

# New ichneumonids (Insecta: Hymenoptera: Ichneumonidae) from the Lower Cretaceous of north China



Dmitry S. Kopylov<sup>a,\*</sup>, Haichun Zhang<sup>b</sup>

<sup>a</sup> Borissiak Palaeontological Institute, Russian Academy of Sciences, ul. Profsoyuznaya 123, Moscow 117647, Russia

<sup>b</sup> State Key Laboratory of Palaeobiology and Stratigraphy, Nanjing Institute of Geology and Palaeontology, Chinese Academy of Sciences, 39 East Beijing Rd, Nanjing 210008, China

## ARTICLE INFO

### Article history:

Received 21 January 2014

Accepted in revised form 17 March 2014

Available online 18 April 2014

### Keywords:

Lower Cretaceous  
Yixian Formation  
Dabeigou Formation  
China  
Hymenoptera  
Ichneumonidae  
Tanychorinae  
New taxa

## ABSTRACT

One new genus and seven new species of Ichneumonidae are described from the Lower Cretaceous Yixian Formation of Huangbanjigou in Beipiao, western Liaoning Province, China. They are: *Amplicella flagellata* sp. nov., *A. exquisitissima* sp. nov., *A. townesi* sp. nov., *Tanychora liaoningensis* sp. nov., *T. rasnitsyni* sp. nov., *Khasurtella zhangi* sp. nov. and *Sinochora distorta* gen. et sp. nov. The Early Cretaceous ichneumonids in China are known from three assemblages: the Huangbanjigou Assemblage (from Huangbanjigou locality, Liaoning; Yixian Formation), the Sichakou Assemblage (from Sichakou locality, Hebei; Dabeigou Formation) and the Laiyang Assemblage (from Nanligezhuang locality in Laiyang, Shandong; Laiyang Formation) of which the Huangbanjigou one is the most diverse of all known Early Cretaceous localities. *Amplicella* Kopylov from the Dabeigou Formation includes three species: *A. exquisita* (Zhang et Rasnitsyn, 2003), *A. beipiaoensis* (Zhang et Rasnitsyn, 2003) and *A. shcherbakovi* Kopylov, 2011, and their diagnoses have been revised. Their presence in the Yixian Formation and deposits at the Khasurtu locality (Transbaikalia) suggests that the deposits at Khasurtu may be not so old as previously thought. All known Early Cretaceous ichneumonids from China belong to Tanychorinae and the absence of more advanced subfamilies (such as Palaeoichneumoninae) indicates a more archaic aspect to these Chinese assemblages as compared with Baissa, Zaza and Romanovka (Transbaikalia) and Bon-Tsagan (Mongolia).

© 2014 Elsevier Ltd. All rights reserved.

## 1. Introduction

Ichneumonidae, the largest family in Hymenoptera and one of the largest animal families, consists of more than 24,000 described species (Yu and Horstmann, 1997, 2005; Yu, 2012); the estimated total number of species varies from 60,000 (Townes, 1969; Wahl and Sharkey, 1993) to more than 100,000 (Rasnitsyn, 1978). Ichneumonids are distributed worldwide and play a significant role in natural and agricultural ecosystems as parasitoids of arthropods.

The earliest evidence of Ichneumonidae in the palaeontological record occurs in the lowermost Lower Cretaceous of Khasurtu in Transbaikalia (Kopylov, 2011) and the middle Lower Cretaceous of Huangbanjigou in Liaoning, Nanligezhuang in Shandong, and Sichakou in Hebei, China (Zhang, 1991; Zhang and Rasnitsyn, 2003; Zhang et al., 2010). In these deposits, ichneumonids are represented only by a peculiar subfamily Tanychorinae which combines some

features of both Ichneumonidae and Braconidae. This subfamily seems to be a sister group to all modern Ichneumonoidea. Tanychorines are known only from the Lower Cretaceous of China, Mongolia and Transbaikalia.

Here we report some new taxa of Tanychorinae from the Lower Cretaceous of western Liaoning and eastern Hebei in China.

