forewing with apex pale, with transverse dark and pale bands (Fig. 7) . . . . . 2
2. Female antennal segment IV with linear sensorium wider apically, 0.6 times as long as segment length; abdominal sternite VI with one pair of discal setae laterally . . . . . *arorai*
- Female antennal segment IV with linear sensorium not wider apically, 0.4 time as long as segment length (Figs. 14 & 15); abdominal sternite VI without discal setae (Fig. 8) . . . . . *moundi* sp. n.

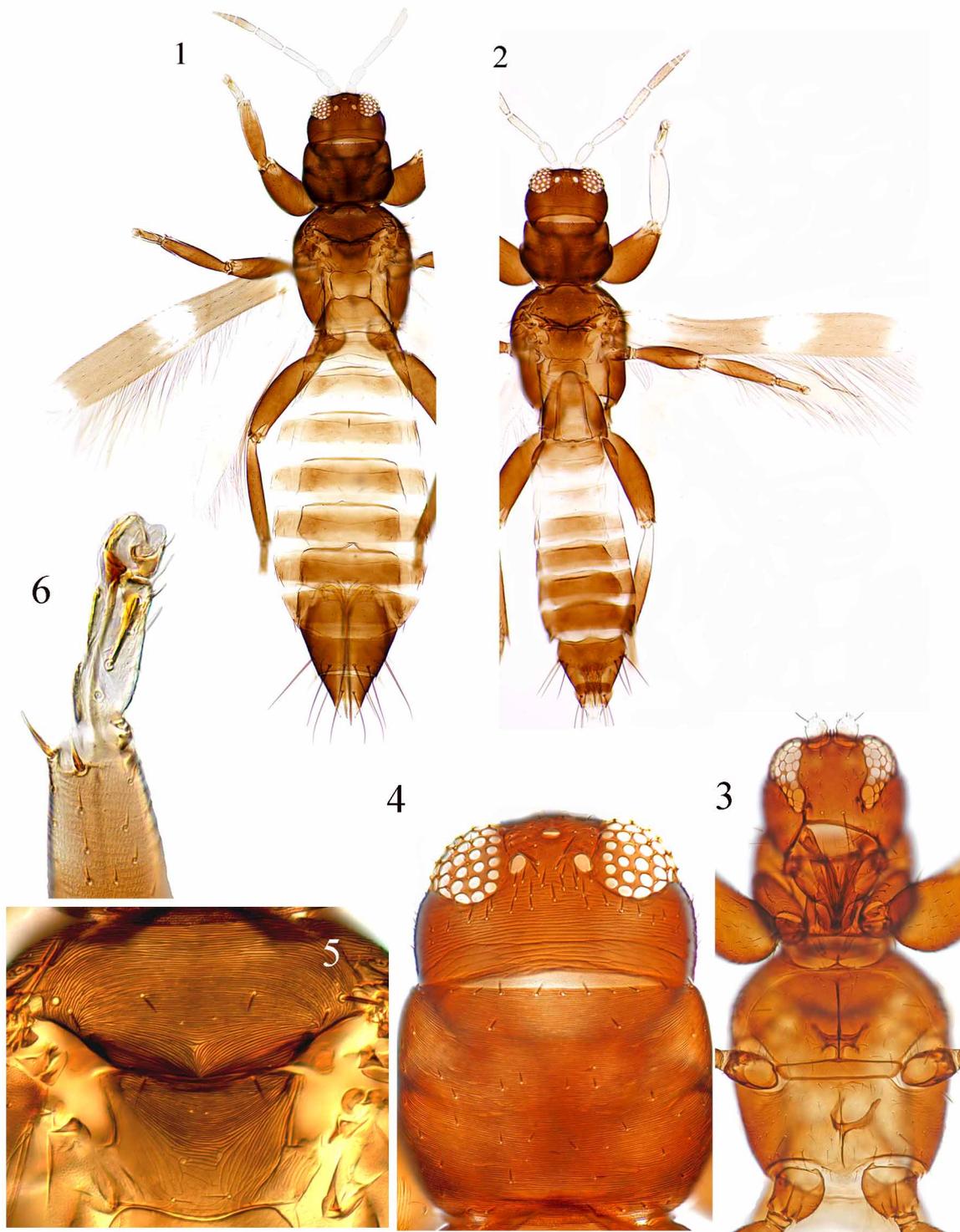
**TABLE 1.** World distribution of Aeolothripidae (Thysanoptera).

