

# On the genus *Nesothrips* Kirkaldy (Thysanoptera: Phlaeothripidae) with two newly recorded species from China

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**Abstract:** Two species in the genus *Nesothrips* are first recorded from China. *N. doulli* & *N. fodinae* are described in detail and an identification key of the species among genus *Nesothrips* currently recorded from China is provided.

**Key words:** Tubulifera; Idoiothripinae; taxonomy; key

中国岛管蓟马属分类并记二新纪录种（缨翅目：管蓟马科）

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**摘要:** 记述中国岛管蓟马属 2 新纪录种: 兜岛管蓟马 *Nesothrips doulli* (Mound, 1974)、佛岛管蓟马 *Nesothrips fodinae* Mound, 1974, 并提供了中国岛管蓟马属分种检索表。

**关键词:** 管尾亚目; 灵管蓟马亚科; 分类; 检索表

## Introduction

The genus *Nesothrips* belongs to the subtribe Diceratothripina and was established by Kirkaldy in 1907 with *Nesothrips oahuensis* as its type species. Mound (1974a) provided a key to the 14 species recognised in this genus at that time. 31 species are included in the genus now (Thrips Wiki 2018; Okajima 2006) and only 4 of them occur in China (Han & Cui 1991; Dang & Qiao 2013; Zhang & Feng *et al.* 2017). Species in the genus *Nesothrips* live mainly on dead branches, with a few in leaf-litter and some at the base of grasses (Mound 1974b), and apparently feed on fungal spores. Recently, in the process of sorting out the specimens, we found two new record species, *N. doulli* & *N. fodinae*.

## Material and methods

The specimens were mounted onto slides in neutral balsam, and illustrations were made

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with the help of a Nikon SMZ1500 stereomicroscope. All measurements are given in micrometers. New records in this study were collected from Hainan or Shanxi Province, China. The specimens examined are deposited in Northwest A&F University.

Abbreviations. Pronotal major setae: am — anteromarginal; aa — anteroangular; ml — midlateral; epim — epimeral; pa — posteroangular.

## Taxonomy

### *Nesothrips* Kirkaldy, 1907

*Nesothrips* Kirkaldy, 1907: 103.

*Oedemothrips* Bagnall, 1910: 680.

Cryptothrips Uzel: Hood, 1918: 142.

*Nesothrips* Kirkaldy: Mound, 1974: 114, 116, 158; Mound & Palmer, 1983: 47; Han, 1997. Science Press, Beijing, 349.

Type species: *Nesothrips oahuensis* Kirkaldy, 1907.

Diagnosis. Small to medium sized. Wings developed, reduced or absent. Head not prolonged in front of eyes or slightly prolonged. Eyes often prolonged on ventral surface. Antennae 8-segmented, segment III with two sense cones; segment IV with four sense cones; maxillary stylets wide apart, V-shaped; Prothoracic notopleural sutures complete; prospinasternum developed; basantra present; Fore tarsal tooth present in male; Fore wings, if developed, usually with duplicated cilia. Pelta usually hat-shaped. Tergite II–VII each with one pair of wing-retaining setae.

### Key to species of *Nesothrips* from China

1. Pelta approximately rectangular, dorsal surface almost smooth, without lateral wings ..... *N. peltatus*
- Pelta hat-shaped, dorsal surface with reticulations, with lateral wings ..... 2
2. Head about 1.5 times as long as wide ..... 3
- Head about as long as wide ..... 4
3. Fore tarsal tooth present in female; antennal segment III brown, pedicel paler than apex ..... *N. doulli*
- Fore tarsal tooth absent in female; antennal segment III largely yellow, segment V base of 2/3 yellow .....  
..... *N. lativentris*
4. Eyes not prolonged on ventral surface of head ..... *N. brevicollis*
- Eyes prolonged on ventral surface of head ..... 5
5. Lateral lobes of pelta only with a slender connection, or separate from the median lobe; posterior margin of pelta eroded median ..... *N. propinquus*
- Lateral lobes of pelta with broadly connection; Posterior margin of pelta without eroded median ... *N. fodinae*

#### 1. *Nesothrips doulli* (Mound, 1974) (Figs. 1–4, 9, 10), new record to China

Female (microptera). Body dark brown. Antennal segments I–II and V–VIII brown, segment III and base of IV yellow, the rest of segment IV brown. All tarsi and apex of fore tibiae yellow, the rest of legs almost concolorous with body.

