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Species of the genus *Allothrips* (Thysanoptera, Idolothripinae) from Southeast Asia, with one new species from Yunnan, China

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The new species of Phlaeothripidae described here was found breeding in the leaf litter under five unrelated tree species of the plant families Cupressaceae, Lauraceae, Magnoliaceae, Myrtaceae and Pinaceae at the Kunming City Arboretum, Yunnan, China. Species of the genus *Allothrips* feed on the spores of fungi on the surface of dead leaves and dead wood, and the adults are usually wingless (Mound 1972). A total of 24 taxa are currently listed within this genus, and bibliographic details for each of these is available on ThripsWiki (2019). In a revision of the genus worldwide, Mound (1972) recognized only four species, but with eight subspecies in the Eurasian *pillichellus*, and six subspecies in the North American *megacephalus*. Three of the subspecies of *megacephalus* were described from Australia, but were presumed to have been imported by human trading across the Pacific Ocean. Subsequently, Okajima and Urushihara (1997) described *expansus* from Thailand as a further subspecies of *megacephalus*.

In addition to the two polytypic species, Mound (1972) recognized two further species, *brasilianus* from southern Brazil and *nubillicauda* from North America. A single female from Taiwan was later described by Chen (1982) as *nubillicauda discolor*, but the character states given in the description do not distinguish this from North American specimens. A further species, *coanosetosus*, was described on a single female from Argentina by Berzosa (1990). The original illustrations of this species indicate that the position of the mid-dorsal setae on the head is unusual and similar only to that of *brasilianus*, but the setae on the ninth abdominal tergite are pointed not capitate, and the pelta lacks sculpture lines. Of the three other species described in this genus, *hamideae* from Australia is unique amongst *Allothrips* species in having the third antennal segment swollen into a basal flange (Mound 2007), and *magnus* and *taiwanus* are further considered below. The new species from southern China described here is considerably larger than most species of *Allothrips*, and it shares with *brasilianus* the anterior position of the mid-dorsal setae on the head.

Key to *Allothrips* species from Southeast Asia

[* Based on original descriptions]

1. Head laterally with many small capitate setae (Fig. 7) [USA, Taiwan] . . . . . *nubillicauda*
-. Head laterally with small acutely pointed setae (Fig. 8) 2
2. Head uniformly covered with strong reticulate sculpture; abdominal segments II–VIII brown but head, thorax and abdominal segments IX–X yellow [Taiwan] . . . . . *taiwanus**
-. No more than posterior third of head with reticulate sculpture; body colour different 3
3. Head with mid-dorsal setae arising on posterior half of head, far posterior to postocular setae, and usually capitate 4
-. Head with mid-dorsal setae arising on anterior half of head, between or a little posterior to a line joining the bases of the postocular setae, usually small and acute (Figs 1, 8) 5
4. Postocular setae longer than dorsal length of compound eyes; mid-dorsal head setae small and acute; antennal segments II–III each with 2 capitate setae [Thailand] . . . . . *magnus**
-. Postocular setae shorter than dorsal length of compound eyes; mid-dorsal setae strong and capitate; antennal segments II–IV each with 2 capitate setae [Thailand] . . . . . *expansus**
5. Head with lateral postocular setae capitate (Fig. 8); mesonotum of apterae with three pairs of capitate setae, two laterally and one sub-median; pelta anterior third with no sculpture; tergite IX setae S2 as capitate as setae S1; tube less than 1.8 times as long as basal width; tergite IX almost as brown as VIII; legs yellow but femora washed with light brown [Brazil, Hawaii, Japan] . . . . . *brasilianus*
- Head with lateral postocular setae pointed (Fig. 1); mesonotum of apterae usually with only the lateral pairs of setae capitate; pelta anterior third reticulate (Fig. 3); tergite IX setae S2 bluntly pointed to weakly capitate, in contrast to strongly capitate setae S1; tube 2.0 times as long as basal width; tergite IX yellow in contrast to VIII (Fig. 4); legs uniformly light brown [Yunnan] . . . . . *yunnanensis* **sp.n.**

