



First record of two tubuliferan and four terebrantian species of Thysanoptera (Insecta) from northeastern India

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The order Thysanoptera popularly known as thrips or fringe wings are known to be of considerable significance as they feed on food and horticultural plants and also due to their ability to act as vectors of some bacterial, fungal and viral diseases of plants (David & Ananthkrishnan 2004). In spite of extensive taxonomic contributions mainly by Ananthkrishnan & Sen (1980) and Bhatti (1994), there is a paucity of information on thrips of northeastern India. All specimens were collected during the present study from Manipur and Nagaland. Prior to this, their occurrences were known only from a few Southeast Asian countries. Specimens collected in the present study are deposited in the insect museum of the Department of Life Sciences, Manipur University.

The present new records will hopefully motivate future workers to engage in indepth survey and taxonomic explorations of thrips in the north-east, a biodiversity hotspot.

Suborder: Tubulifera

Family: Phlaeothripidae

1. *Baenothrips asper* (Bournier, 1963)

Transithrips asper Bournier, 1963, *Publ. Cult. Co. Diam. Angola*, 63: 81.

Transithrips asper Bournier-Ananthkrishnan, 1966, *Bull. Ent.*, 7: 11.

Baenothrips asper (Bournier) - Mound, 1972. *Aust. J. Zool.*, 20: 92.

Baenothrips asper (Bournier) - Ananthkrishnan & Sen, 1980, *Zool. Surv. India, Handbk. Ser.*, 1: 82 & 145.

Baenothrips asper (Bournier) - Bhatti, 2002, *Oriental Insects*, 36: 1–28.

Specimen studied: 12 females, 25.ii.2002, 1400m, ex. mixed leaf litter, Khuzama (Nagaland), (MU/LSD No. B/Myco/17) (Table 1 and Image 1).

Distribution: India [Eastern Ghat (apterous form), Nagaland (macropterous form - new record)], Angola, Luanda, Taiwan.

Comments: As early as 1963, Bournier described the macropterous form of *Baenothrips asper* (= *Transithrips asper*) from Angola, Africa. Subsequently, occurrence of *B. asper* was reported from India (Ananthkrishnan 1966) and Taiwan (Kudo 1978) based on the apterous individuals. However, Bhatti (2002) on examining the Indian materials felt that there could be two different species of *Baenothrips* including that of apterous *B. asper*, but the identity of the latter did not match with the winged form of Angolan species. Recently, during the survey in Nagaland, a dozen individuals of the macropterous form of *B. asper* were collected from mixed leaf litter. The characters of these specimens were found identical with that of Angolan materials of *B. asper*, that being recharacterized by Bhatti (2002) based on its paratypes. Further, a comparative account of certain morphometric data (Table 1) of the materials collected during the present study also showed similarity with that of Angolan specimens as provided by Bhatti (2002). Such comparisons on morphometric measurements

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Image 1. *Baenothrips asper*Image 2. *Dyothrips pallescens*Image 3. *Dendrothrips schimae*

and features of the winged form have clearly indicated that the specimens collected from Nagaland are *B. asper*. Thus, it becomes evident that the macropterous form of *B. asper* occurs in India besides the African continent and the present observation is the first of its kind to report its occurrence in the Indo-Myanmar Biodiversity Hotspot region of northeastern India.

2. *Dyothrips pallescens* (Hood, 1919)

Zygothrips pallescens Hood, 1919: *Proc. Biol. Soc. Washington*. 32: 75–92.

Dyothrips pallescens (Hood, 1919): Mound & Minaei, (2007). *J. Nat. Hist.*, 41: 2919–78.

Morphological features: Antennae 8 segmented; III with one sense cone; IV with 4 sense cones; Head longer than wide; body bicolourous; metathorax and abdominal segment I- yellow; rest brown. Prothoracic notopleural sutures incomplete. Fore wings without double fringes; all tarsi yellow, fore tarsi tooth absent. Post ocular and pronotal setae, and tergite IX setae S1 & S2 expanded (Image 2).