Head. Head (Fig. 1) longer than wide, dorsal surface almost smooth. Postocular setae and postocellar setae developed, pointed at apex. Postocular setae longer than eyes length. Ocelli developed, postocellar setae situated between posterior ocelli. Maxillary stylets V-shaped. Antennae 8-segmented, antennal segment III with two sense cones, segment IV with four

sense cones, segment V with three sense cones, segment VI with one large and one small sense cones, segment VII with one sense cone (Fig. 4).

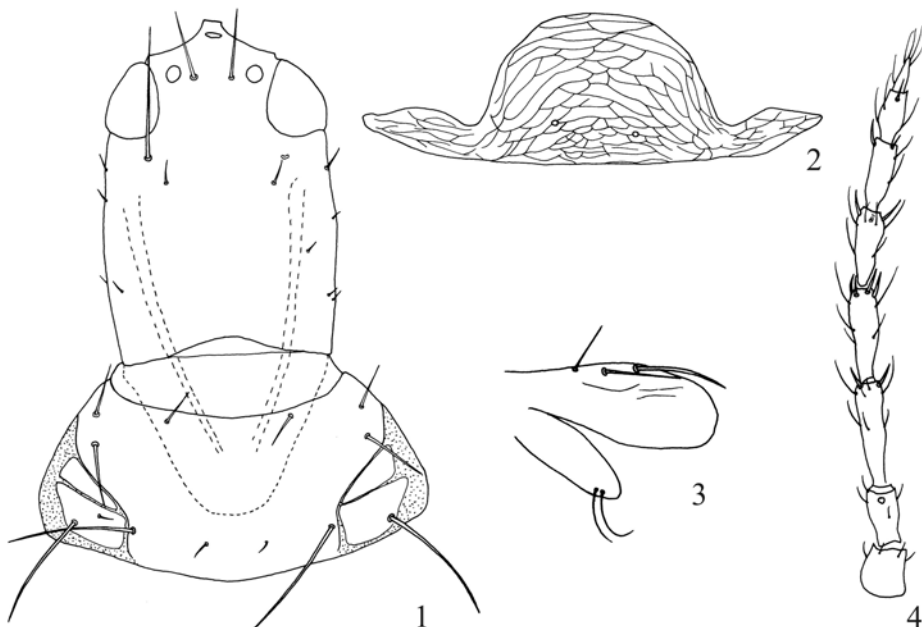
Thorax. Pronotum smooth. Major setae developed, pointed at apex. Epimeral sutures complete (Fig. 1). Mesonotum with transverse reticulation in the anterior part. Metanotum with polygonal reticulation. Wing lobe with 3 major sub-basal setae, B3 setae longest (Fig. 3).

Abdomen. Pelta broadly hat-shaped, with a pair of campaniform sensilla (Fig. 2). Tergites II–VII with one pair of wing-retaining setae. Tergite IX setae B1 longer than setae B2. Tergite IX setae B1 and B2 shorter than tube length. Tube little shorter than head length.

Measurements of female in microns. Body length 2700. Head total length 324, width across eyes 217, across cheeks 232; ocelli length 23. postocular setae 131; postocellar setae 61. Pronotum median length 170, anterior width 239, posterior width 368; pronotum major setae: am 25, aa 49, ml 52, epim 126, pa 118. Metanotum median setae 44. Pelta basal length 195, height 78. Tergite IX setae: B1 245, B2 232. Tube: length 300, basal width 113, apical width 54. Antennal segments I–VIII length (width): 48(46), 69(36), 125(29), 110(30), 87(30), 178(28), 53(25), 40(13).

Male (microptera). Colour similar to female, but sometimes smaller. Pronotum strongly hickened medially and along anterior border; fore femur enlarged L-shaped; fore tarsal tooth large, curved, almost as long as tarsal width; major setae of head and pronotum longer than in female.

Measurements of male in microns. Body length 1533. Head length 210; ocellar setae 96; postocular setae ?. Pronotum, length 297; median width 440; major setae: am 30, aa 71, ml 125, epim 154, pa 127. Squamule length 293; subbasal setae 85, 91. Tube length 417.



