

## CORRESPONDENCE

# *Bolothrips bicolor* (Heeger) (Thysanoptera: Idolothripinae): a genus and species newly recorded from China

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**Abstract** The genus and species, *Bolothrips bicolor* (Heeger, 1852), are recorded from China for the first time, with both sexes found in Shaanxi Province. A generic diagnosis, morphological description, illustrations and photographs are provided. COI sequence of the newly recorded species is also given.

**Key words** *Bolothrips*, Idolothripinae, new record, COI, taxonomy.

The genus *Bolothrips* Priesner, in which species are well known as living at the base of grass tussocks (Mound, 1974), belongs to the *Nesothrips*-complex of the subfamily Idolothripinae. There are 17 species listed in this genus, of which seven are recorded from Africa and the Atlantic Islands (*B. africanus*, *B. cinctus*, *B. dentis*, *B. embotyti*, *B. varius*, *B. inaccessibilensis* and *B. moundi*), five are recorded from USA (*B. bicolor*, *B. gilvipes*, *B. pratensis*, *B. rachiphilus* and *B. schaeferi*), and five are recorded in various European countries (*B. dentipes*, *B. cingulatus*, *B. icarus*, *B. insularis* and *B. italicus*) (Heeger, 1852; Reuter, 1880; Uzel, 1895; Bagnall, 1914; Hood, 1914, 1939; Karny, 1916; Priesner, 1928, 1950; Watson, 1933; Faure, 1943, 1954; Hartwig, 1948; Moulton, 1949; Cott, 1956; Morison, 1960; Thomason & Post, 1966; Mound, 1968, 1974; zur Strassen, 1992; ThripsWiki, 2021). Members of this genus are recognized easily by the eyes prolonged ventrally together with their medium body size, and adults are usually micropterous (Mound, 1974).

In China, there has been no record of *Bolothrips*, although Dang and Qiao (2013) mentioned two undescribed species from Beijing and Inner Mongolia. In this study, *Bolothrips bicolor* (Heeger) is redescribed in detail with illustrations, and this represents the first record of this genus and species from China.

The descriptions, photomicrograph images and drawings are produced from slide-mounted specimens with an Olympus BX53 and drawing tube. The unit of measurements is micrometer (μm). All specimens studied here are deposited in the School of Bioscience and Engineering, Shaanxi University of Technology, Hanzhong, China.

The abbreviations used for the pronotal setae are as follows:

aa—anteroangular;  
am—anteromarginal;  
epim—epimeral;  
ml—midlateral;  
pa—posteroangular.

### *Bolothrips* Priesner, 1926

*Bolothrips* Priesner, 1926: 90. Type species: *Phloeothrips bicolor* Heeger.

*Bolothrips* (*Botanothrips*) Hood, 1939: 605. Type species: *Bolothrips pratensis* Hood.

*Boladelothrips* Moulton, 1949: 489. Type species: *Boladelothrips africanus* Moulton.

urn:lsid:zoobank.org:pub:8F389C0B-FF41-49E7-AC4B-82CD8F073003

Received 7 May 2021, accepted 10 July 2021

Executive editor: Fuqiang Chen

**Diagnosis.** Head usually longer than wide, projecting in front of eyes; eyes strongly prolonged ventrally; postocular setae well-developed; maxillary stylets V-shaped; antennae 8-segmented, segment III with 2 or 1 sensoria, IV with 3 or 2; pronotal major setae pointed or blunt, notopleural sutures complete; basantra present; mesopresternum boat-shaped; metathoracic sternopleural sutures absent; wings, if present, with numerous duplicated cilia; fore tarsal tooth present in male; pelta broad, rounded triangular; abdominal tergites II–VII each with 1 pair of sigmoid wing-retaining setae in macroptera; tube surface smooth, without prominent setae; anal setae about as long as tube.