## 2. Material and methods

The material examined herein comes from the Dabeigou Formation of Sichakou in Fengning, eastern Hebei Province (9 specimens) and the Yixian Formation of Huangbanjigou in Beipiao, western Liaoning Province (15 specimens). The Mesozoic lacustrine deposits at Sichakou (41° 40' N, 116° 22' E; Fig. 1) comprise the Huajiyang Formation and the underlying Dabeigou Formation (Zhang et al., 2008). The ichneumonids from this locality were collected in the Dabeigou Formation dated ca 131 Ma (He et al., 2006) (mid Hauterivian; Cohen et al., 2013). The strata near Huangbanjigou Village (41° 37' N, 120° 50' E; Fig. 1) consist of the Yixian Formation and the underlying Tuchengzi Formation. These

\* Corresponding author.

E-mail address: [aeschna@yandex.ru](mailto:aeschna@yandex.ru) (D.S. Kopylov).

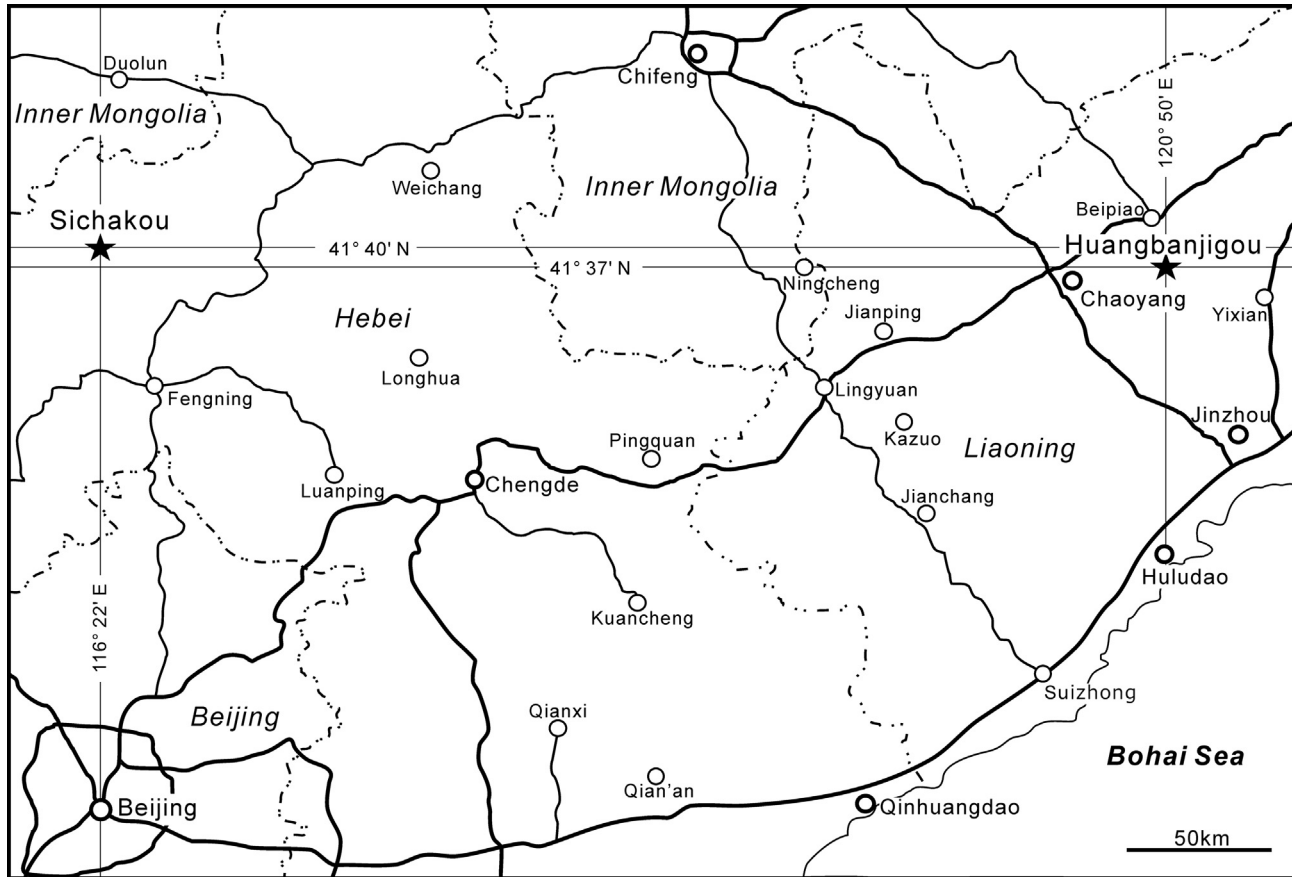


Fig. 1. Map showing the location of the fossil localities Huangbanjigou and Sichakou.