Specimen studied: 1 male and 5 females, 18.vii.2010, Kangla (Manipur - new record); 750m, ex. Grass (*Dichanthium annulatum* (Forssk.) Stapf. (MU/LSD No. G T: 25).

Distribution: Australia, Bangladesh, China, Fiji, India (this report), Japan, Pakistan, Thailand, Taiwan.

Suborder: Terebrantia

Four species of terebrantians, viz., *Dendrothrips schimae* Kudo (1989), *Mycterothrips consociatus* (Targioni-Tozzetti, 1887), *Panchaethrips stepheni* Reyes (1994), and *Parabaliethrips coluckus* (Kudo, 1977) (Thripidae) are collected in the present study.

1. *Dendrothrips schimae* Kudo, 1989

Dendrothrips schimae Kudo, 1989, *Japanese Journal of Entomology* 57(1): 42-45.

Dendrothrips schimae Kudo-Bhatti, 1990, *Zoology*

Table 1. Comparative morphometric data pertaining to *Baenothrips asper*

| Parameters | Nagaland specimen | Angolan specimen** |
|--------------------------------------|-------------------|--------------------|
| Head- length/width | 144-160/152-160 | 125-134/147-154 |
| Cephalic setae length-Median/Lateral | 64-72/48-56 | 62-70/56-63 |
| Antennal segment- length/width | | |
| I | 20-24/22-24 | 20-21/27-28 |
| II | 32-40/28-32 | 36/30-32 |
| III | 36-40/22 | 41-42/22 |
| IV | 36-40/24 | 37-38/25 |
| V | 32/20-23 | 32-33/23 |
| VI | 28-32/16-20 | 30-32/20-21 |
| VII | 24-32/12-14 | 27-28/13-14 |
| VIII | 20-24/8 | 23/8-9 |
| Pronotum- length | 88-120 | 92-94 |
| Epimeral setae-length | 24-32 | 27 |
| Tube-length | 300-336 | 278-318 |

(All measurements are in μ , ** Bhatti 2002)

2(4): 225.

Morphological features: Head irregularly reticulated between eyes, ocellar crescent red, cheeks with one moderately developed setae just on the lateral sides below eye. Antenna eight segmented. Forewings uniformly covered with microtrichia and banded. Pronotum transversely to slightly anastomosing striations. Abdominal segments II-VIII with two median setae, posterior marginal setae on IX strongly developed (Image 3).

Macropterous (female): Body dark brown with red pigments; abdominal segments pale at middle, legs brown except tarsi. Forewings brown with an incompletely formed light cross band, sub apex pale. Antennal segments 1, 2, 6–8 brown, 3–5 yellow.

Macropterous (male): Head, thorax and abdominal segments V-VII brown, II-IV and VIII-X pale yellow. Forewing with a complete band with paler sub apex. All femora and tibiae brown, tarsi yellow.

Specimen studied: 5 females, 3 males, 5.ii.2001, Impur (Nagaland); 1350m, ex. *Polygonatum multiflorum* Allioni (Liliaceae) (MU/LSD No. B/Weed/30).

Distribution: India (Nagaland-new record); earlier known only from Nepal.

2. *Mycterothrips consociatus* (Targioni-Tozzetti, 1887)

Thrips (Euthrips) consociatus Targioni-Tozzetti, 1887: *Entomologica italiana* 18(4): 419–431.

Mycterothrips consociatus (Targioni-Tozzetti, 1887): Masumoto & Okajima (2006): *Zootaxa* 1261: 1–90.

Morphological features: Body pale; antennae I-pale, II-VIII uniformly brown (this character is unique for the present specimen); Antennae ratio: VI/(I-V) = 1.2-1.45; Microtrichia absent on antennae VI; CPS absent on Mesonotum; Costal setae- 24–26; Upper vein- (6–7) +2; Lower vein setae- (9–10); Median pair of setae on mesonotum near posterior margin; Metascutum irregularly reticulate medially; median pair of setae near anterior margin; Sense cone on III & IV not reaching the middle of its upper segment (Image 4).

