

***Chrysoteuchia ningensis* sp. n., a new pyralid moth (Lepidoptera: Crambidae) from China**

Weichun Li & Dong Liu

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A new species *Chrysoteuchia ningensis* Li, sp. n. is described from China. The new species is similar to *C. pyraustoides* and *C. shafferi* by the phallus produced to a long and thin apical spine in the male genitalia. Images of both adult and genitalia of the new species are provided, along with two topographic maps of China showing the localities where *Chrysoteuchia* are recorded. Type specimens are deposited in the Insect Museum, Jiangxi Agricultural University, Nanchang, China.

W. C. Li, College of Agronomy, Jiangxi Agricultural University, Nanchang 330045, P. C. China; E-mail: weichunlee@126.com

D. Liu, College of Agronomy, Jiangxi Agricultural University, Nanchang 330045, P. C. China

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1. Introduction

Chrysoteuchia was established by Hübner in 1825, with *Tinea hortuella* Hübner, 1796 as the type species. The wing patterns of *Chrysoteuchia* species are varied, but the species can be recognized by having a well-developed sacculus with a projection in the male genitalia, and in the female genitalia the papilla analis is concaved posteriorly, apophysis posterior is long and thin and apophysis anterior is absent. The genus has thirty-four species worldwide, which are clearly Palearctic and (or) Oriental, except that *C. topiaria* (Zeller, 1866) has been recorded only from the Nearctic region (Bleszynski 1965, Inoue 1989, Landry 1995, Chen *et al.* 2001, 2003, Li & Li 2010). Prior to this study, thirty-two species of *Chrysoteuchia* were known in China (Li & Li 2010). In the present paper, a species is described as new to science with images of adult and genitalia provided (Fig. 1a–c). Two topographic maps

(Figs. 2–3) showing the localities of the Chinese *Chrysoteuchia* are given.

2. Material and methods

The four specimens of the new species examined in this study were collected in Ningxia Hui Autonomous Region of China. The terminology for morphological structures follows Bleszynski (1965). Genitalia were prepared and mounted according to the methods introduced by Li (2002). The image of the adult was taken using the digital camera Canon G12. The illustrations of the genitalia were prepared using the digital camera DV320 OPTPro2010_Ch attached to a microscope Optec BK-DM320. The maps were made using DIVA GIS 5.2 (Hijmans *et al.* 2005a) based on the topographic data (Hijmans *et al.* 2004, 2005b), the longitude and latitude degrees of the Chinese *Chrysoteuchia* species (Li & Li 2010),