***Bolothrips bicolor* (Heeger, 1852) (Figs 1–14)**

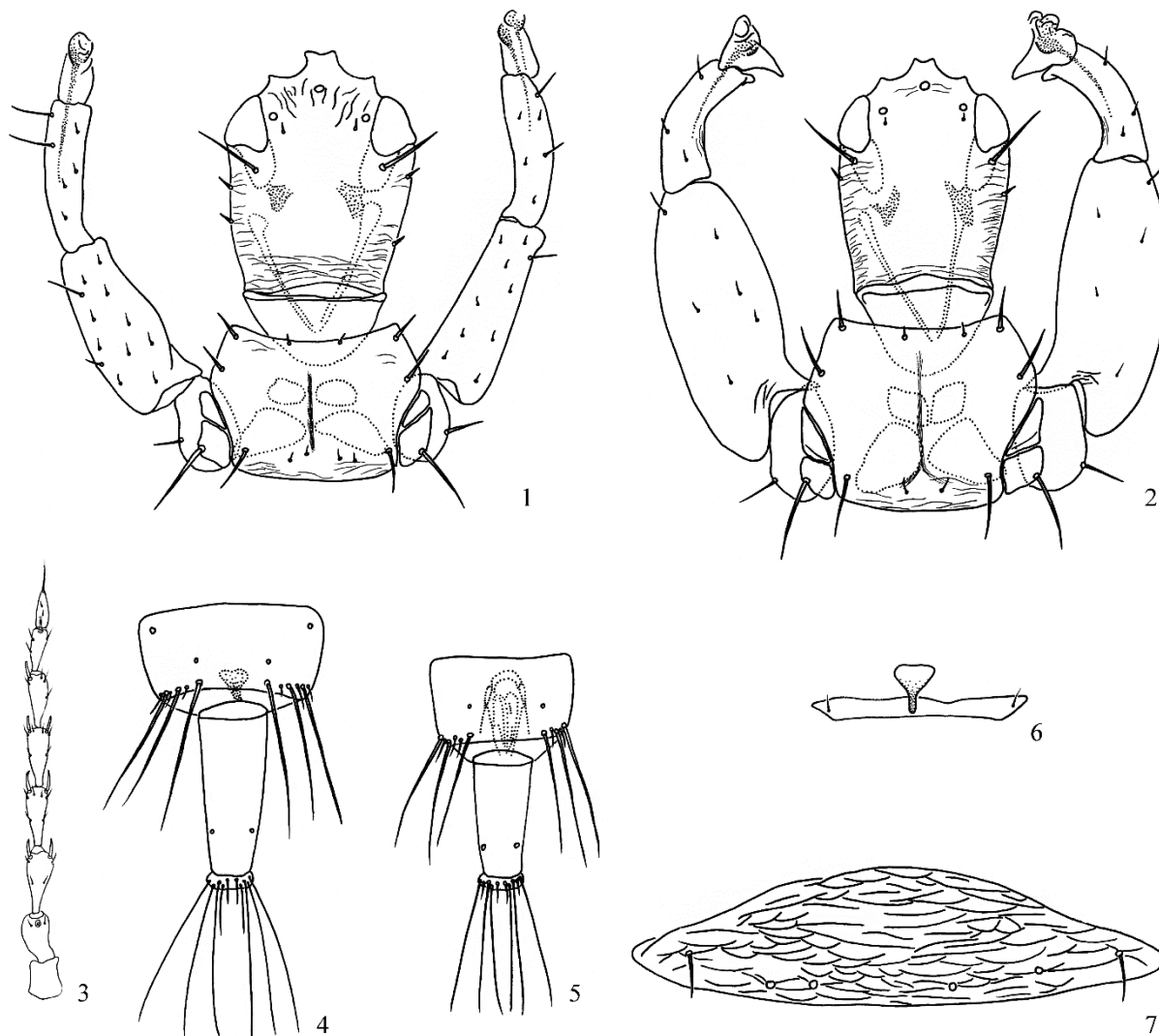
*Phlaeothrips bicolor* Heeger, 1852: 477.

*Phlaeothrips bicolor* f. *brevicornis* Priesner, 1928: 687.

*Oedaleothrips andrei* Watson, 1933: 49.

**Description.** Female (microptera). Body bicoloured (Fig. 8); head and abdomen brown, thorax yellow, or pterothorax browish yellow, a little darker than prothorax, but always distinctly lighter than head; pelta brown with first half part yellow, other abdomen segments brown with head, tube the darkest; all legs yellow; antennal segments I–II and VII–VIII uniform brown, III–IV yellow, V yellow with apex brownish yellow, VI brown with base third yellow (Fig. 11).

