Cretaceous Research 100 (2019) 184–191

Contents lists available at ScienceDirect

Cretaceous Research

journal homepage: www.elsevier.com/locate/CretRes

Short communication

A new genus and species of Stenurothripidae (Insecta: Thysanoptera: Terebrantia) from mid-Cretaceous Myanmar amber

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ARTICLE INFO

Article history:
Received 1 August 2018
Received in revised form
24 January 2019
Accepted in revised form 7 March 2019
Available online 13 March 2019

Keywords:
Thrips
Kachin
Northern Myanmar
Cenomanithrips primus

ABSTRACT

A new genus and species of thrips, *Cenomanithrips primus* gen et sp. nov., is described and assigned to the extant family Stenurothripidae of Thysanoptera. The new taxon is established primarily based on the following characters: pronotum with lateral, posteromarginal and posteroangular setae; forewing slender, narrow at apex, surface with microtrichia, two longitudinal veins present, only one cross-vein between the two longitudinal veins, with one seta on posterior vein basal to this cross-vein, anterior vein without setae, right forewing posterior vein with three setae, left forewing posterior vein with only one seta; hind wing with one longitudinal vein, fore tarsus 2-segmented, without a hamus and the terminal abdominal segment is not tube-like. The new amber thrips is the first fossil record of Stenurothripidae in Myanmar (Burmese) amber hitherto, dating to the mid-Cretaceous. Other fossil records of Stenurothripidae are in the Lower Cretaceous Spanish and Lebanese amber, in the Eocene Baltic, Bitterfeld and Rovno amber, and in the Miocene Bitterfeld amber. This new finding not only broadens the distribution and diversity of fossil Stenurothripidae, but also provides important morphological characters to enhance our understanding of the early evolutionary development of the Stenurothripidae.

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1. Introduction

Thysanoptera Haliday, 1836 are a rather small insect order, comprising over 6200 described extant species in nine families (Mound and Morris, 2007; ThripsWiki, 2018; Mound, 2018) and only 21 extinct species in six extinct genera assigned to five extinct families up to date (Table 1). Thysanoptera are divided into two suborders: Terebrantia Haliday, 1836 and Tubulifera Haliday, 1836. For the recorded fossil in extant family of Thysanoptera, there are eight extant families, 71 extinct and extant genera with 158 extinct species (Appendix). In the Terebrantia, the terminal segment of the abdomen of the female is usually conical, while that of the male is rounded, however, in the Tubulifera, the distal segment of abdomen is tubular in both sexes (Peterson, 1915). But there are some exceptions for species in Terebrantia: for *Stenurothrips* in Stenurothripidae the tenth abdominal segment is modified into a tube that is much longer than the head (Stannard, 1956), while *Macrurothrips* and *Dinurothrips* in Thripidae also have tube-like tenth abdominal segments. The tubes of Tubulifera are quite different from those of Terebrantia, e.g. the major apical setae arising directly from the sides of the tubes in Terebrantia, while the major apical setae arising from additional sclerites attached to the tip of the tube in Tubulifera (Stannard, 1956). Terebrantia comprise eight extant families and four extinct families, while Tubulifera comprise one extant family and one extinct family (Ulitzka, 2018).

Stenurothripidae Bagnall, 1923 are a rather small family of suborder Terebrantia. The living species in this group were, for some years, placed in the family Adiheterothripidae (Mound et al., 1980). Two of the three genera with living species occur only in western North America, but the third is found from the Mediterranean region to India (Hoddle et al., 2012). Adiheterothripidae are treated as synonym with the Stenurothripidae (Bhatti, 2006). Up to date, Stenurothripidae comprise three extant genera with six living species, which were in the original family name of Adiheterothripidae: *Heratythrips* Mound and Marullo, 1998 is a monotypic genus, only with *Heratythrips sauli* Mound and Marullo (1998) in California (Mound and Marullo, 1998); (Plesion) *Holarthrothrips* Bagnall, 1927 with four extant species, i.e., two species from India, one species from Iraq, and one species in Southern Europe and Canary Islands, also with two fossil species in Europe (Schliephake, 1990, 2001a) (Table 2); and *Oligothrips* Moulton, 1933 with one

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https://doi.org/10.1016/j.cretres.2019.03.005
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Table 1
A list of all described species in extinct families of Thysanoptera.

Family	Genus species	Age	Locality	Reference
Triassothripidae	*Triassothrips virginicus*	Triassic (Carnian)	Southern most Virginia	Grimaldi et al., 2004
	Kazachothrips triassicus	Triassic (Carnian–Norian)	Eastern Kazakhstan	Grimaldi et al., 2004
Liassothripidae	*Liassothrips crassipes*	Upper Jurassic (Kimmeridgia)	Karabastau Formation	Shmakov, 2008
Karataothripidae	*Karataothrips jurassicus*	Upper Jurassic (Kimmeridgia)	Karabastau Formation	Sharov, 1972
Hemithtipidae	*Hemithrips antiquus*	Eocene	Baltic amber	Bagnall,1923
	Hemithrips simplex	Eocene	Baltic amber	Bagnall,1923
	Hemithrips femoralis	Eocene	Baltic amber	Bagnall,1923
	Hemithrips parallelicornis	Eocene	Baltic amber	Bagnall, 1924
	Hemithrips schlechtendali	Eocene	Baltic amber	Bagnall, 1924
	Hemithrips setosus	Eocene	Baltic amber	Bagnall, 1924
	Hemithrips thoracicus	Eocene	Baltic amber	Bagnall, 1924
	Hemithrips breviventris	Eocene	Baltic amber	Bagnall, 1924
	Hemithrips clypeatus	Eocene	Baltic amber	Bagnall, 1924
	Hemithrips excellens	Eocene	Baltic amber	Bagnall, 1924
	Hemithrips frechi	Eocene	Baltic amber	Bagnall, 1924
	Hemithrips longulus	Eocene	Baltic amber	Bagnall, 1924
	Hemithrips minimus	Eocene	Baltic amber	Bagnall, 1924
	Hemithrips pennifera	Eocene	Baltic amber	Bagnall, 1924
	Hemithrips pygmaeus	Eocene	Baltic amber	Bagnall, 1924
Rohrthripidae	*Rohrthrips libanicus*	Cretaceous	Lebanese amber	Nel et al., 2010
	Rohrthrips burmiticus	Cretaceous	Burmese amber	Ulitzka, 2018

Table 2
A list of all described Stenurothripidae in amber.

Genus species	Age	Locality	Body Length (mm)	Reference
Exitelothrips mesozoicus	Early Cretaceous	Lebanese amber	1.3	zur Stassen (1973)
Neocomothrips kennigianus	Early Cretaceous	Lebanese amber	0.85–0.9	zur Stassen (1973)
Progonothrips horridus	Early Cretaceous	Lebanese amber	1.1	zur Stassen (1973)
Rhetinothrips elegans	Early Cretaceous	Lebanese amber	1.35	zur Stassen (1973)
Scaphcthrips antennatus	Early Cretaceous	Lebanese amber	0.75–0.8	zur Stassen (1973)
Scudderothrips sucinus	Early Cretaceous	Lebanese amber	>1.2	zur Stassen (1973)
Hispanothrips utrillensis	Early Cretaceous	Spanish amber	?	Peñalver and Nel (2010)
Opadothrips fritschianus	Eocene	Baltic amber	1.56	Priesner (1924)
Opadothrips sexspinosus	Eocene	Baltic amber	0.9	Priesner (1929)
Opadothrips ischyrus	Eocene	Baltic amber	1.345	Schliephake (2005)
Stenurothrips succineus	Eocene	Baltic amber	1.8	Bagnall (1914)
	Late Eocene	Baltic amber	1.497	Schliephake (2001)
Stenurothrips brevisetis	Late Eocene	Baltic amber	1.5	Bagnall (1923)
	Eocene	Baltic amber	1.5	Schliephake (1990)
Stenurothrips bagnalli	Eocene	Baltic amber	1.8	Stannard (1956)
	Eocene	Baltic amber	1.655	Schliephake (2005)
Stenurothrips melior	Miocene	Bitterfeld amber	1.64	Schliephake (1990)
Stenurothrips brachycerus	Late Eocene	Bitterfeld amber	1.6	Schliephake (1999)
	Late Eocene	Baltic amber	1.31	Schliephake (2001)
Stenurothrips maximus	Late Eocene	Baltic amber	1.93	Schliephake (1999)
	Late Eocene	Rovno amber	?	Shmakov and Perkovsky (2009)
Stenurothrips polonius	Late Eocene	Baltic amber	1.566	Schliephake (2001)
(plesion) Holarthrothrips miocaenicus	Miocene	Bitterfeld amber	0.77	Schliephake (1990)
(plesion) Holarthrothrips crassicornis	Late Eocene	Baltic amber	1.05	Schliephake (2001)

extant species in U.S.A (Moulton, 1933). Moreover, there are 17 species of fossil thrips in the family Stenurothripidae (Table 2), which belong to nine fossil genera: six monotypic genera from Lower Cretaceous Lebanese amber (zur Strassen, 1973), one monotypic genus from Lower Cretaceous Spanish San Just amber (Peñalver and Nel, 2010), one genus with seven species from Europe including Eocene Rovno, Baltic and Bitterfeld amber (Bagnall, 1914; Stannard, 1956; Mound and Marullo, 1998; Schliephake, 2001; Shmakov and Perkovsky, 2009), and one genus with three species from Europe including Eocene Baltic amber (Priesner, 1924; Bhatti, 2006; Peñalver and Nel, 2010).