Figures 1–4. *Nesothrips doulli* (Mound, 1974), ♀. 1. Head and pronotum, dorsal view; 2. Pelta; 3. Wing lobe; 4. Antenna.

**Specimens examined.** 1♀1♂, **China**, Hainan Province, Limuling, collected from grasses, 650 m, 27-IV-2008, collected by Jianwu ZHENG.

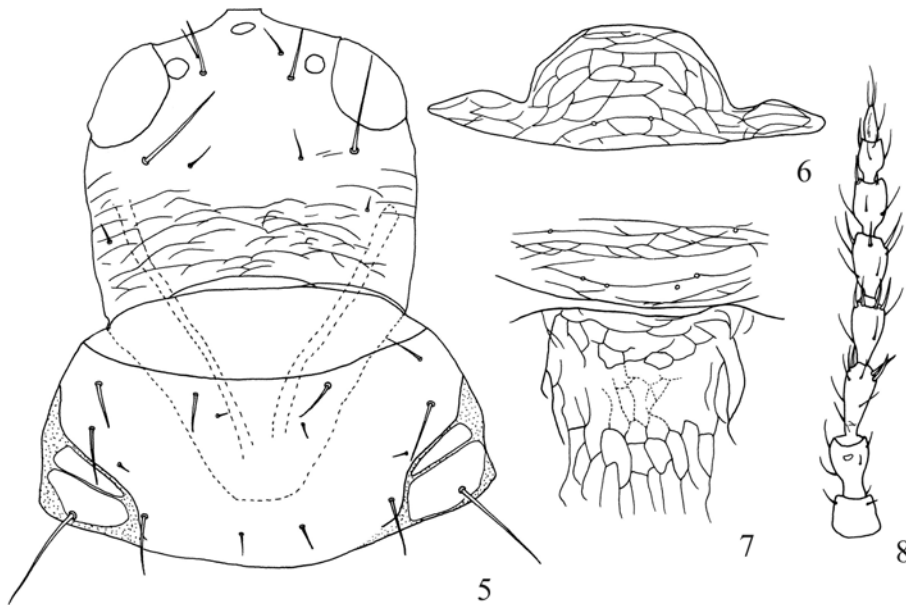
Distribution. China (Hainan); New Zealand.

Remarks. Mound (1974a) first described as *Rhaebothrips doulli*. Then it was moved to the genus *Nesothrips* by Mound and Walker (1986). This species is distributed in New Zealand. Presently, we only have a few specimens from Hainan Province, Limuling. According to the original description of the species, they lived under bark and dead twig. This species distributed in China is collected from grasses.

2. *Nesothrips fodinae* Mound, 1974 (Figs. 5–8, 11, 12), new record to China

Female (macroptera). Body brown to dark brown. Antennal segments I–V yellow, VI–VIII lightly brown. All legs brownish yellow. Wings yellow, slightly shade at base.

Head. Head (Fig. 5) wider than long, weakly prolonged in front of eyes, dorsal surface with transverse lines at base. Postocular setae and postocellar setae pointed at apex. Postocellar setae situated in the inner margin of each posterior ocellus. Maxillary stylets V-shaped. Antennae 8-segmented, antennal segment III with two sense cones, segment IV with four sense cones, segment V with two sense cones, segment VI with one large and one small sense cones, segment VII with one sense cone (Fig. 8).



Figures 5–8. *Nesothrips fodinae* Mound, 1974, ♀. 5. Head and pronotum, dorsal view; 6. Pelta; 7. Basal wing bristles; 8. Antenna.

Thorax. Pronotum smooth. Major setae slightly small, pointed at apex. Epimeral sutures complete. Praepectus present (Fig. 5). Mesopresternum boat-shaped, Mesonotum with sparse transverse reticulation. Metanotum with weakly polygonal reticulation, but no obvious reticulation in the middle (Fig. 7). Wing sub-basal setae pointed at apex.

Abdomen. Pelta with broad lateral wing. Pelta with transverse reticulation (Fig. 6).

