



Two new *Xestia* Hübner, 1818 species from China (Lepidoptera, Noctuidae)

P. GYULAI¹, L. RONKAY² & A. SALDAITIS^{3,4}

¹H-3530 Miskolc, Mélyvölgy 13/A, Hungary. E-mail: gyulainegarai.adrienne@upcmail.hu

²Department of Zoology, Hungarian Natural History Museum, H-1088 Budapest, Baross u. 13, Hungary.
E-mail: laszlo.ronkay@gmail.com

³Nature Research Centre, Akademijos str. 2, LT-08412 Vilnius-21, Lithuania. E-mail: saldrasa@gmail.com

⁴Corresponding author

Beginning with the fundamental works of Boursin (1954, 1963, 1964), Old World exploration of the genus *Xestia* (s. l.) Hübner, 1818 traditionally focused on reddish-brown species from the generally monsoon, high mountains Himalayan region (Hacker (1990), Yoshimoto (1995), Hreblay & Ronkay (1997, 1998, 1999), Hreblay et al., (1998) and Kononenko et al., (2012)). More recent investigation of the southeast and eastern Tibetan plateau in the drier high altitude of Sichuan and Yunnan provinces resulted in the discovery of seven new species of *Xestia* (s. l.) described by Gyulai et al. (2011). Two additional new species from this region collected by Irene and Alessandro Floriani and the third author are described herein.

Xestia elisabetha Gyulai, Ronkay & Saldaitis sp. n.

(Figs. 1, 2, 6–9)

Type material. Holotype: Male, China, N-Sichuan, road Barkam/Hong Yuan, 3400 m, 32°10.353'N, 102°29.692'E, 23.ix.2011, leg. A. Floriani, coll. Peter Gyulai (to be deposited in the Hungarian Natural History Museum, Budapest, Hungary); slide No. JB 1839m. Paratypes: 2 males, with the same data as the holotype, 5 males, China, N-Sichuan, near Barkam, Zhe Gu Shan pass, 3300 m, 3155.625'N, 10239.290'E, 21.ix.2011, leg. A. Floriani, 1 male, China, N-Sichuan, near Moxi, 3954 m, 2953.097'N, 10200.459'E, 07.x.2012, leg. A. Floriani; coll. Alessandro Floriani (Milan, Italy). Slide Nos: PGy 3060m, PGy 3064m, PGy 3065m, PGy 3555m.

Diagnosis and description. Wingspan 29–32 mm. Morphologically the new species resembles its only known closely allied taxon, *Xestia aplectoides* (Draudt, 1963) which was described from Yunnan. The new species can be separated from this sister taxon by its blackish-dark brown palpi, slightly broader, more unicolorous brownish-grey forewings, and the slight reddish-brown suffusion of the medial field apparent on fresh specimens. By comparison, *X. aplectoides* (Fig. 3) has lighter palpi with a white edge and pure grey forewing ground colour with dark greyish (sometimes blackish) suffusion. The transverse lines of *X. elisabetha* (Figs. 1, 2) are finer, generally simple and more obsolescent with only the antemedial line clearly visible and the wavy postmedial line less serrated. External diagnostic features are clearly recognizable only in newly emerged specimens so that further genitalic investigation is required for worn individuals. The female is still unknown. The male genitalia (Figs. 6–9) are most similar to those of *X. aplectoides* (Figs. 10, 11) but with certain conspicuous differences, as follows: the uncus of the new species is much broader and differently shaped distally, being lanceolate and pointed apically; the vinculum is about half as long as in *X. aplectoides*; the juxta is more elongated-triangular dorsally; the valvae are less elongated, having larger flap-like terminal extensions on the ventral side; the vesica is ventrally recurved, ample, with two (basal and subbasal) cornuti fields with numerous sparsely arranged cornuti compared to *X. aplectoides* which has a larger basal cornutus or a short, slightly serrated sclerotised field with 1–2 tiny cornuti.

Bionomics and Distribution. Known only from the Barkam and Moxi areas in northern Sichuan Province on the east edge of the Tibetan plateau. Nine males were collected at lights on cold nights on 21, 23 September 2011 and 7 October 2012 at an elevation of 3300–3950 m in shrubby, swampy areas. Sympatry with *X. aplectoides* is unknown, but the latter is generally on the wing somewhat later through October in Yunnan and West Sichuan provinces.

Etymology: Dedicated to Mrs. Elisabeth Rau (Grafring, Germany) for her contributions to entomology.

discal spot and wavy medial line; cilia of both wings ashy grey. The male genitalia (Figs. 12–15) are typical of the subgenus *Pachnobia* but the distal part of the valva is more elongated, terminally bifurcate, and resembles those of some species of the subgenus *Raddea* Alpheraky, 1892 (formerly *Erebophasma* Boursin, 1963; was synonymised with *Raddea*, Lafontaine 1998 and Kononenko et al. 2012), especially *Raddea hirsuta* (Chen, 1985). The specific features of the male genitalia of *X. rimas* are the large, broadly calyciform juxta, with deep, laterally sinuous V-shaped dorso-medial incision; particularly distally elongated, terminally asymmetrically bifurcate, pointed valva; medium-large, thick and basally strongly curved, apically acutely pointed harpe; large knot-shaped carinal plate, appearing rather like a basal cornutus; the dorsally recurved, ample vesica with sclerotised, slightly serrated subbasal plate. Female unknown.