Up to date, there have been four families of thrips recorded in Myanmar amber, i.e., Aeolothripidae, Thripidae (Ross, 2018), Rohrthripidae and Merothripidae (Ulitzka, 2018). Rohrthripidae are clearly differentiated from the extant Phlaeothripidae, suggesting a rather basal position for Tubulifera which would present valuable information on the phylogeny and evolution of modern Thysanoptera. However, no species of Stenurothripidae have been described in the Myanmar amber so far.

Herein *Cenomanithrips primus* gen. et sp. nov. in Stenurothripidae is described based on a well-preserved complete male thrips from the mid-Cretaceous amber of northern Myanmar. The new thrips is the first record of Stenurothripidae in Myanmar amber hitherto, providing important morphological characters of this family. In addition, a Key to extinct and extant genera of Stenurothripidae is presented.

2. Material and methods

The amber type specimen for our study was collected from Kachin (Hukawng Valley) of northern Myanmar, 100 km southwest of the village of Tanai (Dong et al., 2015: fig. 1). These deposits have

yielded many well-preserved insect fossils (e.g., Cruickshank et al., 2003; Wang et al., 2016; Chen et al., 2018a, b; Li et al., 2018; Zhang et al., 2018). Although the age of Myanmar amber previously was controversial (Zherikhin & Ross, 2000; Grimaldi et al., 2002; Ross et al., 2010), a recent radioisotopic date has been established at 98.79 ± 0.62 Ma (lowermost Cenomanian), considering other factors such as radiometric dates obtained from the volcanic clasts present within the amber-bearing sediments (Cruickshank and Ko, 2003; Shi et al., 2012). At the same time, the amber displays unquestionable traces of being redeposited (Ross, 2015, 2018), thus, it is highly likely to be older than the source deposits. That is why it is safer to refer to its origin informally as mid-Cretaceous.

The amber pieces were polished in order to optimize the viewing and photography of specimens for taxonomic study. The type specimen described in this paper is housed in the Key Lab of Insect Evolution and Environmental Changes, College of Life Sciences, Capital Normal University, Beijing, China.

The holotype male thrips, No. CNU-THY-MA2018101, is preserved in a piece of yellow amber. The magnified images of details of the specimens were taken with a Nikon SMZ 25 microscope with a Nikon DS-Ri 2 digital camera system and Zeiss ApoTome.2 with an AXIO Zoom.V16 digital camera system under Rhod (rhodamine) and GFP (green fluorescent protein) modes. Line drawings were prepared by using Adobe Illustrator CS6 and Adobe Photoshop CS6 graphics software. The present work has been registered in ZooBank LSID under urn:lsid:zoobank.org:pub:1AC8309A-86C6-4F43-AAB1-88248171B4AE.

In the text, higher rank group names use the Ulitzka's classification (Ulitzka, 2018).

3. Systematic palaeontology

Order Thysanoptera Haliday, 1836
Suborder Terebrantia Haliday, 1836
Family Stenurothripidae Bagnall, 1923

Cenomanithrips Tong, Shih & Ren, gen. nov.
(Figs. 1-4)
Type species: *Cenomanithrips primus* sp. nov.

Etymology. This genus is named after the Cenomanian stage from the middle Cretaceous, the age of the amber sites in Myanmar, where the new taxon was found and “thrips” is a suffix representing this order of insects. The gender is masculine.

Diagnosis. Head with horizontal extension, no strong postocular setae. Antenna with nine antennomeres, with sutures on antennomeres II–IX, without a terminal stylus; antennomeres freely articulated, antennomeres II and V–VIII with some short setae, antennomeres III and IV with a wide-seated conical sensilla. Pronotum with lateral, posteromarginal, long posteroangular setae. Fore legs unreinforced, only femur thickened, fore tarsus without well-developed recurved ventral hamus. Terminal abdominal segment not tube-like, tergites VII and VIII without any posteromarginal microtrichia. Forewing pale, slander, surface with microtrichia and narrow at apex, with two longitudinal veins and only one cross-vein. This new genus has one seta on posterior vein basal to this cross-vein, anterior vein without setae, right forewing posterior vein with three setae, left forewing posterior vein with only one seta. Hind wing with one longitudinal vein. Forewings and hind wings with undulated fringe.
Remarks. This genus with nine antennomeres, each of antennomeres III and IV with a broadly based conical sensilla which are typically presented in Stenurothripidae (Schliephake, 1990). The extant genera bear straight fringe, while fossil genera bear wavy fringe (Schliephake, 1990), *Cenomanithrips* gen. nov., in the mid-Cretaceous, is consistent with other fossil genera. Because of the sexual dimorphism, we only compare key characters of *Cenomanithrips* gen. nov. with the male specimens of the nine extinct genera in Table 2 and summarized these extinct genera and extant genera in a Key.

Stenurothrips Bagnall, 1914 has terminal abdominal segment long, cylindrical and tube-like (vs. other genera and this new genus have terminal abdominal segments not tube-like). *Hispanothrips* Peñalver and Nel, 2010, as the three extant genera, has fore tarsus with a claw-like process (hamus) at apex (vs. other extinct genera and this new genus without a claw-like process [hamus] at apex; two genera unknown whether with or without a claw-like process [hamus] at apex: *Exitelothrips* Stassen, 1973 with forelegs probably broken off and *Scaphothrips* Stassen, 1973 with forelegs folded together). *Scaphothrips* Stassen, 1973 with fore tarsus 1-segmented (vs. other extinct genera and this new genus with fore tarsus 2-segmented). This new genus and other genera with three ocelli (vs. one unknown case of *Exitelothrips* Stassen, 1973 with head crushed, pressed on the left side). Head of other genera with long postocular setae (vs. *Hispanothrips* Peñalver and Nel, 2010 and this new genus without strong postocular setae; and one unknown case of *Exitelothrips* Stassen, 1973 with head crushed). *Progonothrips* Stassen, 1973 and *Rhetinothrips* Stassen, 1973 with 15 antennomeres and *Scaphothrips* Stassen, 1973 with 10 antennomeres (vs. other genera and this new genus with nine antennomeres). *Exitelothrips* Stassen, 1973, *Progonothrips* Stassen, 1973, *Rhetinothrips* Stassen, 1973, *Scaphothrips* Stassen, 1973 and *Scudderothrips* Stassen, 1973 without forewing cross-veins and *Neocomothrips* Stassen, 1973 with three short forewing cross-veins (vs. *Hispanothrips* Peñalver and Nel, 2010, *Opadothrips* Priesner, 1924, *Stenurothrips* Bagnall, 1914 and this new genus with only one forewing cross-vein). *Exitelothrips* Stassen, 1973 and *Progonothrips* Stassen, 1973 forewing broad and *Opadothrips* Priesner, 1924 forewing broad at apex (vs. other genera and this new genus forewing slender and becoming narrower at apex). *Opadothrips* Priesner, 1924 having foreleg with spine (vs. other genera and this new genus foreleg without spine). *Neocomothrips* Stassen, 1973, *Progonothrips* Stassen, 1973, *Scaphothrips* Stassen, 1973, *Scudderothrips* Stassen, 1973 and *Hispanothrips* Peñalver and Nel, 2010 and this new genus forewing surface with microtrichia (vs. forewing surface of other genera without microtrichia). Body lengths of most of other genera longer than that of this new genus (Table 2).

This new genus *Cenomanithrips* has one seta on posterior vein basal to the cross-vein between the anterior and posterior veins. This character is differentiated from forewing posterior vein without setae basal to cross-vein in *Heratythrips*, and forewing posterior vein with two or more setae basal to cross-vein in *Oligothrips* and plesion *Holarthrothrip* (Mound and Marullo, 1998).

Cenomanithrips primus Tong, Shih & Ren, gen. et sp. nov.
(Figs. 1-4)

Etymology. The specific epithet of “primus” is a Latin word of first, referring to this genus being described for the first time in amber from Myanmar.

