

Two new species and two newly-recorded species of the genus *Chytonix* Grote (Lepidoptera: Noctuidae) from China

Rentao XU¹, Jianwei WANG², Huilin HAN^{1, 3, 4}①

1. College of Forestry, Northeast Forestry University, Harbin, Heilongjiang 150040, China

2. Beijing Insect Police Technology Co., Ltd, Beijing 100085, China

3. Northeast Asia Biodiversity Research Center, Northeast Forestry University, Harbin, Heilongjiang 150040, China

4. Key Laboratory of Sustainable Forest Ecosystem Management, Ministry of Education, Northeast Forestry University, Harbin, Heilongjiang 150040, China

Abstract: Two new species of the genus *Chytonix* Grote, 1874, *C. zhenkangensis* sp. nov. (Yunnan) and *C. taibaishana* sp. nov. (Shaanxi), are described from China. *C. excurvata* (Hampson, 1897) and *C. pallidisca* (Moore, 1881) are reported for the first time from China. Illustrations of adults and genitalia of the new and newly-recorded species comparing species are presented.

Key words: Noctuoidea; Condicinae; taxonomy

中国流夜蛾属二新种和二新记录种记述（鳞翅目：夜蛾科）

徐仁涛¹, 汪建伟², 韩辉林^{1, 3, 4}①

1. 东北林业大学林学院, 黑龙江 哈尔滨 150040; 2. 北京虫警科技有限公司, 北京 100085; 3. 东北林业大学东北亚生物多样性研究中心, 黑龙江 哈尔滨 150040; 4. 东北林业大学森林生态系统可持续经营教育部重点实验室, 黑龙江 哈尔滨 150040

摘要: 记述中国流夜蛾属 *Chytonix* 2 新种: 镇康流夜蛾 *C. zhenkangensis* sp. nov. (云南) 和太白山流夜蛾 *C. taibaishana* sp. nov. (陕西), 及 2 新记录种: *C. excurvata* (云南) 和 *C. pallidisca* (西藏)。提供了新种和新记录种的形态特征图, 以及新种和近缘种的鉴别特征。

关键词: 夜蛾总科; 点夜蛾亚科; 分类

Introduction

The genus *Chytonix* Grote, 1874 belongs to the subfamily Condicinae, which was established with *Apamea iaspis* Guenée, 1852, from New York. Most members of this genus are distributed in the Oriental and Nearctic regions. To date, 55 species of this genus have been described in the world, of which 21 species are distributed in China (Behounek 2002; Chen 1999; Draudt 1950; Hampson 1908, 1914; Kononenko & Prinratana 2013; Kovács & Ronkay 2018; Leech (1900a; Poole 1989; Wileman 1914, 1915). The first species of this genus reported in China was *C. intermixta* from Ta-chien-lu (Kangding) by Leech (1900a).

Accepted 3 December 2023. Published online 8 March 2024.

① Corresponding author, E-mail: hanhulin@aliyun.com

Then, Hampson (1908) described a new species *C. nigribasalis* (syn. of *C. albonotata* (Staudinger, 1892)) from Wa-ssu-kou (Sichuan), and in 1914, *C. albiplaga* and *C. conjuncta* from Formosa (Taiwan); Wileman (1914) found *C. variegata* in Formosa (Taiwan). The next year, *C. costimacula* and *C. melanoleuca* were discovered from the same mountain. Draudt (1950) described 8 species: *C. adusta*, *imitans*, and *minima* from A-tun-tse, *C. albiquadrata*, *erastroides*, *mediofasciata*, and *nigrithorax* from Tien-mu-shan, and *C. latipennis* from Hoeng-shan *et al.* Poole (1989) found *C. niveiplagoides* from Linping (Guangdong). Chen (1999) recorded 5 species from China. Kononenko & Prinratana (2013) listed 3 species. Kovács & Ronkay (2018) listed 15 species and with *C. perssoni* Berio, 1973 new to China.