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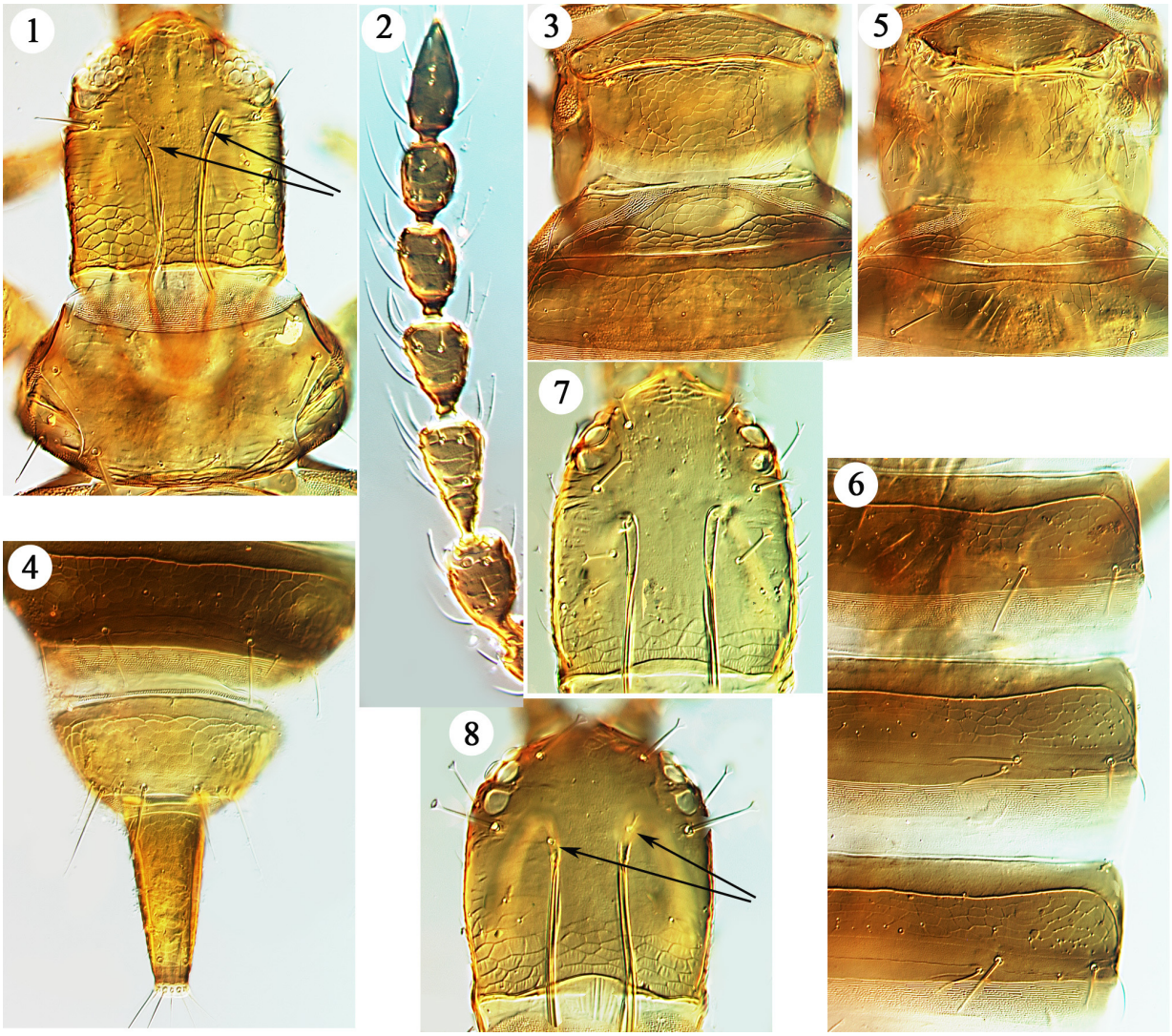
***Allothrips yunnanensis* sp.n. (Figs 1–6)**