Material. Holotype: male adult. No. CNU-THY-MA2018101, an almost complete specimen.
(Figs. 1-4).
Locality and horizon. The amber specimen was collected from Kachin (Hukawng Valley) of northern Myanmar, which was dated at 98.79 ± 0.62Ma (Cruickshank et al., 2003; Shi et al., 2012).
Diagnosis. As for genus.
Description. Male macropterous. Head horizontal extension, with almost parallel sides, without strong postocular setae, ventral side

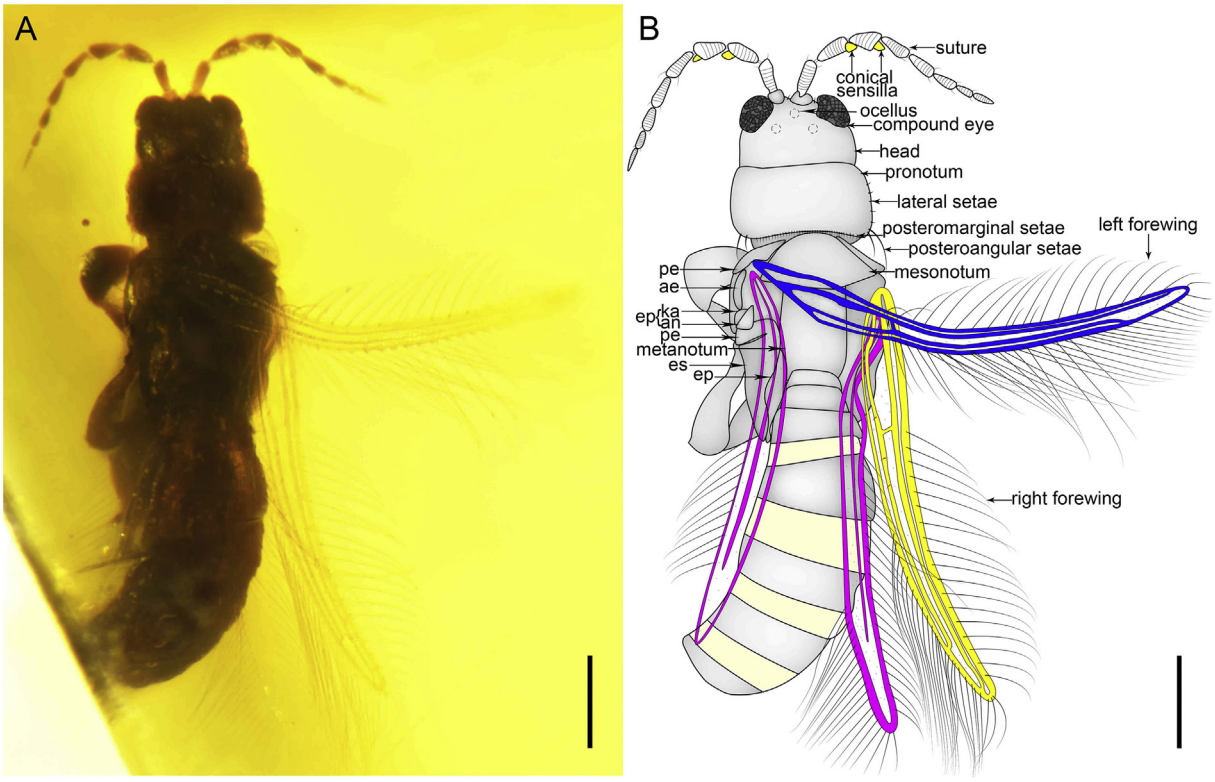

Fig. 1. *Cenomanithrips primus* gen. et sp. nov. Holotype, CNU-THY-MA2018101. A, Photograph of habitus in dorsal view. B, Line drawing in dorsal view (Scale bars = 0.1 mm). pe: pre-episternum; ae: anepisternum; ep: epimeron; ka: katepimeron; an: anepimeron; es: episternum.

of head with some microtrichia (Fig. 1A, B; Fig. 2A, B). Maxillary palps 3-segmented (Fig. 2A, B; Fig. 3D) and labial palps unclear. Head not produced in front of eyes, compound eyes large, with many large facets, with two short setae between two eyes (Fig. 3G), three ocelli unclearly preserved, with indication of a triangle of one ocellus in front of the other two (Fig. 1A, B; Fig. 3C). Tentorium unclear (Fig. 1A, B; Fig. 2A, B). Antenna with nine antennomeres, with sutures on antennomeres II–IX, without terminal stylus, antennomeres freely articulated, antennomeres II and V–VIII with microtrichia, antennomeres III and IV with broadly conical sensilla (Fig. 1A, B; Fig. 2A, B; Fig. 3A, B, C).

The pronotum conspicuous, square, wider than long, with a row of prominent posteromarginal setae and lateral setae and two pairs of long posteroangular setae, posteroangular setae longer than posteromarginal setae, inner posteroangular setae shorter than outer pair. The pterothorax with longitudinal extension, mesonotum roughly hexagonal, two sides with pre-episternum, anepisternum and epimeron (comprising katepimeron and anepisternum); metanotum rectangular with longitudinal extension, two sides with pre-episternum, episternum and epimeron (Fig. 1A, B; Fig. 2A, B; Fig. 3F, H, I, J).

Forewing slander, narrow at apex, extending beyond the apex of abdomen, with undulated fringe cilia, the cilia arising from "8"-shaped sockets, surface with microtrichia, with two longitudinal veins in addition to the costa vein and a cross-vein between them, forewing clavus with paired setiform processus, hind wing with one longitudinal vein (Fig. 1A, B; Fig. 4A, B, C, D, E, F).

Fore legs unreinforced, fore tarsus 2-segmented, with an eversible bladder, without well-developed recurved ventral hamus, only the femur of the fore leg and hind leg bearing some stout setae, other part of legs without setae (Fig. 2A, B; Fig. 3D).

Abdomen 10 segmented, downward bending, sculptured with irregular transverse striations. The 10th abdominal segment not tube-like, shape of last segment and contours of their inner surfaces male (Fig. 2A, B; Fig. 3E). Tergites VII and VIII without any posteromarginal microtrichia or distal setae, the posterior margin of tergite VIII without ctenidia involved in grooming or wing holding, tergite X median longitudinal split not complete (Fig. 1A, B ; Fig. 2A, B ; Fig. 3E).

Color: Body mostly dark brown. Legs and antenna mostly yellow. Wings pale translucent. Major setae dark brown. Tergites with two colors (Fig. 1A; Fig. 3K, L; Fig. 4A, E).

Sizes of morphological traits of the holotype (in mm). Body length 0.8, head length 0.055, width 0.122; antenna I, II, III, IV, V, VI, VII, VIII, IX length respectively 0.008, 0.026, 0.032, 0.032, 0.03, 0.03, 0.024, 0.019, 0.027; Pronotum length 0.055, width 0.138.

Comparison: Body of the new species shorter than those of most other fossil species, except for *Scaphcthrips antennatus* and (plesion) *Holarthrothrips miocaenicus* with slightly shorter body lengths. In addition, the body length of *Hispanothrips utrillensis* is unknown (Table 2); while Pronotum length of *Hispanothrips utrillensis* more than 0.115, width wider than 0.225 (Peñalver and Nel, 2010).

Key to genera of Stenurothripidae.

1. Wings bear straight fringe.....2
 - Wings bear wavy fringe.....4
2. Forewing second vein with no setae on basal stem; sternites with three pairs of posteromarginal setae scarely twice as long as marginal microtrichia; fore tarsus without a recurved ventral hamus; head and pronotum lacking setae longer than median length of one posterior ocellus; tentorial bridge not developed.....*Heratythrip* Mound & Marullo, 1999.