Material and methods

Specimens were collected at 220V/450W mercury and DC black light lamps in China. Dissection and preparation of genital sections were performed using standard methods (Kononenko & Han 2007). A Nikon D700 camera was used to photograph specimens. Photos of the genitalia slides were taken using the Olympus Photo microscope, Helicon Focus software and further processed in Adobe Photoshop CS6. The type materials of the new species are deposited in the collection of Northeast Forestry University (NEFU), Harbin, China.

Taxonomy

Genus *Chytonix* Grote, 1874

Chytonix Grote, 1874: 14. Type species: *Apamea iaspis* Guenée, 1852.

Paroligia Warren, 1913: 128. Type species: *Erastria pallidisca* Moore, 1881.

1. *Chytonix zhenkangensis* sp. nov. (Figs 1, 3A, 4A)

Adult (Figs 1A, 1B, 1C). Wingspan 13–26 mm. Male rather darker than female. Head brownish red to pale red, antenna filiform; thorax brownish red, diffused white; abdomen grayish, mixed with a little gray. Forewing more grayish red, diffused black; basal line from by 3–4 black dots; antemedial line dark black, incurved; median line only distinct on costal margin region; orbicular spot doughnut shaped, center with brown dot; reniform spot oval-shaped, inward oblique, with a small and a big dot on the inside; postmedial line brownish black slender, wavy, double; subterminal line a broad red band, wavy; terminal line white; fringe dark brown; basal and antemedial line areas, subterminal and terminal line areas black; hindwing greyish black, basal part lighter than ground colour; discal spot crescent shaped, darker than marginal shade; outer margin with small sunken on M_2 .

Male genitalia (Fig. 3A). Uncus slender, hook shaped, pointed apically. Tegument broad band, with a halberd shaped branch at posterior part, and strongly sclerotized. Saccus V-shaped. Juxta tongue shaped, with a rim, and three blades on the inside. Valva slender, middle part thin, upcurved; cucullus densely covered with setae, and slightly swelling; basal part of costa sclerotized, rather broader than sacculus, the process extending to the cucullus; sacculus short; harpe horn-shaped, incurved. Aedeagus tube-shaped, sclerotized, slightly wavy; caecum 1/6 as long as aedeagus; carina sharp. Vesica membranous; basal diverticulum present, with two cornuti bands at dorsal diverticulum; spread more small grain apically.