Tergites III–VII with one pair of wing-retaining setae. Tergites II–VIII with polygonal reticulation on both sides. Tergite IX setae shorter than tube length. Tube almost straight on sides.

Measurements of female in microns. Body length 1500. Head total length 155, width across eyes 178 across cheeks 185. postocular setae 30; postocellar setae 55. Pronotum median length 96, anterior width 190, posterior width 255; pronotum major setae: am 23, aa 19–22, ml 34, epim 61, pa 36. Metanotum median setae 30. Tergite IX setae: B1 88, B2 93, B3 114. Tube: length 145, basal width 72, apical width 38. Antennal segments I–VIII length (width): 28(33), 49(27), 59(20), 54(25), 53(28), 46(29), 30(22), 29(11).

Male (macroptera). Head and thorax brown, abdomen dark brown; legs yellow with small brown markings particularly at base of femora; otherwise similar to female. Fore femora strongly swollen, fore tibiae stout, fore tarsi with a stout tooth. Pronotum enlarged, anterior margin and median line strongly thickened; midlateral setae elongate.

Measurements of male in microns. Body length 1470. Head, length 145; maximum width 169. Pronotum, length 219; median width 142; major setae: am 19, aa 26, ml 129, epim 89, pa 20. Tube length 134.



Figures 9, 10. *Nesothrips doulli* (Mound, 1974); 11, 12. *Nesothrips fodinae* Mound, 1974. 9,11. Female; 10,12. Male.

**Specimens examined.** 1♀, **China**, Hainan Province, Bawangling, from grasses, 650 m, 15-V-2008, collected by Jianwu ZHENG; 1♂, Hainan Province, Jianfengling, from grasses, 23-VIII-2002, collected by Peiming WANG.

Distribution. China (Hainan); Fiji.

Remarks. The species of *Nesothrips fodinae* was first described by Mound (1974a) and the type species were collected in Fiji. The species we described are from Hainan Provinces in China.

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## References

- Dang LH & Qiao GX. 2013. Review of the spore-feeding Idolothripinae from China (Thysanoptera, Phlaeothripidae). *ZooKeys*, 345:1.
- Duan BS, Li M, Yang R & Yan R. 1998. Three new species of Thysanoptera (Insecta) from the Funiu Mountains, Henan, China. In: Shen XC & Shi ZY (Eds.), *The Fauna and Taxonomy of Insects in Henan. Insects of the Funiu Mountains region*. China Agricultural Sciencetech Press, Beijing, pp. 53–58.
- Han YF & Cui YQ. 1991. Three new species of Thysanoptera (Insecta) from the Hengduan Mountains, China. *Entomotaxonomia*, 13(1): 1–7.
- Kirkaldy GW. 1907. On two Hawaiian Thysanoptera. Proceedings of the Hawaiian. *Entomological Society*, 1: 102–103.
- Mound LA. 1974a. The *Nesothrips* complex of spore-feeding Thysanoptera (Phlaeothripidae: Idolothripinae). *Bulletin of British Museum Natural History (Entomology)*, 31: 109–188.
- Mound LA. 1974b. Spore-feeding Thrips (Phlaeothripidae) from leaf litter and dead wood in Australia. *Australian Journal of Zoology*, 27: 1–106.
- Mound LA & Palmer JM. 1983. The generic and tribal classification of spore-feeding Thysanoptera (Phlaeothripidae: Idolothripinae). *Bulletin of the British Museum (Natural History) Entomology*, 46: 1–174.
- Mound LA & Walker AK. 1986. Tubulifera (Insecta: Thysanoptera). *Fauna of New Zealand*, 10: 1–140.
- Okajima S. 2006. *The Insects of Japan. Volume 2. The Suborder Tubulifera (Thysanoptera)*. Touka Shobo Co. Ltd., Fukuoka, 720 pp.
- ThripsWiki. 2018. *ThripsWiki-providing information on the World's thrips*. Available from: [http://thrips.info/wiki/Main\\_Page](http://thrips.info/wiki/Main_Page) (Accessed 23 October 2018).
- Zhang WT, Feng JN, Cao SJ & Guo FZ. 2017. The spore-feeding genus *Nesothrips* (Thysanoptera: Idolothripinae) from China, with one new record. *Entomotaxonomia*, 39(4): 314–319.