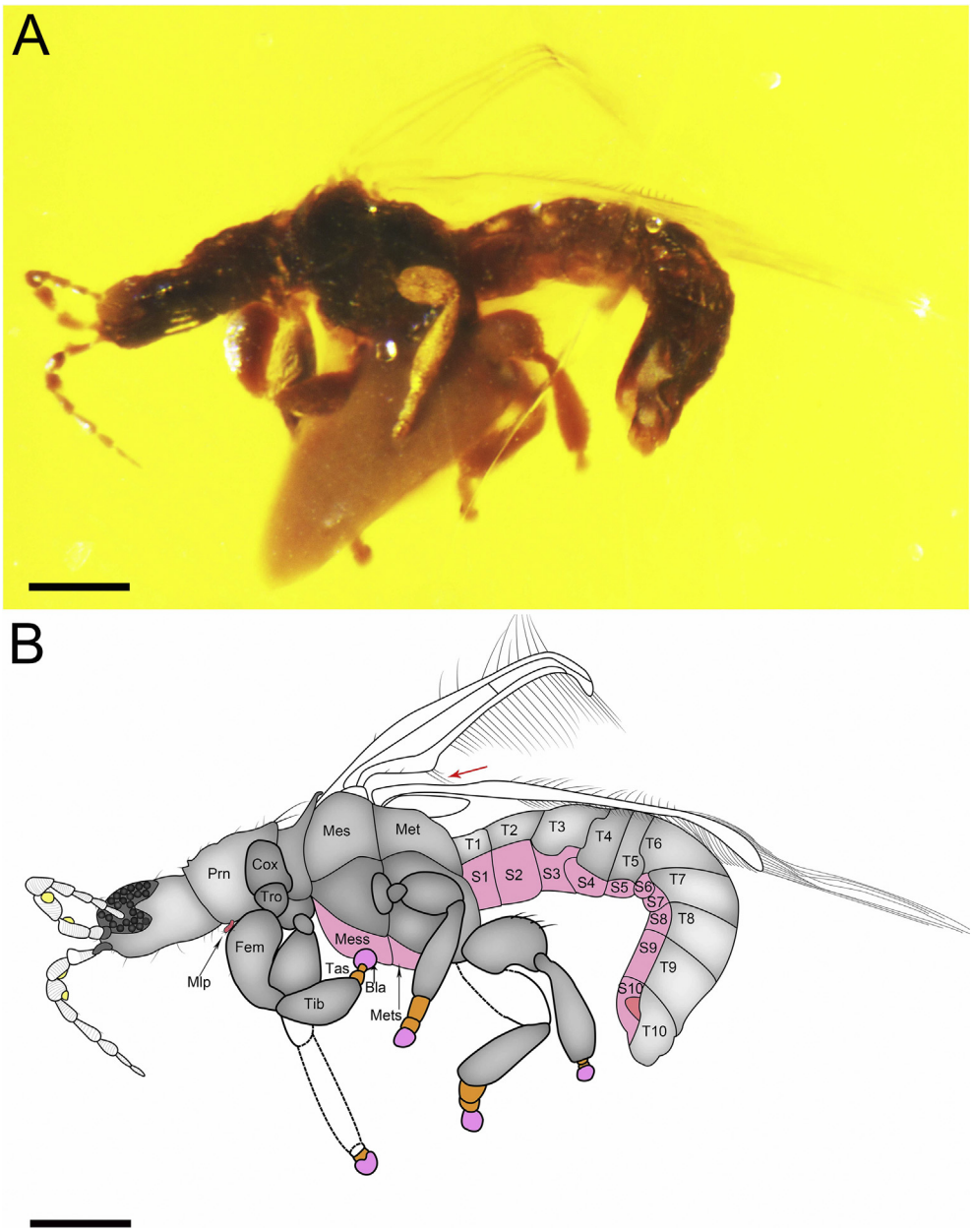

Fig. 2. *Cenomanithrips primus* gen. et sp. nov. Holotype, CNU-THY-MA2018101. A, Photograph of habitus in lateral view. B, Line drawing in lateral view (Scale bars = 0.1 mm). Prn: Pronotum; Mes: Mesonotum; Met: Metanotum; Mess: Mesosternum; Mets: Metasternum; Cox: Coxa; Tro: Trochanter; Fem: Femur; Tib: Tibia; Tas: Tasus; Bla: Bladder; Mlp: Maxillary palp; T: Tergite; S: Sternite. Forewing clavus with paired setiform processus (red arrow). (For interpretation of the references to color in this figure legend, the reader is referred to the Web version of this article.)

- Forewing second vein with two or more setae basal to cross-vein between first and second veins; sternites with posteromarginal setae prominent, usually four pairs present; fore tarsus with well-developed recurved ventral hamus; head or pronotum usually with at least one pair of setae twice as long as a posterior ocellus; tentorial bridge usually present.....3
3. Sternite VII usually with four pair of setae, one pair arising on posterior margin medially, one pair arising close to these but in front of margin, two pairs arising laterally far in front of posterior margin; sternites IV-VI without discal setae; tergites VII and VIII without any posteromarginal microtrichia; metanotal sculpture or elongate reticulate, without microtrichia.....*Oligothrips* Moulton, 1933
- Sternite VII with four (or three) pairs of postermarinal setae and about three pairs of discal setae laterally; sternites IV-VII often with discal setae laterally; tergites VII and VIII with complete posteromarginal comb of microtrichia; metanotum with concentric ring of sculptured lines bearing numerous microtrichia.....*Holarthrothrips* Bagnall, 1927
4. Terminal abdominal segment long, cylindrical, tube-like.....*Stenurothrips* Bagnall, 1914
- Terminal abdominal segment not long, cylindrical, tube-like.....5
5. Antenna with more than nine antennomeres 6
- Antenna with nine antennomeres.....8
6. Antenna with ten antennomeres.....
.....*Scaphothrips* zur Strassen (1973)

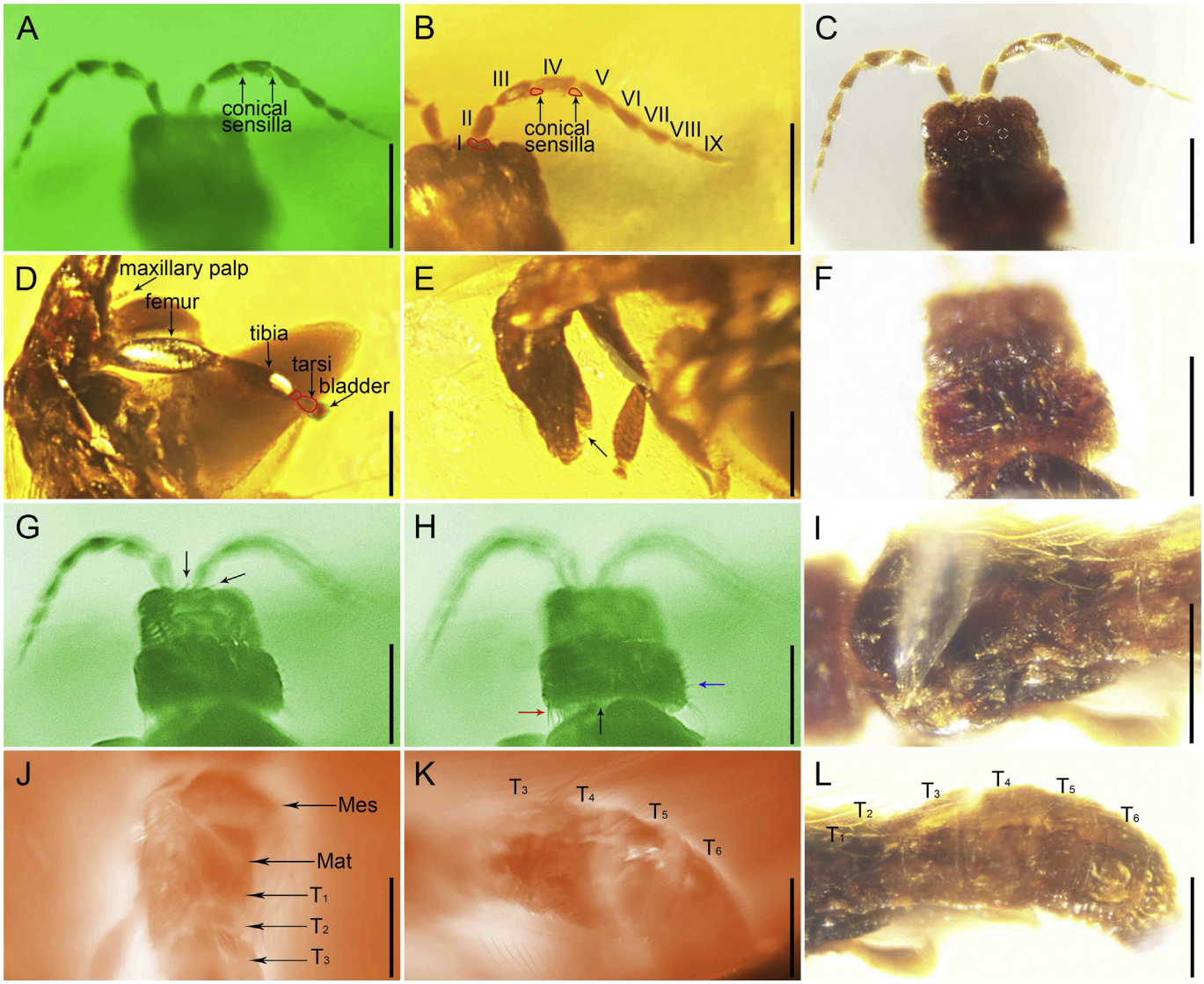

Fig. 3. *Cenomanithrips primus* gen. et sp. nov. Holotype, CNU-THY-MA2018101. Photographs. A. Right antenna in dorsal view under GFP. B. Right antenna in dorsal view. C. Head and antennae in dorsal view. D. Fore leg in lateral view. E. Last segment of abdomen in lateral view. F. Pronotum in dorsal view. G. Head in dorsal view under GFP, with two setae (black arrows). H. Pronotum in dorsal view under GFP, with posteroangular setae (red arrow), posteromarginal setae (black arrow) and lateral setae (blue arrow). I. Mesonotum and metanotum. J. Mesonotum, metanotum and tergites I, II and III in dorsal view under Rhod. K. Tergites III, IV, V and VI in lateral view under Rhod. L. Tergites I, II, III, IV, V and VI in lateral view (Scale bars = 0.1 mm). (For interpretation of the references to color in this figure legend, the reader is referred to the Web version of this article.)