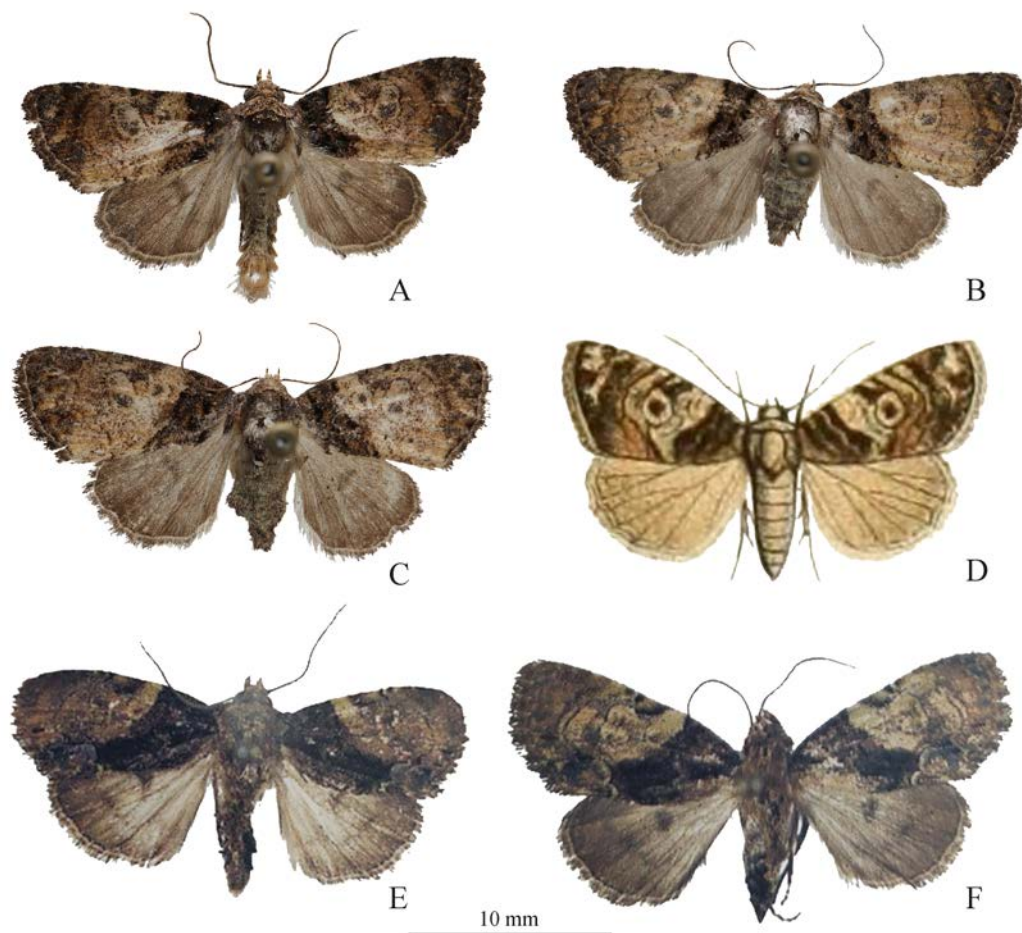


Figure 1. Adults of *Chytonix* spp. A. *C. zhenkangensis* sp. nov., holotype; B, C. *C. zhenkangensis* sp. nov., paratype; D. *C. nadgani*(after Hampson 1908); E. *C. sumatrana*(after Behounek 2002); F. *C. sumatrana*(after Behounek 2002). A, E. ♂; B–D, F. ♀.

Female genitalia (Fig. 4A). Papillae anales sclerotized, cone-shaped, covered with setae. Apophysis posterioris ca. 1.5 times length of apophysis anterioris. Ostium broad, ostium palte bucket shaped, with a rim. Ductus bursa slender, posterioris part sclerotized, anterioris part membranous. Corpus bursae membranous, long elliptical, cover densely small grain; appendix bursae long vesicula, ca. 1/3 length of corpus bursae.

Holotype. ♂, **China**, Yunnan, Zhenkang County, Nansan Town, 27-V-2022, legs. HL HAN & RT XU, genit. prep. no. xrt-136-1. **Paratypes.** 1♂5♀, same data as holotype, genit. prep. no. xrt-134-2, xrt-135-2, xrt-137-2, xrt-138-1, xrt-139-2, xrt-140-2.

Etymology. This species epithet is based on the locality where the type specimen was collected.

Remarks. This new species is externally similar to *C. nadgani* (Hampson, 1891) (Fig. 1D) and *C. sumatrana* Behounek, 2002 (Figs 1E, 1F), the differences are as follows (characteristics of contrasting species in brackets): the ground colour of forewing is rather redder (*C. nadgani* rather lighter; *sumatrana* rather darker); the dark band of basal part not