No	Genus	No of species	Distribution
1	<i>Aeolothrips</i> Haliday, 1836	96	Mainly Holarctic (India 4 species, Africa 5 species)
2	<i>Aduncothrips</i> Ananthakrishnan, 1963	1	Oriental (India)
3	<i>Allelothrips</i> Bagnall, 1932	7	Afrotropical, Oriental (India)
4	<i>Andrewarthaia</i> Mound, 1967	1	Australia
5	<i>Audiothrips</i> Moulton, 1930	2	Afrotropical
6	<i>Corynothripoides</i> Bagnall, 1926	1	Afrotropical
7	<i>Cretothrips</i> Grimaldi, 2004	1	Fossil
8	<i>Cycadothrips</i> Mound, 1991	3	Australia
9	<i>Dactuliothrips</i> Moulton, 1931	6	Nearctic (USA); Neotropical (Argentina)
10	<i>Desmidothrips</i> Mound, 1977	2	Australia, New Caledonia, New Zealand
11	<i>Desmothrips</i> Hood, 1915	18	Australia
12	<i>Erythridothrips</i> Mound & Marullo, 1993	1	Australia
13	<i>Erythrothrips</i> Moulton, 1911	12	Holarctic (USA); Neotropical (Argentina)
14	<i>Euceratothrips</i> Hood, 1936	1	Neotropical (Peru)
15	<i>Franklinothrips</i> Back, 1912	16	Pantropical
16	<i>Gelothrips</i> Bhatti, 1967	3	Australia; Oriental (India); Neotropical (Argentina, Chile)
17	<i>Indothrips</i> Bhatti, 1967	1	Oriental (India, Iran)
18	<i>Lamprothrips</i> Moulton, 1935	1	Australia
19	<i>Lithadothrips</i> Scudder, 1875	1	Fossil
20	<i>Mymarothrips</i> Bagnall, 1928	3	Australia; Oriental (Indonesia, India); Afrotropical
21	<i>Orothrips</i> Moulton, 1907	3	Holarctic (U.S.A., Spain); Oriental (India)
22	<i>Palaeothrips</i> Scudder, 1875	1	Fossil
23	<i>Permothrips</i> Martynov, 1935	1	Fossil
24	<i>Rhipidothripiella</i> Bagnall, 1932	1	Afrotropical
25	<i>Rhipidothripoides</i> Bagnall, 1923	2	Fossil
26	<i>Rhipidothrips</i> Uzel, 1895	6	Palaeartic
27	<i>Stomatothrips</i> Hood, 1912	8	Neotropical; Nearctic
28	<i>Streothrips</i> Bhatti, 1971	3	Oriental (India, Philippines, Malaysia)
	<b>Total number of described species</b>	202	