- Antenna with 15 antennomeres, segments IX-XV stylus-like.....7
7. Stylus together almost as long as segment VII..... .....*Progonothrips* zur Strassen (1973)
- Stylus noticeably longer than antennomere VII..... .....*Rhetinothrips* zur Strassen (1973)
8. Forewing without microtrichia.....9
- Forewing with microtrichia.....10
9. Forewing without cross-vein..... ..... *Exitelothrips* zur Strassen (1973)
- Forewing with one cross-vein..... ..... *Opadothrips* Priesner, 1924
10. Forewing without cross-vein..... ..... *Scudderothrips* zur Strassen (1973)
- Forewing with cross-vein.....11
11. Forewing with only one cross-vein, fore tarsus without a claw-like process (hamus) at apex..... ..... *Cenomanithrips* gen. nov.
- Forewing with three cross-veins.....12
12. Fore tarsus with a claw-like process (hamus) at apex..... *Hispanothrips* Peñalver and Nel, 2010
- Fore tarsus without a claw-like process (hamus) at apex..... *Neocomothrips* zur Strassen (1973)

4. Discussion

In this paper, *Cenomanithrips primus* gen. et sp. nov. is described as a new taxon in Stenurothripidae based on a thrips in amber from Myanmar. The new taxon, owing to their well-preserved characters in amber, provides more morphological characters of wings and body of Stenurothripidae, and gives us a better understanding of morphological characters and relationships of Stenurothripidae. In order to better understand the fossil species of Stenurothripidae, we set up a Key for these extinct and extant genera recorded.

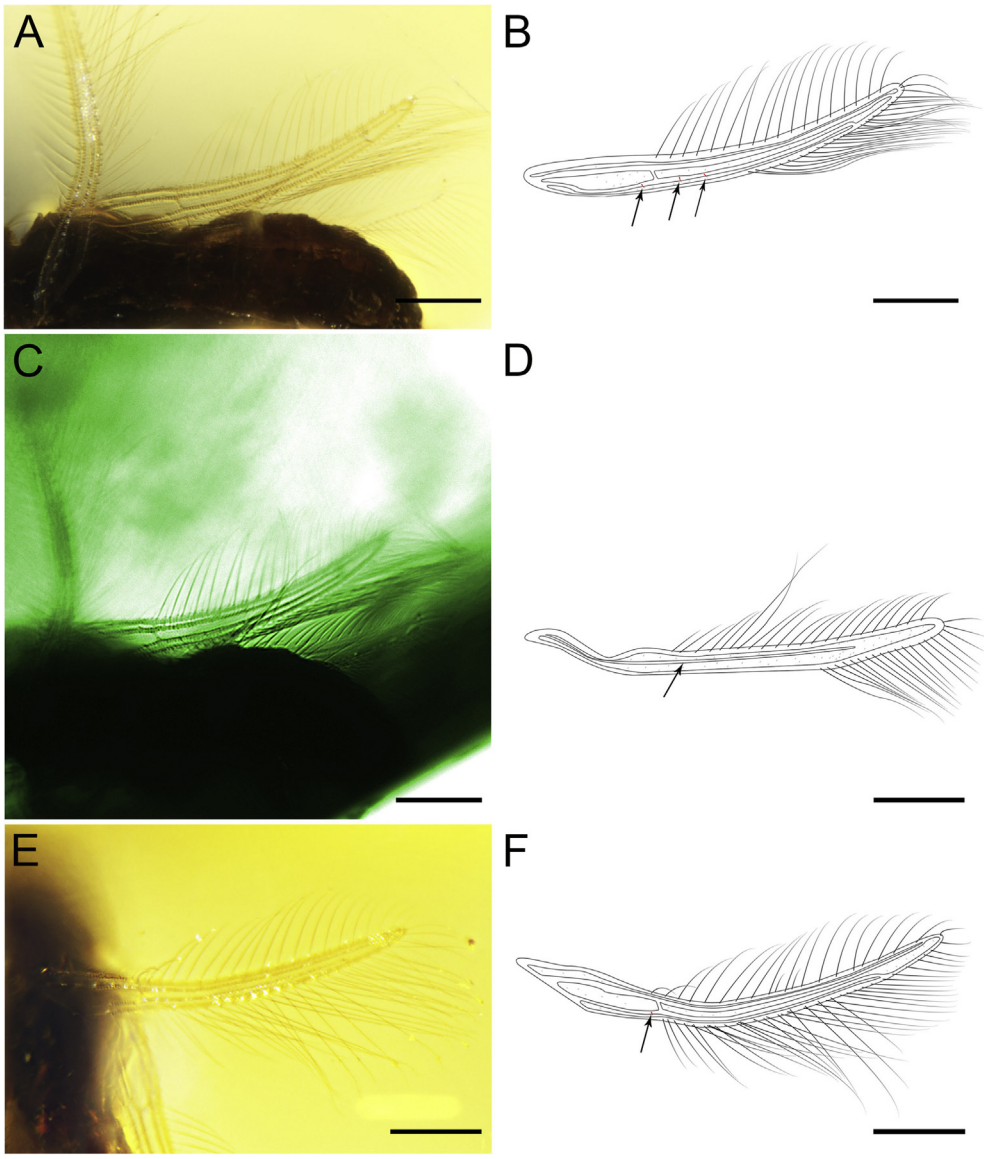

Fig. 4. *Cenomanithrips primus* gen. et sp. nov. Holotype, CNU-THY-MA2018101. A, Photograph of right forewing and hind wing in dorsal view. B, Line drawing of right forewing, three setae indicated by black arrows. C, Photograph of right forewing and hind wing in dorsal view under GFP. D, Line drawing of right hind wing, one longitudinal vein indicated by a black arrow. E, Photograph of left forewing in dorsal view. F, Line drawing of left forewing, a seta indicated by a black arrow (Scale bars = 0.1 mm).

The extant genera bear straight fringe while fossil genera bear wavy fringe (Schliephake, 1990). *Cenomanithrips* Tong, Shih & Ren, gen. nov. with undulated fringe is consistent with the extinct genera. Only *Hispanothrips* and this new genus have heads without postocular setae, which is different from other genera having postocular setae. (Plesion) *Holarthrothrips* tergites VII and VIII with complete posteromarginal comb of microtrichia different from this genus. Only *Oligothrips*, *Holarthrothrips* and *Hispanothrips* with a recurved ventral hamus. *Exitelothrips* forewings broad and without cross-veins. Forewings of *Opadothrips*, *Exitelothrips* and *Progonothrips* broad at apex different from other genera with forewings narrow at apex. *Hispanothrips* does not have strong setae on posterior vein basal to this cross-vein; anterior vein with ca. 13 setae, posterior vein with ca. seven setae, this new genus has one setae on posterior vein basal to this cross-vein, anterior vein without setae, right forewing posterior vein with three setae, left forewing posterior vein with only one seta. *Hispanothrips* antennomeres III and IV elongate, cylindrical, each with one “two-segmented" conical sensilla, different from other genera of this family that have antennomeres III and IV each with a broadly based conical trichome. *Cenomanithrips* gen. nov. has three ocelli, the same as other genera, although preserved unclearly.

The extant species of this family all breed in flowers, they probably have a high degree of host specificity. Since the angiosperms started to diversify in the Cretaceous, this family of thrips might have started to evolve and adapt to the new plants of angiosperms in the ecosystems.