extending to middle part in the inner margin region (*nadgani* extends to middle part; *sumatrana* extends to postmedial line); the subbasal line very indistinct (*nadgani* distinct; *sumatrana* slightly indistinct); postmedial line without white at inner margin region (*nadgani* without; *sumatrana* with white); reniform spot inward oblique (*nadgani* common; *sumatrana* inward oblique); apex region rather darker than ground colour (*nadgani* lighter; *sumatrana* same as ground colour). The differences of genitalia in the new species and *C. sumatrana* are as follows: in male genitalia (Fig. 3B), the tegument with halberd-shaped branch (*sumatrana* with oblong-shaped branch); harpe incurved, horn shaped (*sumatrana* longer, weakly arc-shaped); valva slender and long, strongly upcurved, cucullus swelling (*sumatrana* short and broad, weakly upcurved, cucullus rather narrower than valva); saccus narrow V-shaped (*sumatrana* U-shaped); narrow cornuti band at dorsal diverticulum of basal part (*sumatrana* with strong three cornuti cluster). In female genitalia (Fig. 4B), ostium broad, ostium plate with a rim (*sumatrana* small, without rim on plate); ductus bursa rather narrower and longer (*sumatrana* broader and shorter); appendix bursae long, corpus bursae without signa (*sumatrana* without appendix bursae, with two signa on corpus bursae).

2. *Chytonix taibaishana* sp. nov. (Figs 2, 3C)

Adult (Fig. 2A). Wingspan 33–36 mm. Head and thorax brownish red, antenna filiform; abdomen greyish red. Forewing brownish red, mixed with a little yellow; basal line black, and short; anteromedial line black, double, and only present on costal margin region; median line black, only distinct on costal margin region; postmedial line brown to black, double, excurved; subterminal line greyish white, slender, wavy; terminal line dark brown; orbicular spot inward oblique oval shaped, with black outer frame; reniform spot 8 shaped, with black outer frame; vena plicata with a dark black band, disconnected by postmedial line, a white and short band at postmedial line region present; in terminal and subterminal line regions present a black line on the Cu_2 ; in subterminal line region, a black line is on the R_{3+4} .

Male genitalia (Fig. 3C). Uncus pointy apically, cowhorn-shaped. Tegument band shaped, with oblong-shaped branch densely covered with setae. Vinculum of equal width, U-shaped. Saccus V-shaped. Juxta pentagon-shaped. Valva band-shaped, slightly upcurved; costa broad, extending to cucullus, and gradually widens exward curved; sacculus short and broad; harpe sclerotized, bifurcated, the inner side short, triangular-shaped; the outer side, long and slender horn-shaped; cucullus smooth, round. Aedeagus straight cylindrical-shaped; caecum short, ca. 1/6 length of aedeagus; carina sharp, slightly sclerotized. Vesica membranous, very broad at basal diverticulum; cornuti band at middle part.

Holotype. ♂, China, Shaanxi, Mt. Taibaishan, 02–10-V-2010, legs. TY SHAO & XW LIU, genit. prep. no. hhl-2127-1. **Paratype.** 1♂, same data as holotype, genit. prep. no. hhl-2539-1.

Etymology. The species epithet is based on the locality where the type specimen was collected.

Remarks. This new species is externally similar to *C. albonotata* (Staudinger, 1892) (Fig. 2B). The differences are as follows: the wing span 33–36 mm (*albonotata* 29–33 mm); ground colour with yellowish red (*albonotata* without yellowish red); crossing lines indistinct (*albonotata* distinct); orbicular spot regular oval-shaped (*albonotata* irregular); vena plicata with a long and black band, a white band present in postmedial line region (*albonotata* only with black band between antemedial and postmedial lines, with only a small white dot on

postmedial line); and R_{3+4} with a black band (*albonotata* without). In male genitalia (Fig. 3D), the valva broad (*albonotata* narrow); harp bifurcate (*albonotata* long hook-shaped); the branch of tegument rather shorter and small (*albonotata* longer and bigger); carina flat and straight (*albonotata* upcurved); and cornuti band straight (*albonotata* broad ring-shaped).