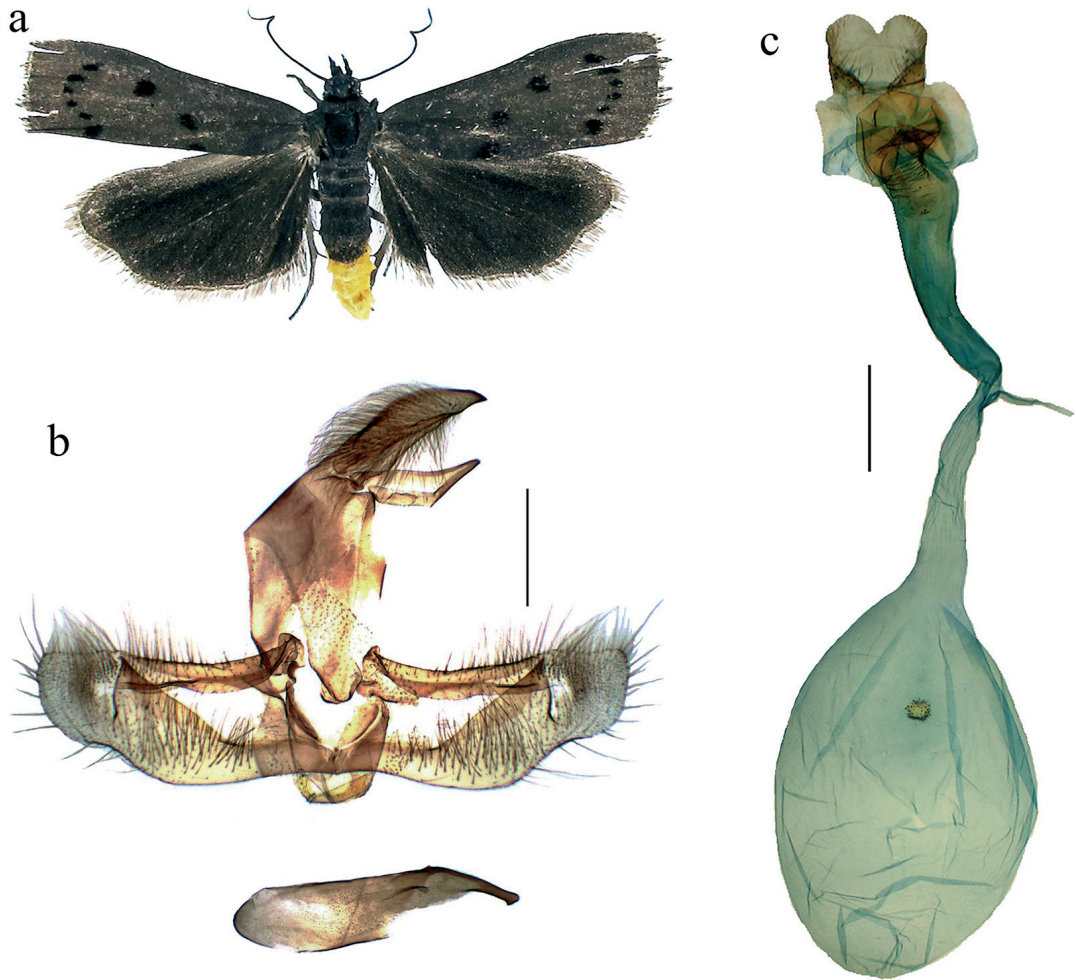


Fig. 1. *Chrysoteuchia ningensis* Li, **sp. n.** – a. Adult, paratype, female. – b. Male genitalia, holotype, prep. gen. LW11026 – c. Female genitalia, paratype, prep. gen. LW11028. Scales: 0.5 mm.

and the geographic coordinates of *Chrysoteuchia ningensis* Li, **sp. n.**

3. Description of *Chrysoteuchia ningensis* Li, **sp. n.** (Fig. 1a–c)

Type material. Holotype. ♂, China: Ningxia Hui Autonomous Region, Longde (35°37' N, 106°07' E), 3.VIII.1986, leg. S. M. Zhang, prep. gen. LW11026. Paratypes: 3 ♀♀, same collecting data as in the holotype, except one paratype dated 4.VIII.1986, prep. gen. LW11028. Type specimens are deposited in the Insect Museum, Jiangxi Agricultural University, Nanchang, China (JXAUM).

Diagnosis. *Chrysoteuchia ningensis* Li, **sp. n.** is similar to *C. pyraustoides* (Erschoff, 1877) and *C. shafferi* Li & Li, 2010 by the phallus being basally thick and gradually produced to a long and thin apical spine in the male genitalia. It can be separated from *C. pyraustoides* by the distal one third of valva being nearly evenly wide, the sacculus broadened towards distal prong and the distal prong not exceeding the costa in the male genitalia. In *C. pyraustoides*, the distal one third of valva is tapering towards tip, the sacculus is evenly wide throughout and the distal prong reaches beyond the costa conspicuously (Bleszynski 1965: pl. 48 fig. 95). The new species can be distinguished easily from *C. shafferi* by the male genitalia with the costa bearing an ovate