5. Conclusions

The new thrips, *Cenomanithrips primus* gen et sp. nov., in Stenurothripidae is documented by one specimen from the mid-Cretaceous Myanmar amber. This is the first extinct record of Stenurothripidae in Myanmar amber, which provides important morphological information about wings and body. In addition, this finding also broadens the taxa and distribution of Stenurothripidae,

in addition to the four families already described in amber of Myanmar: Aeolothripidae, Thripidae (Ross, 2018), Merothripidae and Rohrthripidae (Ulitzka, 2018).

Acknowledgements

We appreciate the valuable comments, constructive suggestion from the Editor Dr. Koutsoukos, Dr.. Shmakov and an anonymous reviewer. We are grateful for the advice and guidance from Dr. Laurence A. Mound, Dr. Manfred R. Ulitzka and Dr. Jitendravir S. Bhatti and their provision of early and rare literature. We thank Taiping Gao, Sha Chen, Mingyue Ren, Qingqing Lin, Yan Han, Xiaodan Lin, He Tian, Yizi Cao, Sile Du, Qiang Yang (College of Life Sciences, Capital Normal University) and Shimeng Zhang (North West Agriculture and Forestry University) for their useful advice and comments. This project is supported by grants from the National Natural Science Foundation of China (Grant nos. 31730087, 41688103 and 31672323), The Program for Changjiang Scholars and Innovative Research Team in University (IRT-17R75), and Support Project of High-level Teachers in Beijing Municipal Universities in the Period of 13th Five-year Plan (Grant no. IDHT20180518).

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Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.cretres.2019.03.005.

Supplementary material for

A new genus and species of Stenurothripidae (Insecta: Thysanoptera: Terebrantia) from mid-Cretaceous Myanmar amber

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This supplementary file includes:

- Appendix A list of fossil record in extant family of Thysanoptera in the world
- References in Appendix A

Appendix A list of fossil record in extant family of Thysanoptera in the world

Family	Genus	Species	Locality	Age	Reference
Aeolothripidae Uzel, 1895	*Plesion Aeolothrips* Haliday, 1836	*Aeolothrips extinctus* Preisner and Qui évreux, 1936	Alsace potash field, Anna pit (France)	Late Oligocene	Preisner and Qui évreux, 1936
		Aeolothrips jarzembowskii Shmakov, 2014	United Kindom	Eocene	Shmakov, 2014
		Aeolothrips (*Heliothrips*) *cucullatus* von Schlechtendal, 1887	Rott-am-Siebangebirge (Germany)	Oligocene	von Schlechtendal, 1887
		Aeolothrips longipes von Schlechtendal, 1887	Rott-am-Siebangebirge (Germany)	Oligocene	von Schlechtendal, 1887
	Mymarothrips Bagnall, 1928	*Mymarothrips groehni* Ulitzka, 2015	Baltic amber	Eocene	Ulitzka, 2015a
	Cretothrips Grimaldi, 2004	*Cretothrips antiquus* Grimaldi, 2004	New Jersey amber (U.S.A.)	Early Cretaceous	Grimaldi *et al.*, 2004
	Fusithrips Shmakov, 2009	*Fusithrips crassipes* Shmakov, 2009	Baissa locality Russian Federation	Early Cretaceous	Shmakov, 2009
	Lithadothrips Scudder, 1875	*Lithadothrips cucullatus* (*Heliothrips cucullata*) von Schlechtendal, 1887	Rott-am-Siebangebirge (Germany)	Oligocene	von Schlechtendal, 1887 and Uzel, 1895
		Lithadothrips vetustus Scudder, 1875	Fossil Canyon (U.S.A.)	Early Eocene	Scudder, 1875
	Palaeothrips Scudder, 1867	*Palaeothrips fossilis* Scudder, 1867	Fossil Canyon (U.S.A.)	Early Eocene	Scudder, 1867
		Palaeothrips longipes von Schlechtendal, 1887	Rott-am-Siebangebirge (Germany)	Oligocene	von Schlechtendal, 1887
	Rhipidothripoides Bagnall, 1923	*Rhipidothripoides abdominalis* Bagnall, 1923	Baltic amber	Eocene	Bagnall, 1923

		Rhipidothripoides involves Schliephake, 2001	Baltic amber	Eocene	Schliephake, 2001a
		Rhipidothripoides juttae Ulitzka, 2015	Baltic amber	Eocene	Ulitzka, 2015a
	Sinaeolothrips Shmakov, 2014	*Sinaeolothrips* (*Aeolothrips*) *brodiei* Cockerell, 1917	Fossil in Limestone in England	Late Eocene	Shmakov, 2014
Heterothripidae Bagnall, 1912	*Electrothrips* Bagnall, 1924	*Electrothrips hystrix* Bagnall, 1924	Baltic amber	Eocene	Bagnall, 1924a
	Eocephalothrips Bagnall, 1924	*Eocephalothrips* (*Thrips*) *capito* von Schlechtendal, 1887	Baltic amber from Russia	Eocene	von Schlechtendal, 1887
	Plesion Heterothrips Buffa, 1908	*Heterothrips nani* Schliephake, 2001	Baltic amber	Eocene	Schliephake, 2001b
	Prototrips Priesner, 1924	*Prototrips speratus* Priesner, 1924	Baltic amber	Eocene	Priesner, 1924
Melanthripidae Bagnall, 1913	*Eocranothrips* Bagnall, 1926	*Eocranothrips annulicornis* Bagnall, 1923	Baltic amber	Late Eocene	Bagnall, 1923; 1926
		Eocranothrips compacticornis Schliephake, 1999	Baltic amber from Denmark	Late Eocene	Schliephake, 1999
		Eocranothrips leptocerus Schliephake, 1999	Bitterfeld amber	Eocene	Schliephake, 1999
		Eocranothrips samlandi Schliephake, 1999	Baltic amber from Samland (Russia)	Late Eocene	Schliephake, 1999
	Archankothrips Priesner, 1924	*Archankothrips pugionifer* Priesner, 1924	Baltic amber	Eocene	Priesner, 1924 and Schliephake, 2001a
		Archankothrips (*Melanthrips*) *varicornis* Bagnall 1923	Baltic amber	Late Eocene	Bagnall, 1923, Mound, 1968 and Schliephake, 2001a
		Archankothrips zawirskae	Baltic amber	Eocene	Schliephake, 2001a

		Schliephake, 2001			
		Archankothrips spiniger Priesner, 1929	Baltic amber	Eocene	Priesner, 1929
		Archankothrips medisetosus Schliephake, 1993	Bitterfeld amber	Eocene	Schliephake, 1993
		Archankothrips hoffeinsianus Schliephake, 2000	Bitterfeld amber	Eocene	Schliephake, 2000
	Gymnopollisthrips Peñalver, Nel & Nel, 2012	*Gymnopollisthrips minor* Peñalver Nel & Nel, 2012	Spain amber	Early Cretaceous	Peñalver *et al.*, 2012
		Gymnopollisthrips maior Peñalver Nel & Nel, 2012	Spain amber	Early Cretaceous	Peñalver *et al.*, 2012
	Proboscisthrips Ulitzka, 2017	*Proboscisthrips mammuthoides* Ulitzka, 2017	Baltic amber	Eocene	Ulitzka, 2017
Merothripidae Hood, 1914	*Jezzinothrips* zur Strassen, 1973	*Jezzinothrips cretacicus* zur Strassen, 1973	Lebanese amber	Early Cretaceous	zur Strassen, 1973
	Praemerothrips Priesner, 1929	*Praemerothrips hoodi* Priesner, 1929	Baltic amber	Eocene	Priesner, 1929 and Ulitzka, 2015b
	Plesion *Merothrips* Hood, 1912	*Merothrips dietrichi* Schliephake, 2003	Baltic amber	Eocene	Schliephake, 2003a and Ulitzka and Mound, 2017
		Merothrips balticus Ulitzka, 2015	Baltic amber from Gdansk	Eocene	Ulitzka, 2015b
		Merothrips fritschi Priesner, 1924	Baltic amber	Eocene	Priesner, 1924
	Myanmarothrips	*Myanmarothrips pankowskiorum* Ulitzka, 2018	Burmese amber	Cretaceous	Ulitzka, 2018