Specimen studied: 8 males, 10.iv.2011, Moreh (Manipur - new record), 204m, ex. Bamboo foliage (small variety) (Poaceae) (MU/LSD No. M-T: 62).

Distribution: Austria, Czechoslovakia, Germany, Italy.

3. *Panchaetothrips stepheni* Reyes, 1994

Panchaetothrips stepheni Reyes, C.P. 1994. *The Raffles Bulletin of Zoology* 42: 107–507.

Panchaetothrips stepheni Kudo, I. 1995. *Insecta Matsumurana*, New Series 52: 81–103.

Morphological features: Body brown; Head entirely reticulate except on occipital collar; small setae present midway between the eye and hind ocellus. Reticles on the head posterior to the ocelli with wrinkles or markings; Sense cones on antennal segment IV forked while on III both simple and forked. Strong, stout long setae present on the wings. Antecostal lines on tergite III-VIII with weak posteriorly directed notches. Metanotum with an inverted triangle (Image 5).

Specimen studied: 1 female, 5.iv.2008, Moreh (Manipur - new record); 204m, ex. unidentified weed foliage (MU/LSD No. Weed/M-T: 67).

Distribution: Luzon, Philippine Islands.

4. *Parabaliotrips coluckus* (Kudo, 1977)

Krasibothrips coluckus Kudo, 1977, *Kontyu*, 45(1): 4–8. (Japan).

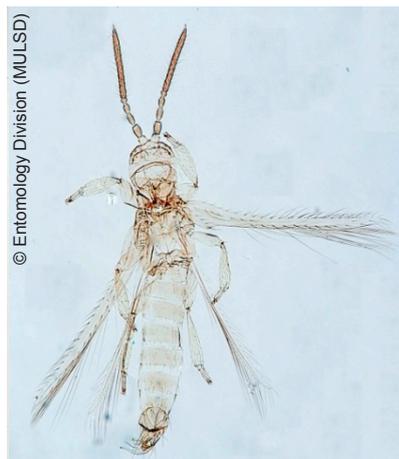
Krasibothrips coluckus Kudo: Ananthkrishnan and Sen, 1980, *Zool. Surv. India. Handbk. Ser.*, 1: 69 & 138.

Parabaliotrips coluckus (Kudo): Bhatti, 1990, *Zoology* 2(4): 244.

Morphological features: Body dark brown. Head little longer than wide, cheeks weakly serrated with 2–3 setae, vertex with two pairs of antecellar setae, interocellar setae placed just behind ocellar triangle in line with posterior margin of hind ocelli. Antennal segments 3–4 with forked sense cones, 1, 2 brown, 3–5 yellow, 6 yellow at base, rest brown. Pronotum shorter than head, nearly rounded with exceptionally developed postangular setae, anteromarginal longer than anteroangular. Forewing brown with strongly developed setae, subbasal pale. All femora, mid and hind tibiae brown, all tarsi yellow. Comb on abdominal tergite VIII minute but complete; segments III-VII of males with transverse glandular areas, setae on IX exceptionally strong (Image 6).

Specimen studied: 5 females, 2 males, 31.ix.2000, Kohima (Nagaland), 1400m, ex. *Quercus serrata* (Thunb.) (Fagaceae); 8 females, 2 males, 24.viii.2001, Tengnoupal (Manipur), 1300m, ex. *Q. serrata* (Thunb.) (Fagaceae) (MU/LSD No. M-T: 68).

Distribution: Nepal, Taiwan, (India: Manipur &

Image 4. *Mycterothrips consociatus*Image 5. *Panchaetothrips stepheni*Image 6. *Parabaliotrips coluckus*

Nagaland - new record).

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