Head slightly longer than wide (Fig. 1), projecting in front of eyes, dorsal surface smooth with weak sculptures posteriorly; eyes strongly prolonged ventrally; postocular setae well-developed, pointed apically. Maxillary stylets V-shaped.



Figures 1–7. Dorsal view of *Bolothrips bicolor*. 1. Head, pronotum and forelegs of female; 2. Head, pronotum and forelegs of male; 3. Antenna; 4. Tergites IX–X of female; 5. Tergites IX–X of male; 6. Mesopresternum; 7. pelta.

Antennae 8-segmented (Fig. 3), segments III–V with 1+1 sensoria respectively, VI–VII each with one sensorium.

Pronotum smooth (Figs 1, 10), notopleural sutures complete, four pairs of major setae well-developed, pointed but not sharp, am setae minute, epim setae the longest (Fig. 10); mesonotum and metanotum smooth (Fig. 13); basantra present, mesopraesternum boat-shaped (Fig. 6); metathoracic sternopleural sutures absent; legs normal, fore tarsal tooth absent (Fig. 12).

Pelta broad (Fig. 7), rounded triangular, with reticulate sculpture slightly; abdominal tergites II–VII smooth, sigmoid wing-retaining setae reduced; tergite IX setae slightly shorter than tube; tube surface smooth, without prominent setae; anal setae shorter than tube slightly (Fig. 4).

Measurements (microptera female in microns). Body length 2905. Head length 332, width across eyes 255; eye length dorsally 85, eye length ventrally 125; postocular setae 86. Antennae length 295, segments I–VIII length 25, 30, 48, 42, 40, 40, 30, 25. Pronotum length 208, width 258, am 5, aa 43, ml 45, epim 95, pa 50. Pelta length 100, basal width 355; tergite IX setae S1 182, S2 182, S3 228; tube length 245, basal width 105, middle width 80, apical width 45; anal setae length 212.

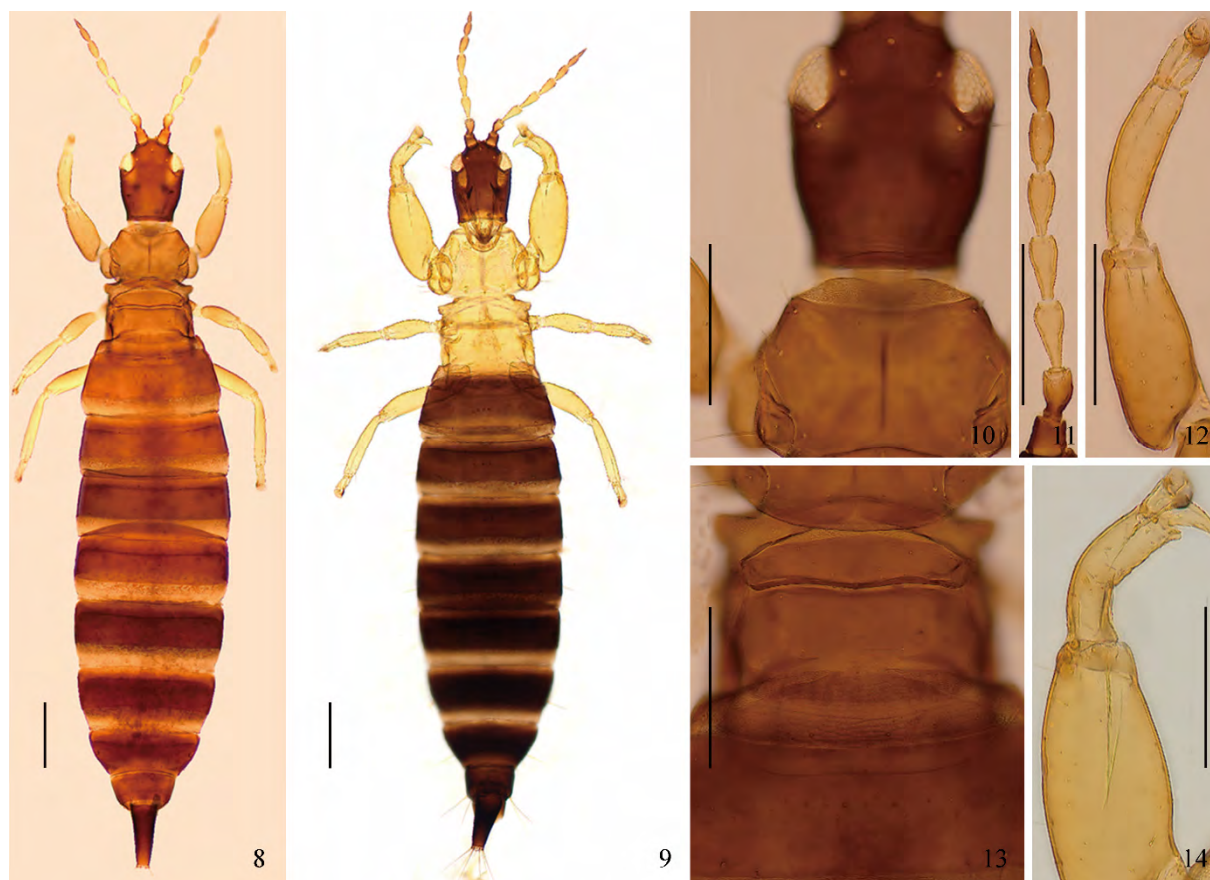
Female (macroptera). Similar to microptera female, but a little larger, body length 3035, only prothorax yellow, pterothorax as brown as abdomen; fore legs yellow, mid and hind femora yellowish brown, tibiae and tarsi yellow; fore wings developed and broad, length 1465, with 11–14 duplicated cilia, sub-basal wing setae developed, S1 almost as long as S2, S3 the longest, pointed apically, length of sub-basal setae 30, 38, 95.