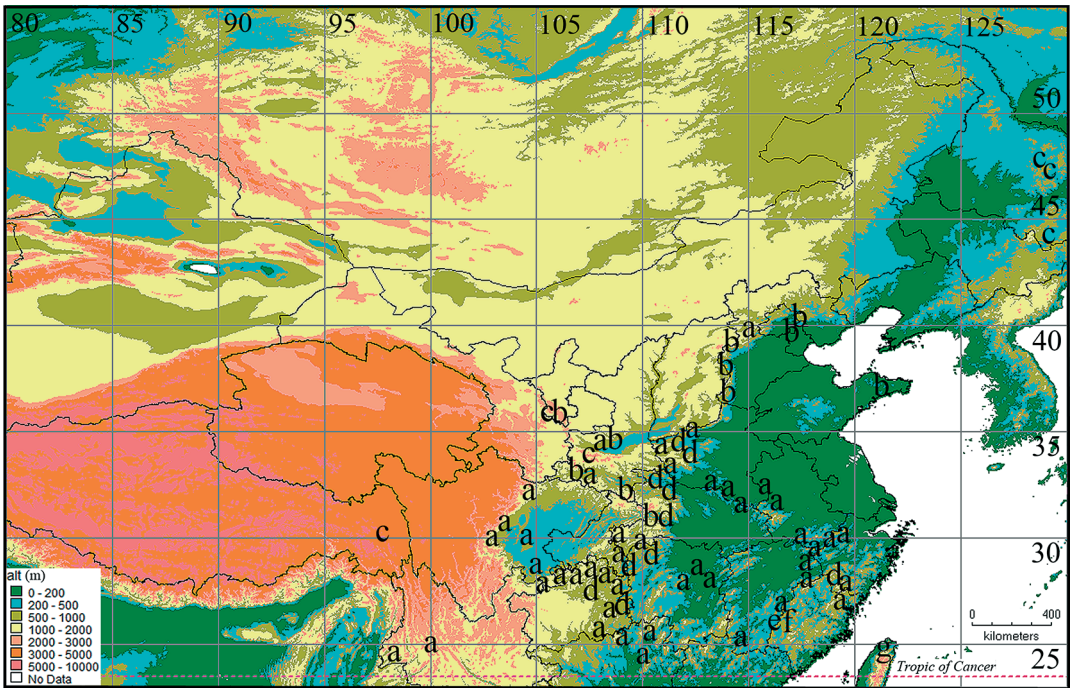


Fig. 2. Map showing topography and the localities where *Chrysoteuchia* spp. have been recorded in China. a: *C. atrosignata*, b: *C. disasterella*, c: *C. pyraustoides*, d: *C. quadrapicula*, e: *C. curvicavus*, f: *C. moriokensis*, g: *C. sonobel*.

protuberance at the base, the distal two thirds of sacculus being much wider than the basal one third, and the distal prong not exceeding the costa, as well as by the female genitalia with the absence of the lamella vaginalis, the ductus seminalis arising from middle of ductus bursae, and the corpus bursae with a rounded sigum. In *C. shafferi* male, the costa is without protuberance, the sacculus is evenly wide throughout, and the distal prong far exceeds the costa; in the female, the lamella postvaginalis is well developed, the ductus seminalis arises from one fifth of the ductus bursae, and the sigum is peanut-shaped (Li & Li 2010: fig. 10).

Description. Adult (Fig. 1a). Forewing length 8.5–9.5 mm. Frons, vertex, labial palpus and maxillary palpus blackish brown. Antenna black. Patagium and tegula blackish brown, thorax black. Forewing blackish brown, with three black spots in medial area: first one set near upper corner of cell, second one at middle of fold, third one at basal one third of dorsum; subterminal fascia represented by six black spots, anterior two oblique outwards, posterior four oblique inwards;

cilia pale brown. Hindwing black except pale brown near costa; cilia grayish white, blackish brown near base. Legs blackish brown. Abdomen with anterior two thirds black, posterior one third yellow.

Male genitalia (Fig. 1b). Uncus densely covered with setae, curved down slightly, pointed apically. Gnathos about three fourths length of uncus, curved upwards at three fifths, tapering to blunted tip. Tegumen about twice as long as gnathos. Valva wider in basal two thirds, narrowed to bluntly rounded apex in distal one third. Costa long and thin, bearing a small ovate protuberance at base. Sacculus convex ventrally, basal one third narrow, distal two thirds broadened towards distal prong; distal prong nearly triangular, tip pointed and reaching costa. Pseudosaccus small rounded, inconspicuous. Juxta broad V-shaped. Phallus slightly shorter than valva, basally thick, gradually produced to long and thin apical spine; apical spine with small triangular prong at base and apex respectively; cornutus absent.