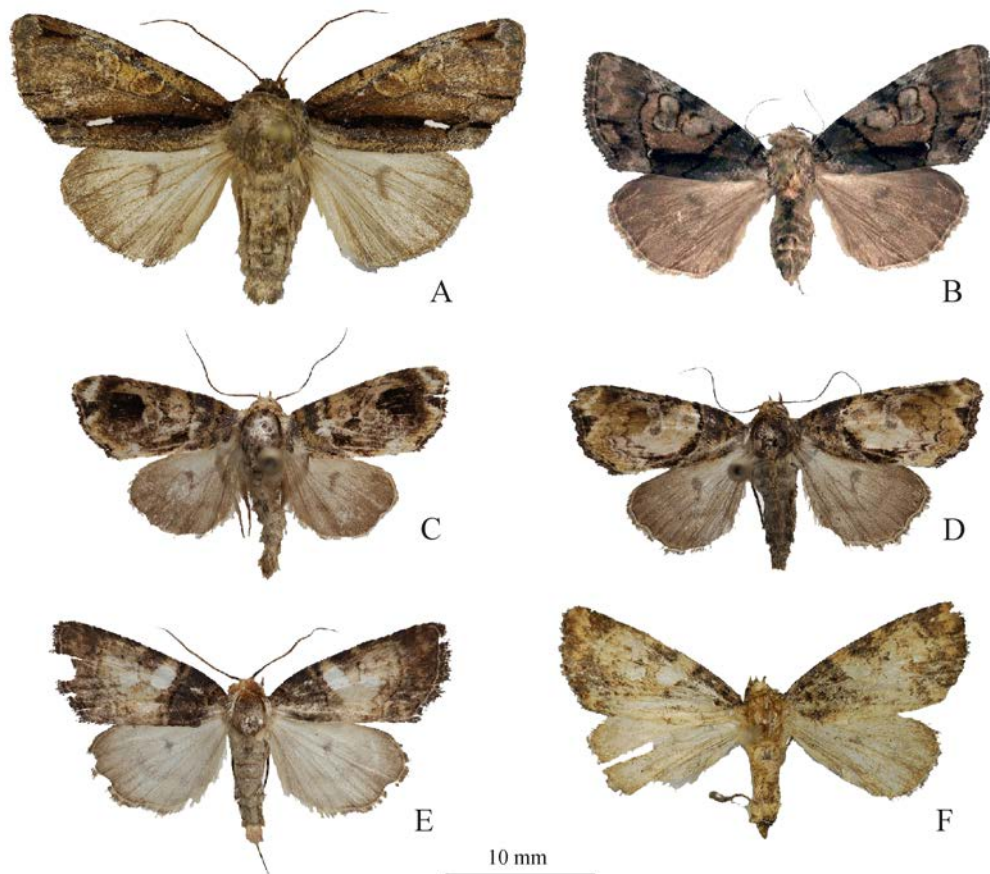


Figure 2. Adults of *Chytonix* spp. A. *C. taibaishana* **sp. nov.**, holotype; B. *C. albonotata* (supported by V. Kononenko); C, D. *C. excurvata*; E, F. *C. pallidisca*. A–C, E, F. ♂; D. ♀.

3. *Chytonix excurvata* (Hampson, 1897) (Figs 3, 2C, 2D, 4C), new record to China

Bryophila excurvata Hampson, 1897: 445. Type locality: Sikkim, 1800 ft.

Chytonix excurvata Hampson, 1908: 613, pl. 122, f. 8; Poole, 1989: 252; Kovács & Ronkay, 2018: 146 (list).

Specimens examined. 1♂, **China**, Yunnan, Pu'er City, Simao District, 11-IX-2008, legs. HL HAN & Y WANG, genit. prep. no. hhl-2117-1; 1♀, **China**, Yunnan, Jiangcheng County, 15–17-IX-2008, legs. HL HAN & MJ QI, genit. prep. no. hhl-2529-2; 1♂1♀, **China**, Yunnan, Zhenkang County, Fengwei Town, 26-V-2022, legs. J WU & B GAO, genit. prep. no. xrt-205-1, xrt-206-1; 2♂, **China**, Yunnan, Zhenkang County, Mengdui Countryside, 26-V-2022, legs. HL HAN & RT Xu, genit. prep. no. xrt-201-1, xrt-202-1; 6♂2♀, **China**,

Yunnan, Zhenkang County, Nansan Town, 27-V-2022, legs. HL HAN & RT XU, genit. prep. no. xrt-128-1, xrt-129-1, xrt-131-1, xrt-132-1, xrt-204-1, xrt-206-1, xrt-130-2, xrt-203-2.