	Ulitzka, 2018				
Uzelothripidae Hood, 1952	*Plesion Uzelothrips* Hood, 1952	*Uzelothrips eocenicus* Nel and Nel, 2013	Oise (northern France) amber	Early Eocene	Nel *et al.*, 2013
Stenurothripidae Bagnall, 1923	*Exitelothrips* zur Strassen, 1973	*Exitelothrips mesozoicus* zur Strassen, 1973	Lebanese amber	Early Cretaceous	zur Strassen, 1973
	Neocomothrips zur Strassen, 1973	*Neocomothrips hennigianus* zur Strassen, 1973	Lebanese amber	Early Cretaceous	zur Strassen, 1973
	Progonothrips zur Strassen, 1973	*Progonothrips horridus* zur Strassen, 1973	Lebanese amber	Early Cretaceous	zur Strassen, 1973
	Rhetinothrips zur Strassen, 1973	*Rhetinothrips elegans* zur Strassen, 1973	Lebanese amber	Early Cretaceous	zur Strassen, 1973
	Scaphothrips zur Strassen, 1973	*Scaphothrips antennatus* zur Strassen, 1973	Lebanese amber	Early Cretaceous	zur Strassen, 1973
	Scudderothrips zur Strassen, 1973	*Scudderothrips sucinus* zur Strassen, 1973	Lebanese amber	Early Cretaceous	zur Strassen, 1973
	Stenurothrips Bagnall, 1914	*Stenurothrips succineus* Bagnall, 1914	Baltic amber	Eocene	Bagnall, 1914 and Schliephake, 2001a
		Stenurothrips brevisetis Bagnall, 1923	Baltic amber from Russia	Late Eocene	Bagnall, 1923 and Schliephake, 1990
		Stenurothrips bagnalli Stannard, 1956	Baltic amber from Russia	Eocene	Stannard, 1956 and Schliephake, 2005
		Stenurothrips melior Schliephake, 1990	Bitterfeld amber from Russia	Miocene	Schliephake, 1990
		Stenurothrips brachycerus Schliephake, 1999	Bitterfeld and Baltic amber	Eocene	Schliephake, 1990 and Schliephake, 2001a
		Stenurothrips maximus Schliephake, 1999	Baltic and Rovno amber	Eocene	Schliephake, 1999 and Shmakov and

					Perkovsky, 2009
		Stenurothrips polonius Schliephake, 2001	Baltic amber from Poland	Late Eocene	Schliephake, 2001a
	Opadothrips Priesner, 1924	*Opadothrips fritschianus* Priesner, 1924	Baltic amber	Eocene	Priesner, 1924
		Opadothrips sexspinosus Priesner, 1929	Baltic amber	Eocene	Priesner, 1929
		Opadothrips ischyrus Schliephake, 2005	Baltic amber	Eocene	Schliephake, 2005
	Hispanothrips Peñalver and Nel, 2010	*Hispanothrips utrillensis* Peñalver and Nel, 2010	Spanish amber	Early Cretaceous	Peñalver and Nel, 2010
	Plesion Holarthrothrips Bagnall, 1927	*Holarthrothrips miocaenicus* Schliephake, 1990	Bitterfeld amber	Miocene	Schliephake, 1990
		Holarthrothrips crassicornis Schliephake, 2001	Baltic amber from Poland	Late Eocene	Schliephake, 2001a
Thripidae Stevens, 1829	*Plesion Thrips* Linnaeus, 1758	*Thrips formicoides* Oustalet, 1873	Limestone Formation of France	Early Oligocene	Oustalet, 1873
		Thrips obsolete Oustalet, 1873	Limestone Formation of France	Early Oligocene	Oustalet, 1873
		Thrips annulata Menge, 1856	Baltic amber from Poland	Eocene	Menge, 1856
		Thrips antiquus Heer, 1856	Aix_en_Provence, France	Oligocene	Heer, 1856
	Plesion Taeniothrips Serville, 1843	*Taeniothrips* (*Balticothrips*) *streckelsbergi* Schliephake, 1999	Baltic amber from Usedom island, Germany	Eocene	Schliephake, 1999

	Taeniothrips (*Saxonothrips*) *saxonicus* Schliephake, 1999	Baltic amber	Eocene	Schliephake, 1999
	Taeniothrips balticus Schliephake, 1999	Baltic amber	Eocene	Schliephake, 1999
	Taeniothrips (*Physothrips*) *clavicornis* Bagnall, 1924	Baltic amber from Russia	Eocene	Bagnall, 1924b
	Taeniothrips consobrinus Priesner, 1929	Baltic amber	Eocene	Priesner, 1929
	Taeniothrips evelinae Schliephake, 1993	Bitterfeld amber	Eocene	Schliephake, 1993
	Taeniothrips goitschei Schliephake, 1999	Baltic and Saxonian amber	Eocene	Schliephake, 1999
	Taeniothrips (*Physothrips*) *gracilicornis* Bagnall, 1924	Baltic amber	Eocene	Bagnall, 1924b
	Taeniothrips hoffeinsi Schliephake, 1999	Baltic amber	Eocene	Schliephake, 1999
	Taeniothrips inclusus Priesner, 1929	Baltic amber from Russia	Eocene	Priesner, 1929
	Taeniothrips klimti Schliephake, 1993	Bitterfeld amber in Germany	Eocene	Schliephake, 1993
	Taeniothrips litoralis Schliephake, 2001	Baltic amber from the Polish coast	Eocene	Schliephake, 2001a
	Taeniothrips majoribalticus Schliephake, 2001	Baltic amber from the Polish coast	Eocene	Schliephake, 2001a
	Taeniothrips parvus Schliephake, 1993	Bitterfeld amber	Eocene	Schliephake, 1993
	Taeniothrips	Bitterfeld amber from	Eocene	Schliephake, 1993

	pietrzeniuki Schliephake, 1993	Germany			
	Taeniothrips prior Priesner, 1929	Baltic amber from Russia	Eocene	Priesner, 1929	
	Taeniothrips (Physothrips) repositus Priesner, 1924	Baltic amber from Russia	Eocene	Priesner, 1924, Schliephake, 1993	
	Taeniothrips streckelsbergi Schliephake, 1999	Baltic amber from Usedom island, Germany	Eocene	Schliephake, 1999	
	Taeniothrips successus Schliephake, 1993	Bitterfeld amber from Germany	Eocene	Schliephake, 1993	
	Taeniothrips (*Physothrips) succineus* Bagnall, 1924	Baltic amber	Eocene	Bagnall, 1924b	
	Taeniothrips usedomi Schliephake, 1999	Baltic amber	Eocene	Schliephake, 1999	
Telothrips Priesner 1929	*Telothrips klebsi* Priesner, 1929	Baltic amber	Eocene	Priesner, 1929	
	Telothrips minor Priesner, 1929	Baltic amber	Eocene	Priesner, 1929	
Plesion Frankliniella Karny 1910	*Frankliniella intonsoidea* Schliephake, 1999	Bitterfeld amber from Germany	Eocene	Schliephake, 1999	
	Frankliniella oligocaenica Priesner and Quievreux, 1936	Mudstone/evaporate in France	Early Oligocene	Priesner and Quievreux, 1936	
Incertothrips Schliephake 2000	*Incertothrips hoffeinsorum* Schliephake, 2000	Bitterfeld amber from Germany	Eocene	Schliephake, 2000	
	Incertothrips insolitus Schliephake, 2000	Baltic amber from Germany	Eocene	Schliephake, 2000	
Lewisothrips Schliephake 1993	*Lewisothrips telothripoides* Schliephake, 1993	Bitterfeld amber	Eocene	Schliephake, 1993	

Lipsanothrips Priesner, 1929	*Lipsanothrips skwarrae* Priesner, 1929	Baltic amber from Kaliningrad, Russia	Eocene	Priesner, 1929
Oxythrips Uzel, 1895	*Oxythrips bagnalli* Priesner, 1929	Baltic amber	Eocene	Priesner, 1929
	Oxythrips conclusus Priesner, 1929	Baltic amber	Eocene	Priesner, 1929
	Oxythrips crassicornis Priesner, 1929	Baltic amber	Eocene	Priesner, 1929
	Oxythrips fritschi Priesner, 1929	Baltic amber	Eocene	Priesner, 1929
	Oxythrips (*Protoxythrips*) *intermedius* Schliephake, 1999	Baltic amber from Usedom Island (Germany)	Eocene	Schliephake, 1999
	Oxythrips (*Protoxythrips*) *probus* Schliephake, 1993	Bitterfeld amber from Germany	Eocene	Schliephake, 1993
	Oxythrips sepultus Priesner, 1924	Baltic amber	Eocene	Priesner, 1929
	Oxythrips (*Protoxythrips*) *stenuroideus* Schliephake, 2001	Baltic amber	Eocene	Schliephake, 2001a
	Oxythrips (*Protoxythrips*) *ursulae* Schliephake, 1993	Bitterfeld amber from Germany	Eocene	Schliephake, 1993
	Oxythrips stenurus Schliephake, 1993	Bitterfeld amber from Germany	Eocene	Schliephake, 1993
	Oxythrips physothripoides Bagnall, 1924	Baltic amber from Russian Federation	Eocene	Bagnall, 1924b and Mound, 1968
	Oxythrips vigil Priesner, 1929	Baltic amber	Eocene	Priesner, 1929
Procerothrips Bagnall 1924	*Procerothrips cylindricornis* Bagnall, 1924	Baltic amber	Eocene	Bagnall, 1924a
Protanaphothrips	*Protanaphothrips* (*Anaphothrips*)	Baltic amber from	Eocene	Priesner, 1929