Male (microptera). Sharply bicoloured (Fig. 9) but similar to microptera female (Fig. 2) except smaller; body length 2600; fore femora enlarged (Figs 2, 14), tibiae with a small apical tubercular, tarsal tooth stout; sternites without pore plate.

Material examined. 5♀ (microptera) 3♂ (microptera) 3♀ (macroptera), China, Shaanxi, Hanzhong, Zibai Mountain National Forest Park (33.65°N, 106.77°E, elev. 2600 m), collected from base of grass by Lihong Dang, 19.VII.2017; 3♀ (microptera) 11♂ (microptera), China, Shaanxi, Yan'an, Ziwuling Natural Reserve (33.50–36.50°N, 107.30–109.40°E, elev. 1500 m), collected from base of grass by Xia Wang and Yanqiao Li, 20.VII.2020.

Distribution. China (Shaanxi); USA, widespread in Europe.

COI sequence. It includes 1497bp with the GenBank number MW567214.



Figures 8–14. The colour photos of *Bolothrips bicolor*. 8. Female; 9. Male; 10. Head and pronotum; 11. Antenna; 12. Foreleg of female; 13. Meso-metanotum of microptera; 14. Foreleg of male. Scale bars: 8–9=0.5 mm; 10–14=200  $\mu$ m.



Remarks. *Bolothrips bicolor* is reported in China for the first time. The species was first described from Austria in central Europe (Heeger, 1852), and is recorded as widespread in central and southern Europe, also from the northern part of North America (Priesner, 1928; Watson, 1933; Stannard, 1957; Mound, 1974). It was well-known as microptera type, but macroptera specimens are recorded from America and Europe. In here, it is recorded for the first time from the Asian region, in Shaanxi Province, China, from both microptera and macroptera specimens. These specimens were collected from the basal part of grasses (Figs 15–18). *B. bicolor* is closely related *B. dentipes* and *B. italicus*, but it can be distinguished in having antennal segments III–IV with two sensoria respectively, and the prothorax and all legs yellow. In *B. dentipes*, antennal segment IV has three sensoria and the legs are largely brown, antennal segment IV–V brown. In *B. italicus*, the prothorax is brown and antennal segment III has only one sensorium.



Figures 15–18. Habitats of *Bolothrips bicolor*. 15. Poaceae grasses from Zibai Mountain National Forest Park, Hanzhong; 16–18. Poaceae grasses from Ziwuling natural reserve, Yanan City.

**Funding** This work was supported by National Natural Sciences Foundation of China (31702042), a Young Talent Fund of University Association for Science and Technology in Shaanxi, China (20180209), the Foundation of Shaanxi University of Technology (SLGKY2001).

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