Distributions. China (Yunnan); India.

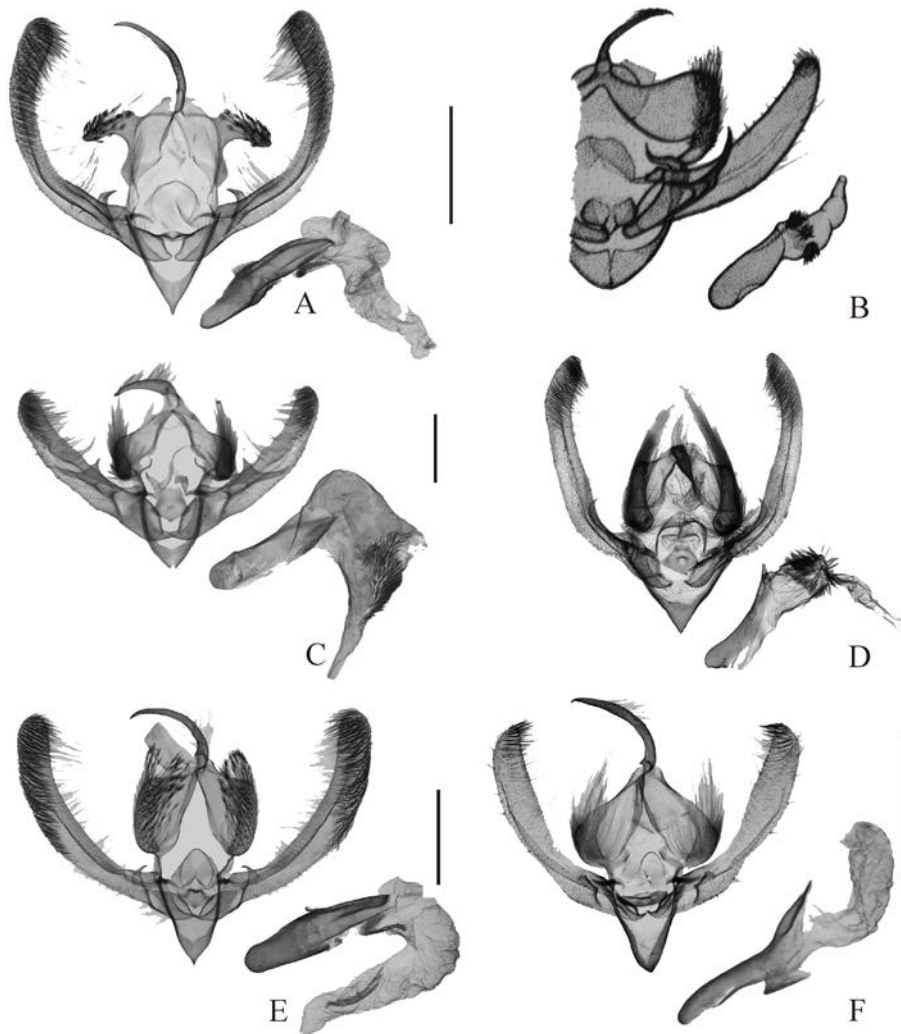


Figure 3. Male genitalia of *Chytonix* spp. A. *C. zhenkangensis* **sp. nov.**, holotype, genit. prep. no. xrt-136-1; B. *C. sumatrana* (after Behounek 2002); C. *C. taibaishana* **sp. nov.**, holotype, genit. prep. no. hhl-2127-1; D. *C. albonotata* (after Kononeko and Han 2007); E. *C. excurvata*, genit. prep. no. xrt-201-1; F. *C. pallidisca*, genit. prep. no. xrt-230-1. Scale bar = 1 mm.