Schliephake, 2001	*arcanus* Priesner, 1929	Russia			
	Protanaphothrips (*Anaphothrips*) *fuscicaudeus* Schliephake, 1993	Bitterfeld amber from Germany	Eocene		Schliephake, 1993
	Protanaphothrips (*Anaphothrips*) *intermedius* Schliephake, 1999	Baltic amber from Germany	Eocene		Schliephake, 1999
	Protanaphothrips (*Anaphothrips*) *magniceps* Priesner, 1929	Baltic amber from Russia	Eocene		Priesner, 1929
	Protanaphothrips (*Anaphothrips*) *majoricornis* Schliephake, 1999	Baltic amber from Germany	Eocene		Schliephake, 1999
	Protanaphothrips (*Anaphothrips*) *maximocornis* Schliephake, 2000	Baltic amber	Eocene		Schliephake, 2000
	Protanaphothrips (*Anaphothrips*) *minoricornis* Schliephake, 1999	Baltic amber from Germany	Eocene		Schliephake, 1999
	Protanaphothrips (*Anaphothrips*) *Paeneparallelus* Schliephake, 2000	Baltic amber	Eocene		Schliephake, 2000
	Protanaphothrips (*Anaphothrips*) *parallelus* Schliephake, 1993	Bitterfeld amber from Germany	Eocene		Schliephake, 1999
	Protanaphothrips (*Anaphothrips*) *perspicuus* Priesner, 1924	Baltic amber from Russia and Usedom island, Germany	Eocene		Priesner, 1924 and Schliephake, 1999
	Protanaphothrips (*Anaphothrips*) *suspensus* Schliephake, 1993	Bitterfeld amber from Germany	Eocene		Schliephake, 1993
	Protanaphothrips (*Anaphothrips*) *vicinus* Priesner, 1929	Baltic amber from Russia	Eocene		Priesner, 1929
Plesion Anaphothrips	*Anaphothrips pusillus* Schliephake, 2001	Baltic amber from Poland	Eocene		Schliephake, 2001a

(*Proscirtothrips*) Priesner, 1929				
Tethysthrips Nel, Peñalver, Azar, Hodebert & Nel, 2010	*Tethysthrips hispanicus* Nel, Peñalver, Azar, Hodebert & Nel, 2010	Spain amber	Early Cretaceous	Nel *et al.*, 2010
	Tethysthrips libanicus Nel, Peñalver, Azar, Hodebert & Nel, 2010	Lebanese amber	Early Cretaceous	Nel *et al.*, 2010
Eochirothrips Schliephake, 1999	*Eochirothrips mirocornis* Schliephake, 1999	Bitterfeld amber from Germany	Eocene	Schliephake, 1999
Synnastothrips Schliephake, 1993	*Synnastothrips vitreus* Schliephake, 1993	Bitterfeld amber from Germany	Eocene	Schliephake, 1993
	Synnastothrips minor Schliephake, 1993	Bitterfeld amber from Germany	Eocene	Schliephake, 1993
Convexithrips Shmakov, 2009	*Convexithrips robustus* Shmakov, 2009	Russian Federation, Baissa locality	Early Cretaceous	Shmakov, 2009
Caliothrips	*Caliothrips verae* Schliephake, 2003	Baltic amber	Eocene	Schliephake, 2003a
	Caliothrips (*Selenothrips*) *cordatus* Bagnall, 1924	Baltic amber from Russia	Eocene	Mound, 1968 and Bagnall, 1924a
Calothrips Oustalet, 1873	*Calothrips scudderi* Oustalet, 1873	France	Oligocene	Oustalet, 1873
Plesion Dendrothrips Uzel, 1895	*Dendrothrips giecewiczi* Schliephake, 2001	Baltic amber	Eocene	Schliephake, 2001a
Praedendrothrips Priesner, 1924	*Praedendrothrips avus* Priesner, 1924	Baltic amber	Eocene	Priesner, 1924

Schedodendrothrips Schliephake, 2001	*Schedodendrothrips ursulae* Schliephake, 2001	Baltic amber from Poland	Eocene	Schliephake, 2001a
Synnastothrips Schliephake, 1993	*Synnastothrips minor* Schliephake, 1993	Bitterfeld amber	Eocene	Schliephake, 1993
	Synnastothrips vitreus Schliephake, 1993	Bitterfeld amber	Eocene	Schliephake, 1993
Apodendrothrips Schliephake, 1993	*Apodendrothrips major* Schliephake, 1993	Bitterfeld amber	Eocene	Schliephake, 1993
Coccothrips Shmakov, 2014	*Coccothrips hoffeinsorum* Shmakov, 2014	Fossil in Limestone in England	Late Eocene	Shmakov, 2014
Archaeothrip Priesner, 1949	*Archaeothrips latipennis* Priesner, 1924	Baltic amber	Eocene	Schliephake, 1997
Hoffeinsithrips Schliephake, 2001	*Hoffeinsithrips* teuberi Schliephake, 2001	Baltic amber	Eocene	Schliephake, 2001b
Plesion Heliothrips Haliday, 1836	*Heliothrips scudderi* Bagnall, 1924	Baltic amber	Eocene	Bagnall, 1924b
Plesion Hercinothrips Bagnall, 1932	*Hercinothrips extinctus* Stannard, 1956	Baltic amber	Eocene	Stannard, 1956
Plesion Caliothrips (Selenothrips) Daniel, 1904	*Caliothrips cordatus* Bagnall, 1924	Baltic amber	Eocene	Bagnall, 1924a and Mound, 1968
	Caliothrips verae Schliephake, 2003	Baltic amber	Eocene	Schliephake, 2003a
Cephenothrips Priesner, 1929	*Cephenothrips propelaticeps* Schliephake, 2005	Bitterfeld amber	Eocene	Schliephake, 2005
	Cephenothrips laticeps Priesner, 1929	Baltic amber from Russia	Eocene	Priesner, 1929

Phlaeothripinae	*Plesion Hoplothrips* Amyot and Serville, 1843	*Hoplothrips* (*Trichothrips*) *minutatim* Bagnall, 1929	Baltic amber	Eocene	Bagnall, 1929
	Plesion Phlaeothrips Haliday, 1836	*Phlaeothrips* (*Phloeothrips*) *schlechtendali* Bagnall, 1929	Baltic amber	Eocene	Bagnall, 1929
	Polygonothrips Schliephake, 1999	*Polygonothrips apertosetosus* Schliephake, 1999	Baltic amber from Usedom island Germany	Eocene	Schliephake, 1999
	Prohaplothrips Schliephake, 2000	*Prohaplothrips iunctostylosus* Schliephake, 2000	Baltic amber	Eocene	Schliephake, 2000
	Proleeuwenia Priesner, 1924	*Proleeuwenia succini* Priesner, 1924	Baltic amber	Eocene	Priesner, 1924
	Protolispothrips Sch liephake, 2001	*Protolispothrips multisetiger* Schliephake 2001	Poland amber	Eocene	Schliephake, 2001a
	Schlechtendalia Bagnall, 1929	*Schlechtendalia longituba* Bagnall, 1929	Baltic amber	Eocene	Bagnall, 1929
		Schlechtendalia longitubus Bagnall, 1929	Baltic amber from Russia	Eocene	Bagnall, 1929
	Sucinothrips Schliephake, 1999	*Sucinothrips incertus* Schliephake, 1999	Baltic amber on Usendom island, Germany	Eocene	Schliephake, 1999
	Treherniella Watson, 1924	*Treherniella fossilis* Priesner, 1929	Baltic amber from Russia	Eocene	Priesner, 1929
	Liotrichothrips Bagnall, 1929	*Liotrichothrips antiquus* Bagnall, 1929	Baltic amber	Eocene	Bagnall, 1929
		Liotrichothrips discrepans Bagnall, 1929	Baltic amber	Eocene	Bagnall, 1929
		Liotrichothrips hystrix Bagnall,	Baltic amber	Eocene	Bagnall, 1929

		1929			
		Liotrichothrips minor Schliephake, 2000	Baltic amber	Eocene	Schliephake, 2000
	Necrothrips Priesner, 1924	*Necrothrips major* Schliephake, 2000	Bitterfeld amber (Germany)	Eocene	Schliephake 2000
		Necrothrips mesus Schliephake, 2003	Baltic amber	Eocene	Schliephake, 2003b
		Necrothrips nanus Priesner, 1924	Baltic amber	Eocene	Priesner, 1924

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