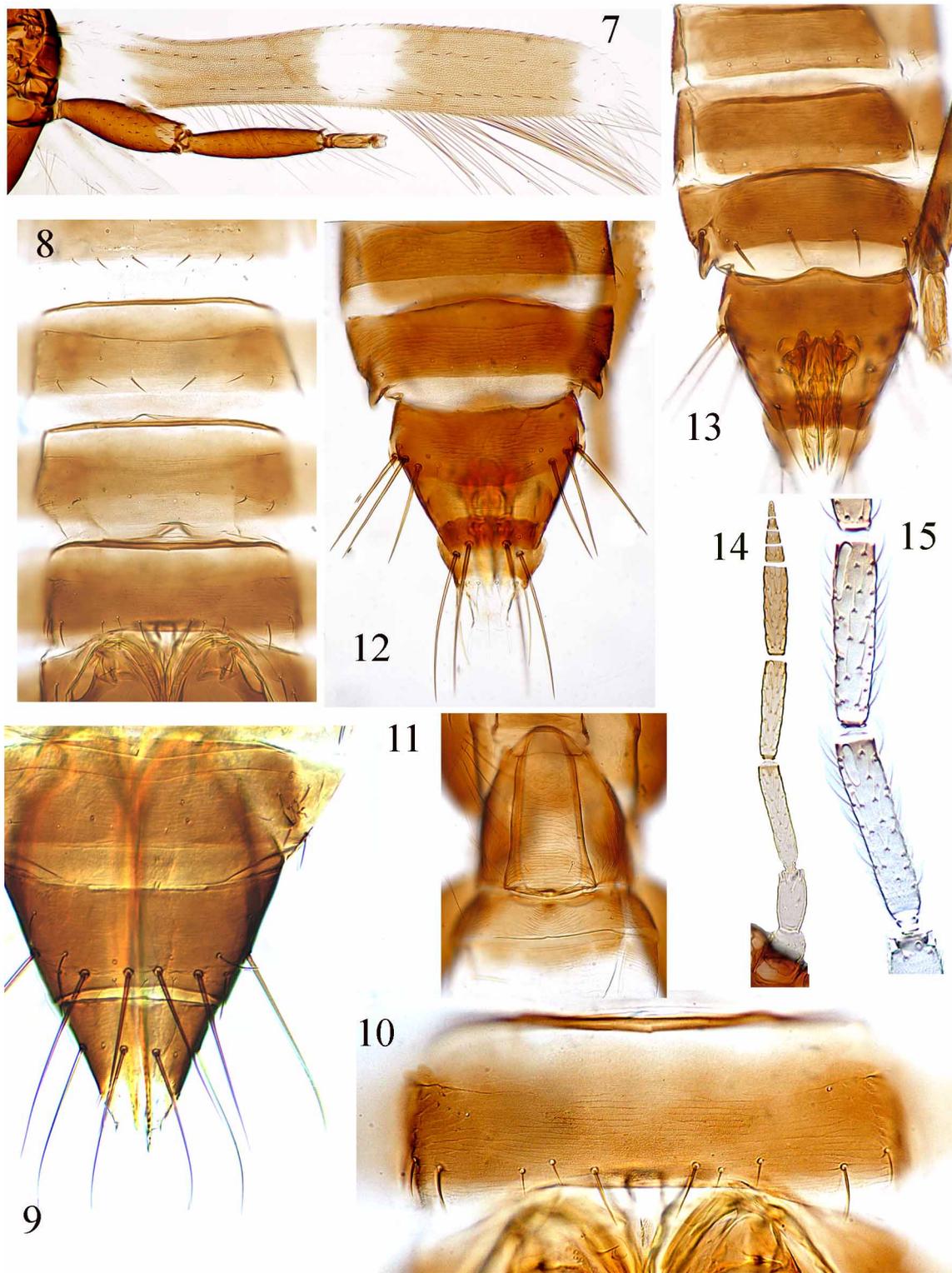
***Streothrips moudi* sp. n.**

*Female macroptera.* Body bicolored (Fig. 1), head, pro-, meso- and metanotum uniformly brown, abdomen bicolored, segments I–II, XI–X uniformly brown, III–VIII paler. Antennae segments I–IV pale, segment V brown slightly pale at extreme base, segments VI–IX brown; fore tarsi pale, mid and hind tarsi brown, all tibiae and femora brown except hind tibiae slightly paler at extreme base; forewing dark at extreme base, with two transverse dark bands. Head rounded (Fig. 4), cheeks evenly convex, head wider than long with irregular transverse striations, posterior margin with transverse striations irregular and widely separated; pre-ocellar area with a few weak tuberculate striations and about 16 pre-ocellar setae, ocellar triangle smooth with one pair of setae slightly longer than an ocellus arising between hind ocelli, post-ocellar area with at least 30 setae; eyes prolonged ventrally with posterior facets large (Fig. 3); maxillary palps 3-segmented. Holotype right antenna aberrant with 8 segments; left antenna 9-segmented, segments III–IV with linear sensorium (Fig. 15), on segment IV not wider apically, about 0.4 times as long as length of segment. Pronotum with closely spaced transverse striations, with about 20 discal setae