Female aptera. Body legs and antennae brown with head and antennal segment III paler than the abdomen; abdominal segment IX yellow (Fig. 4), tube golden with grey terminal ring; major setae pale. Head projecting in front of eyes, with genae weakly concave, bearing small fine setae (Fig. 1); postocular setae long and capitate; postocellar setae shorter and capitate; mid-dorsal setae small and finely pointed, arising just posterior to a line between the bases of the postoculars; ocelli usually small; vertex without sculpture except reticulation on posterior third and in ocellar region; eyes ventrally with less than 10 facets, dorsally with at least 15 of which three posterolaterally are unusually large; maxillary stylets broad, retracted almost to level of eyes and less than one third of head width apart medially; maxillary palp segment II long with prominent terminal sensorium. Antennae 7-segmented (Fig. 2); setae pointed, except 2 pairs on II with apices blunt; 2 slender sense cones on each of III–V. Pronotum with 5 pairs of weakly capitate major setae; surface strongly reticulate only near posterior margin; notopleural sutures complete. Fore tarsus with no tooth. Prosternal basantra not developed although several chitinous islets are sometimes close together but not forming a discrete sclerite; ferna almost meeting medially; mesopresternum slender medially. Mesonotum reticulate, strongly transverse (Fig. 3), with 2 pairs of capitate setae laterally; marginal setae usually pointed, median marginal setae rarely weakly capitate. Metanotum reticulate, median setal pair wide apart, weakly capitate. Pelta almost complete across anterior margin of tergite II (Fig. 3), anterior third reticulate but less strongly so than posterior area. Tergites II–VII reticulate on anterior half, with transverse row of small fine setae, posterior margins with 2 pairs of capitate major setae; tergite IX setae S1 capitate, S2 pointed; tube almost twice as long as IX. Sternites II–VII with median transverse row of small fine setae, posteromarginal median setae long and pointed.



FIGURES 1–8. *Allothrips* species. *A. yunnanensis* **sp.n.** (aptera) 1–4: **(1)** head & pronotum (mid-dorsal setae indicated); **(2)** antenna; **(3)** mesonotum, metanotum, pelta & tergite II; **(4)** tergites VIII–X. *A. yunnanensis* **sp.n.** (macroptera) 5–6: **(5)** mesonotum, metanotum, pelta & tergite II; **(6)** tergites III–V. **(7)** *A. nubillicauda* head. **(8)** *A. brasilianus* head (mid-dorsal setae indicated).

Measurements (holotype in microns). Body length 2250. Head, length 250; maximum width 215; postocular setae 65; postocellar setae 30. Pronotum, length 150; width 280; major setae, anteromarginal 40, anteroangular 35, midlateral 50, epimeral 50, posteroangular 45. Tergite IX setae S1 80; setae S2 90. Tube length 180. Antennal segments III–VII length 70, 50, 50, 50, 70.

Female macroptera [only de-alates available]. Similar to aptera in colour and structure, including the number of compound eye facets, but differing in: ocelli well developed; meso and metanotum less transverse (Fig. 5); fore wing with 3 capitate sub-basal setae arranged in a triangle; tergites IV–VII (Fig. 6) each with one pair of weakly sigmoid wing-retaining setae (II–III with this pair of setae minute and straight).

Male aptera. Similar to female aptera except: compound eyes with about 8 facets dorsally and 4 ventrally; ocelli absent; fore tarsal tooth present; large male with fore femora swollen and tarsal tooth almost as long as tarsal width; sternites without pore plates.

Measurements (large paratype male in microns). Body length 2100. Head length 230. Tube length 175.

Specimens studied.

Holotype female aptera, **CHINA**, Yunnan, Kunming City, Arboretum, (N 25° 08' E 102° 43', 2006m asl), from leaf litter of *Pinus yunnanensis*, 10.iii.2011 (Jun Sun & Tao Li) in Yunnan Agricultural University, Kunming, China.

Paratypes, all from leaf litter and dead leaves at same site as holotype, between March and November 2011: 5 female apterae, 2 female macropterae collected with holotype; 3.iii.2011, 2 female apterae, 2 female macropterae from *Magnolia denudata*, 2 female apterae from *Cinnamomum camphora*; 21.iii.2011, 6 female apterae from *Pinus yunnanensis*; 25.iii.2011, 2 female apterae from *Sabina chinensis*; 14.iv.2011, 1 male aptera from *Eucalyptus*; 20.v.2011, 1 female aptera from *Cinnamomum camphora,* 2 female macropterae, 4 female apterae, 1 male aptera from *Pinus yunnanensis*; 14.vii.2011, 1 female macroptera from *Pinus yunnanensis*; 11.viii.2011, 1 female aptera, 1 female macroptera from *Eucalyptus robusta*; 2.x.2011, 25 female apterae from dead leaves; 25.xi.2011, 3 female apterae from *Sabina chinensis*. [all deposited in Yunnan Agricultural University Collection, Kunming, with 11 slides in Australian National Insect Collection, Canberra].

Comments. This new species shares with *brasilianus* the anterior position of the mid-dorsal setae on the head. However, in addition to the differences noted in the key above the number of facets in the compound eyes of female apterae is not smaller than in macropterae (cf. Okajima 2006: 51).

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