Female genitalia (Fig. 1c). Papilla analis

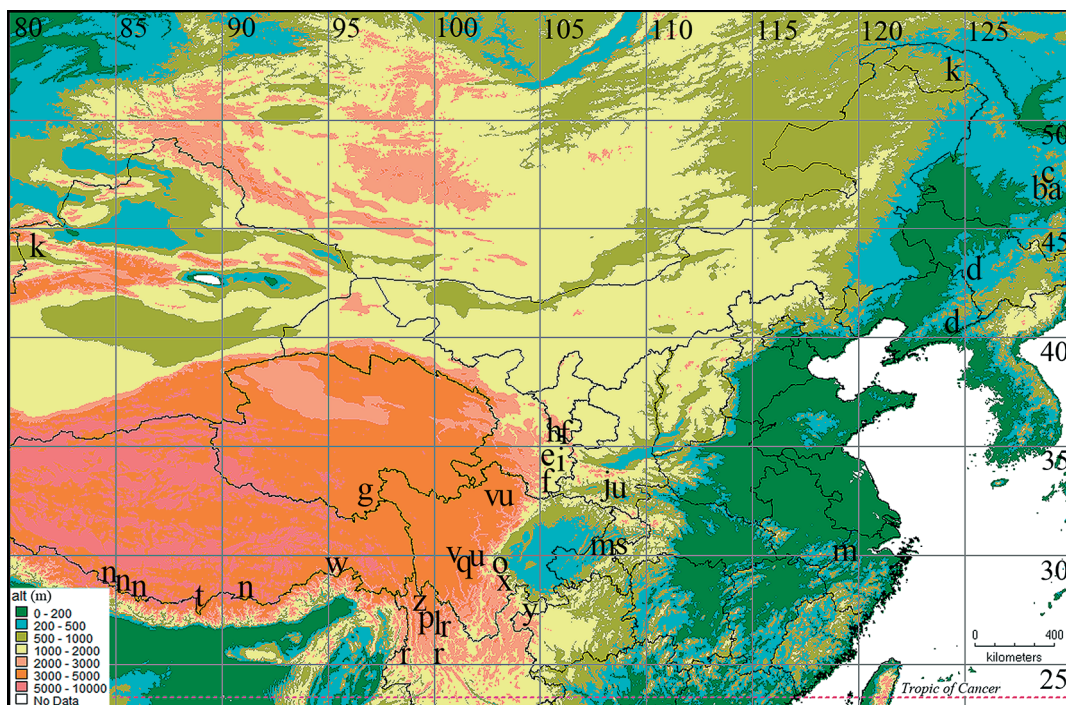


Fig. 3. Map showing topography and the localities where *Chrysoteuchia* spp. have been recorded in China. a: *C. deltella*, b: *C. distinctella*, c: *C. mandshurica*, d: *C. porcelanella*, – e: *C. dentatella*, f: *C. furva*, g: *C. hamatoides*, h: *C. ningensis* sp. n., i: *C. rotundiprojecta*, j: *C. shafferi*, k: *C. culmella*, l: *C. daisetsuzana*, m: *C. diplogramma*, n: *C. dividella*, o: *C. fractella*, p: *C. funebrella*, q: *C. fuliginosella*, r: *C. gonoxes*, s: *C. gregorella*, t: *C. hamatella*, u: *C. hyalodiscella*, v: *C. lolotiella*, w: *C. nonifasciaria*, x: *C. picturatella*, y: *C. pseudodiplogramma*, z: *C. yuennanellus*.

ovate, posterior margin concaved as V-shaped. Antrum strongly sclerotized, armed with transverse pleats, gradually thickened towards ostium bursae. Ductus bursae long and thin, membranous; ductus seminalis arising from middle of ductus bursae. Corpus bursae ovate; signum small and rounded, placed at posterior one third.

Etymology. The new species is named after its type locality Ningxia Hui, and “ning” is the shortened form of this Autonomous Region of China.

Distribution. China (Ningxia).

Remarks. The new species can be assigned to the *Chrysoteuchia pyraustoides* group consisting of *C. pyraustoides* (Erschoff, 1877), *C. furva* Li & Li, 2010 and *C. shafferi* Li & Li, 2010, which can be easily recognized by the blackish brown adult with two lines of black spots in the forewing.

4. Discussion

The genus *Chrysoteuchia* comprises thirty-five species worldwide up till now, mostly distributed in the Oriental and eastern Palearctic regions, except that *C. culmella* (Linnaeus, 1758) extends to Europe and *C. topiaria* (Zeller, 1866) is endemic to North America.

In China, the genus has high species diversity with thirty-three species known presently. Among them are, in the order of increasingly wide distribution, *C. atosignata*, *C. disasterella*, *C. pyraustoides* and *C. quadrapicula*. The other species occur more narrowly, such as *C. curvicavus* and *C. moriokensis*, which are known just in Wuyi Mountain of Fujian Province, and *C. sonobei* which is endemic to Taiwan (Fig. 2). Taking the rest of the species, they can be and large be divided into three distribution patterns based on the topography and climate (Fig. 3).

- (1) Northeast Plain pattern where the elevation is mostly lower than two hundred meters, belonging to the humid temperate continental climate. *Chrysoteuchia deltella*, *C. distinctella*, *C. mandschurica* and *C. porcelanella* are only known in this region.
- (2) Northwest Plateau pattern with the most elevation above one thousand meters, belonging to the sub-humid temperate continental climate. *Chrysoteuchia dentatella*, *C. furva*, *C. hamatoides*, *C. ningensis* **sp. n.**, *C. rotundi-projecta* and *C. shafferi* are endemic to this region.
- (3) Southwest Plateau pattern having the majority with elevation above two thousand meters, belonging to the humid subtropical climate. Thirteen species are distributed in this region.

According to the distribution of *Chrysoteuchia* species, the plateau has much higher species diversity than the plain. Moreover, the climate is also an important factor influencing the distribution and species diversity of the genus. The Southwest Plateau with a humid subtropical climate has the highest species diversity.

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