deposits yielding ichneumonids belong to the Jianshangou Bed of the Yixian Formation and have an absolute age of about 125 Ma (Chang et al., 2009) (earliest Aptian; Cohen et al., 2013).

Specimens were examined dry and under ethanol using a Nikon SMZ1000 stereomicroscope. Photographs were taken using a Nikon DMX1200 digital camera attached to the stereomicroscope and a LEO1530VP SEM at the State Key Laboratory of Palaeobiology and Stratigraphy. Line drawings were made with the aid of a camera lucida and readjusted on photographs using image-editing software CorelDraw X5. All the specimens examined are deposited in the Nanjing Institute of Geology and Palaeontology, Chinese Academy of Sciences.

In this work we use the morphological terminology of Rasnitsyn (1969) with minor additions. Vein abscissas are labelled as numbers before a vein name (e.g. 1M = first abscissa of M; see Fig. 5B for explanation of the vein terminology).

### 3. Systematic palaeontology

Order: Hymenoptera Linnaeus, 1758  
 Suborder: Apocrita Gerstaecker, 1867  
 Family: Ichneumonidae Latreille, 1802  
 Subfamily: Tanychorinae Rasnitsyn, 1980  
 Genus *Amplicella* Kopylov, 2010

- *Tanychora*: Townes, 1973: 216–217; Zhang and Rasnitsyn, 2003: 194–195 (partim).
- *Amplicella*: Kopylov, 2010a: 182–183.

*Type species.* *Tanychora sessilis* Townes, 1973; Lower Cretaceous, Transbaikalia, Russia.

*Species included.* Ten species from the Lower Cretaceous of Transbaikalia and China: *Amplicella sessilis* (Townes, 1973), *A. exquisita* (Zhang et Rasnitsyn, 2003), *A. beipiaoensis* (Zhang et Rasnitsyn, 2003), *A. spinata* (Zhang et Rasnitsyn, 2003), *A. mininae* Kopylov, 2011, *A. shcherbakovi* Kopylov, 2011, *A. bashkuyevi* Kopylov, 2011, *A. flagellata* sp. nov., *A. exquisitissima* sp. nov., and *A. townesi* sp. nov.

*Diagnosis.* Forewing with 1Rs+M well developed, 2Rs+M absent (1m-cu meets M after Rs+M bifurcation), areolet long (at least 2.5× as long as wide), reaching 1Rs+M and 1m-cu; 2Rs longer than, or as long as, 3Rs; A with rudiment of transverse anal vein a1–a2 basal of 1cu–a. Forewing length where known 3.0–5.7 mm.

*Amplicella exquisita* (Zhang et Rasnitsyn, 2003)

- *Tanychora exquisita*: Zhang and Rasnitsyn, 2003: 195–196, fig. 1B, 2.
- *Amplicella exquisita*: Kopylov, 2010a: 182–183.

Fig. 2A

*Material.* Holotype LBSH98050/NIGP134820 (female); antennae, legs, wings and ovipositor incomplete; collected from the Yixian Formation, Huangbanjigou Village, Beipiao, Liaoning Province, China; Lower Cretaceous, Aptian. Specimen HFS-I-069/NIGP159648 (female); antennae, legs and ovipositor incomplete; collected from the Dabeigou Formation, Sichakou, Fengning, Hebei Province, China; Lower Cretaceous, Hauterivian. Both specimens are deposited in the Nanjing Institute of Geology and Palaeontology, Chinese Academy of Sciences.

Download English Version:

<https://daneshyari.com/en/article/4747162>

Download Persian Version:

<https://daneshyari.com/article/4747162>

[Daneshyari.com](https://daneshyari.com)