Bionomics and Distribution. The six males were collected at ultraviolet light on 23 July 2011 in Sichuan Province in a remote area located at the southern end of the Minshan mountain range (Fig. 5). The collecting area is near Jiuzhaigou National Park. The climate in the valley is cool, with a mean annual temperature of 7.2 degrees C and total annual rainfall of 661 mm (80% of which occurs between May and October). Jiuzhaigou's ecosystem is classified as temperate broad-leaved forest and woodlands, with mixed mountain and highland systems. Among other summer noctuid species collected at the time were *Haderonia albirena* (Draudt, 1950), *Diphtherocome pallida* (Moore, 1867), *Xestia morandinii* Gyulai, Ronkay & Saldaitis, 2011, *Papestra floriani* Gyulai, Ronkay & Saldaitis, 2011.

Etymology. Dedicated to Mr. Gintaras Rimas (Bendorėliai, Lithuania) for his special interest in *Xestia*.

Acknowledgements

The authors are grateful to Mrs Irene Floriani and Mr Alessandro Floriani (Milan, Italy) for their enthusiasm and patience during the China trips, Mr Robert Borth (Milwaukee, United States) for English grammar suggestions and Mr Tomas Zubacikas (Vilnius, Lithuania) and Mrs Adrienne Gyulai-Garai (Miskolc, Hungary) for their photographic assistance. Finally, a special thanks to Mr Janos Babics (Budapest, Hungary) for *Xestia elisabetha* HT genitalia preparation and Mr Balázs Benedek (Törökbálint, Hungary) for taxonomic suggestions.

References

- Boursin, Ch. (1954) Die "Agrotis"-Arten aus Dr. h. c. H. Höne's China-Ausbeuten. *Bonner Zoologische Beiträge*, 5, 213–303.
- Boursin, Ch. (1963) Die Noctuidae-Arten (*Agrotinae* vulgo sensu) aus Dr. h. c. H. Höne China-Ausbeuten. *Forschungsberichte des Landes Nordrhein-Westfalen*, 1170, 9–107.
<http://dx.doi.org/10.1007/978-3-663-07024-5>
- Boursin, Ch. (1964) Lepidoptera der Deutschen Nepal-Expedition 1955. Teil II. *Veröffentlichungen der Zoologische Staatssammlung München*, 8, 1–40.
- Chen, Y.-X. (1985) A new species of the genus *Estimata* Kozhanchikov (Lepidoptera: Noctuidae) *Acta Entomologica Sinica*, 28 (3), 317–318.
- Gyulai, P., Ronkay, L. & Saldaitis, A. (2011) New Noctuidae species from China and the Himalayas. *Esperiana*, 16, 166–197.
- Hacker, H. (1990) Systematik und faunistik der Noctuidae (Lepidoptera) des Himalayanischen Raumes 2. *Esperiana*, 1, 277–322.
- Hreblay, M. & Ronkay, L. (1997) Neue trífide Noctuidae (Lepidoptera) aus dem Himalayanischen Raum und der südostasiatischen Region. *Esperiana*, 7, 485–620.
- Hreblay, M. & Ronkay, L. (1998) Noctuidae from Nepal. In: Haruta, T. (Ed.), *Moths of Nepal*, Part. V. *Tinea*, 15 (Suppl. 1.), 117–310.
- Hreblay, M., Ronkay, L. & Plante, J. (1998) Contribution to the Noctuidae fauna of Tibet and the adjacent regions. A systematic survey of the Tibetan Noctuidae fauna based on the material of the Schäfer-expedition (1938–1939) and recent expeditions (1993–1997). *Esperiana*, 6, 69–184.
- Hreblay, M. & Ronkay, L. (1999) Neue trífide Noctuidae (Lepidoptera) aus dem Himalayanischen Raum und der südostasiatischen Region. *Esperiana*, 7, 485–620.
- Kononenko, V.S., Volynkin, A.V. & Matov, A.Y. (2012) A revision of the *Xestia* (*Raddea*) *alexis* (Kozhanchikov, 1928) species-group with a checklist of subgenus *Raddea* Alpheraky, 1892 and description of brachipterous females (Lepidoptera, Noctuidae, Noctuidae). *Zootaxa*, 3590, 51–62.
- Lafontaine, J.D. (1998) *The Moths of America North of Mexico – 27.3 Noctuoidea, Noctuidae (part.)*. The Wedge Entomological Research Foundation, Washington, D.C., 348 pp., 8 colour pls, 36 monochrome pls, 124 maps.
- Yoshimoto, H. (1995) *Noctuidae*. In: Haruta, T. (Ed.), *Moths of Nepal*, Part 4. *Tinea*, 14 (Supplement 2), 49–88.