4. *Chytonix pallidisca* (Moore, 1881) (Figs 4, 2E, 2F, 3F), new record to China

Erastria pallidisca Moore, 1881: 372, p1. 37, f. 14. Type locality: Darjiling.

Erastria albiorbis Moore, 1882: 141. Type locality: Darjiling.

Oligia pallidisca; Hampson, 1908: 371.

Chytonix pallidisca; Kovács & Ronkay, 2018: 146 (list).

Specimens examined. 1♂1♀, **China**, Xizang, Linzhi City, Pailong Village, 22–

23-IX-2011, leg. HL HAN, genit. prep. no. hhl-2521-1, hhl-2519-2; 3♂, **China**, Xizang, Linzhi City, Bomi County, Tongmai Town, 23–25-IV-2018, leg. HL HAN, genit. prep. no. xrt-229-1, xrt-230-1, xrt-231-1.

Distributions. China (Xizang); Bengal; India.

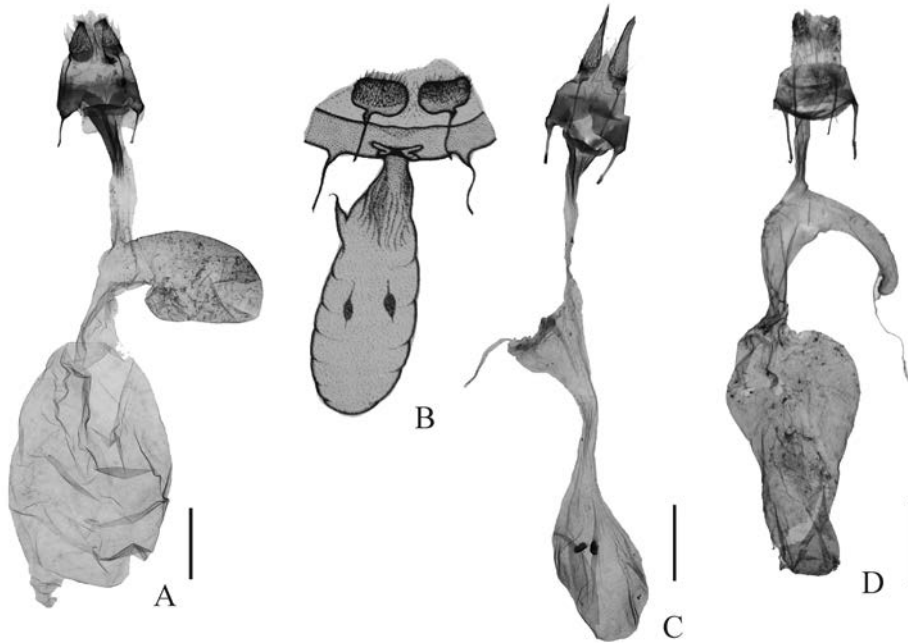


Figure 4. Female genitalia of *Chytonix* spp. A. *C. zhenkangensis* **sp. nov.**, paratype, genit. prep. no. xrt-140-2; B. *C. sumatrana* (after Behounek 2002); C. *C. excurvata*, genit. prep. no. xrt-130-2; D. *C. pallidisca*, genit. prep. no. hhl-2110-2. Scale bar = 1 mm.

Acknowledgements

The present study was supported by the National Natural Science Foundation of China (31872261), the project of Northeast Asia Biodiversity Research Center (2572022DS09) and the Fundamental Research Funds for the Central Universities (2572021DJ08; 2572019CP11), Zhenkang County Grassland Pest Census Project.