but no major setae (Fig. 4); mesonotum sculpture similar to pronotum, with a pair of median setae widely separated; metanotum with sculpture on anterior half similar to pronotum but forming U-shaped pattern (Fig. 5), posterior half with a few irregular striations medially; mesosternum and metasternum with well developed spinula. Abdominal tergites gradually wider towards posterior; tergite I with few striations on anterior, II–X with transverse striations, III–VII with paired campaniform sensilla anterior to median setae. Sternite II with 2 pairs of posteromarginal setae, III–VII with 3 pairs (Fig. 8); sternite VII with 2 pairs of sub-median accessory setae (Fig. 10); all abdominal sternites without discal setae, sternite VII with pair of small campaniform sensilla antero-laterally.



**FIGURES 1–6.** *Streothrips moundi*: (1) Female; (2) Male; (3) Female head and thorax (ventral); (4) Female head and pronotum; (5) Female meso- and metanotum; (6) Female right fore tarsus.



**FIGURES 7–15.** *Streothrips moundi*: (7) Male right forewing; (8) Female abdominal sternites IV–VII; (9) Female abdominal tergites VIII–X; (10) Female abdominal sternite VII; (11) Male abdominal tergites I–II; (12) Male abdominal tergites VII–X; (13) Male abdominal sternites VI–X; (14) Male left antenna; (15) Female right antennal segments III–IV.

**Measurements** (holotype female in microns). Body length 1950. Head, length 143; width across eyes 214; width across cheeks 242. Pronotum, length 193; width across pronotum 270. Left antennal segments I–IX length (sensorium length), 29, 61, 120 (35), 90 (38), 65, 20, 17, 15, 13.

*Male macroptera*. Body bicolored (Fig. 2), head, pro-, meso- and metanotum similar to female; abdominal segments bicolored, segments I–II and V–X uniformly brown, segments III–IV pale; antennae segments I–IV pale, IV slightly darker at apex, V–IX uniformly darker; fore tarsi pale, mid and hind tarsi brown; fore tibiae pale, mid tibiae brown, hind tibiae pale at basal one-third, all femora brown. Fore wing similar to female (Fig. 7). Structure generally similar to female, antennal segment V relatively longer. Abdominal tergite I about 1.15 times longer than wide (Fig. 11), with pair of longitudinal ridges; tergite II with U-shaped rows of striations medially; abdomen almost parallel-sided, smaller than female; tergite VIII with pair of tooth-like lobes posterolaterally (Fig. 12); tergite IX setae S1, S2 and S3 arising laterally (Fig. 12). Sternite VI with 3 pairs of posteromarginal setae, pairs I–II stout, sternite VIII with 4 pairs, pairs I–II stout and much longer than the others (Fig. 13); all abdominal sternites without discal setae.

**Measurements** (paratype male in microns). Body length 1340. Head, length 112; width across eyes 190; width across cheeks 200. Pronotum, length 150; width 210. Left antennal segments I–IX length (sensorium length), 29, 60, 100 (20), 92 (25), 80, 14, 12, 8, 15.

**Specimens studied.** Holotype female. **MALAYSIA**, Selangor, Hutan Simpan Kota Damansara, 5-7.vi.2011 (Nicholas, S. & Idris, A.B.) (in Centre for Insect Systematics (CIS), UKM, Malaysia). Paratype: 1 male collected with holotype (in CIS).

**Comments.** All three species of *Streothrips* have the basal antennal segments unusually pale, the first antennal segment of Aeolothripidae usually being as brown as the head. *S. arorai* is known only from the original brief description of a single female, and so comparisons with this new species are limited. However, Bhatti (1971) stated that the forewing pattern of *S. arorai* is similar to that of *Aeolothrips fasciatus*, whereas the dark bands are more extensive in the new species. Moreover, Bhatti (1967) provided for *arorai* the following measurements of antennal segments III–IV and their sensoria: 125 (45–46) and 112–113 (67–74); thus the sensoria are 0.36 as long as segment III, and more than 0.6 as long as segment IV. In contrast, the ratios for the new species are 0.2–0.3 on III and 0.3–0.4 on IV.

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