References

- Behounek G. 2002. Studie der Gattung *Chytonix* Grote 1874 von Sumatra, mit Beschreibung von zwei neuen Arten (Lepidoptera, Noctuidae, Amphipyriinae). *Heterocera Sumatrana*, 12(3): 121–127.
- Chen YX. 1999. Lepidoptera: Noctuidae. In: Zhu HF *et al.* (Ed.), *Fauna Sinica Insecta, Vol. 16*. Science Press, Beijing, pp. 718–720.
- Draudt M. 1950. Beiträge zur Kenntnis der Agrotiden-Fauna Chinas. Aus den Ausbeuten Dr. H. Höne's (Beitrag zur Fauna Sinica). *Mitteilungen der Münchner Entomologischen Gesellschaft*, 40(1): 1–174.
- Grote AR. 1874. List of the Noctuidae of North America. *Buffalo Society of the Natural Sciences*, 2: 1–77.
- Hampson GF. 1897. The moths of India. Supplementary paper to the volumes in “The fauna of British India”.

- Journal of the Bombay Natural History Society*, 11(3): 438–662.
- Hampson GF. 1908. *Catalogue of the Lepidoptera Phalaenae in the British Museum, Vol. 7*. Taylor and Francis, London, 709 pp.
- Hampson GF. 1914. Descriptions of new genera and species of Noctuidae. *Annals and Magazine of Natural History*, 8(13): 154–155.
- Kononenko VS. 2016. *Noctuidae: Cuculliinae – Noctuinae, part (lepidoptera). – Noctuoidea Sibiricae. Pt. 3*. Proceedings of the Museum Witt Munich, Munich, 497 pp.
- Kononenko VS & Han HL. 2007. Atlas Genitalia of Noctuidae in Korea (Lepidoptera). In: Park KT (Ed.), *Insects of Korea (Series II)*. Junhaeng-Sa, Seoul, p. 96.
- Kononenko VS & Prinratana A. 2013. *Moths of Thailand. Vol. 3. Noctuidae: An Illustrated Catalogue of the Noctuidae (Insecta, Lepidoptera) in Thailand, Pt. 1: Subfamilies Herminiinae, Rivulinae, Hypeninae, Catocalinae, Aganainae, Euteliinae, Stictopterinae, Plusiinae, Pantheinae, Acronictinae and Agaristinae*. Brothers of Saint Gabriel in Thailand, Bangkok, 297 pp.
- Kovács ST & Ronkay L. 2018. A revision of the *Chytonix perssoni* Berio, 1973 species complex (Lepidoptera, Noctuidae, Condicinae) with an annotated list of Eurasiatic taxa. *Acta Zoologica Academiae Scientiarum Hungaricae*, 64(2):143–160.
- Leech JH. 1900a. Lepidoptera Heterocera from Northern China, Japan, and Korea. Part III. *Transactions of the Entomological Society of London*, 1900: 9–161.
- Leech JH. 1900b. Lepidoptera Heterocera from Northern China, Japan, and Korea. Part IV. *Transactions of the Entomological Society of London*, 1900: 511–633.
- Moore F. 1881. Descriptions of new Genera and Species of Asiatic Nocturnal Lepidoptera. *Proceedings of the Zoological Society of London*, 1881: 326–380.
- Moore F. 1882. *Descriptions of new Indian Lepidopterous Insects from the collection of the late Mr. W.S. Atkinson. Heterocera (continued) (Cymatophoridae-Herminiidae), pt. II*. Taylor and Francis, London, pp. 89–198.
- Poole RW. 1989. Lepidopterorum Catalogus (New Series). In: Heppner JB (Ed.), *Fascicle 118 Noctuidae Part 1*. E. J. Brill / Flora & Fauna Publications, New York, pp. 251–252.
- Warren W. 1913. *Die Grossschmetterlinge der Erde. Abteilung II. Die Gross-Schmetterlinge des Indo-Australischen Faunengebietes. Band II. Eulenartige Nachtfalter*. Alfred Kernen, Stuttgart, 496 pp.
- Wileman AE. 1914. New species of Arctiidae and Noctuidae from Formosa. *Entomologist*, 47: 161–169.
- Wileman AE. 1915. New species of Noctuidae from Formosa. *Entomologist*, 48: 143–147, 159–164, 191–196, 235–239.