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Revision of the family Metarbelidae (Lepidoptera) of the Oriental Region. IV. Genus *Tagoria* Yakovlev & Zolotuhin, gen. nov.

ROMAN V. YAKOVLEV^{1, 2, 3} & VADIM V. ZOLOTUHIN^{4†}

¹Altai State University, Lenina pr. 61, Barnaul, 656049, Russia. E-mail: yakovlev_asu@mail.ru

²Tomsk State University, Laboratory of Biodiversity and Ecology, Lenina pr. 36, 634050 Tomsk, Russia.

³Paleo Data Lab., Institute of Archaeology and Ethnography SB RAS, Novosibirsk, Russia.

⁴Ulyanovsk State Pedagogical University, pl. 100-letia Lenina 4, RUS-432700, Ulyanovsk, Russia.

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Abstract

In the fourth part of the revision on the Asian Metarbelidae we describe the new genus *Tagoria* Yakovlev & Zolotuhin, gen. nov. (type species, by original designation: *Arbela watsoni* Hampson, 1900). The male and female of *Tagoria watsoni* (Hampson, 1900) comb. nov. are redescribed, the new species *Tagoria dierli* Yakovlev & Zolotuhin, sp. nov. (type locality: Nepal, Rapti Tal, Monahari Khola, Belwa) is described.

Key words: biodiversity, Cossoidea, entomology, Asia, Palearctica, Metarbelidae, taxonomy, new species.

Introduction

Metarbelidae (Lepidoptera, Cossoidea) of the Oriental region were studied very insufficiently. Lehmann (2019) described two new genera from Nepal and Sumatra. In the same time, Yakovlev and Zolotuhin[†] (2020, 2021) prepared a detailed revision of the Asian representatives of the family basing on the study of all the available materials.

Arbela watsoni Hampson, 1900 was described on a series of syntypes from “Madras”. Having examined the morphological details of this little studied species, we came to the conclusion that *A. watsoni* represents a genus new to science, the description of which is given below. Additionally, we found one more male of a non-described species from Nepal, also belonging to this species.

Material and methods

The materials for the study were the adult Metarbelidae specimens deposited in various collections:

NHMUK – National Museum of Natural History (formerly: The Natural History Museum, London, U.K.);

ZSM – Zoologische Staatssammlung der Bayerischen Staaten (Munich, Germany).

The male and female genitalia were mounted in euparal on slides following Lafontain and Mikkola (1987) and examined with an Olympus SZX16 microscope. The images were taken with the digital camera CMOS 20.7 megapixels and processed using Corel Photo-Paint 2017 software.

Taxonomical part

Tagoria Yakovlev & Zolotuhin, gen. nov.

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Type species: *Arbela watsoni* Hampson, 1900 (designated here).

Description. Male. Moths of small size, color dark. Antenna bipectinate, setae in medium third of antenna three times longer than antenna rod diameter. Fore wing short. Small transverse white spot discally (in cubital area), wide dark band postdiscally. Hind wing grey, without pattern.

Male genitalia. Uncus thin, slightly extending apically, with wide semicircular bifurcation, uncus halves thick, diverging to sides; subscaphium strongly extended dorsally, with narrow abdominal half; gnathos arms short, lamellar; gnathos lamellar, with long thin lateral processes; costal edge of valve almost smooth, outer edge semicircular, saccular edge curved, strongly sclerotized, saccus tiny, juxta lamellar, semicircular; phallus very small, equal to approximately 1/3 of valve in length, with strongly extended coecum, vesica without cornuti.

Female. Slightly bigger than male. Antenna bipectinate, setae in medium third of antenna twice longer than antenna rod diameter. Wing pattern resembles that of male, but significantly lighter.

Female genitalia. Papillae anales elongated, cylindrical; apophyses anteriores equal in length to apophyses posteriores, thin; ostium wide, oval; antrum strongly sclerotized, funnel-shaped, slightly narrowing from ostium to ductus; ductus short, thick, with two sclerites in lateral sides; bursa bag-like with vast scabination zones basally and apically.

Diagnosis. The new genus clearly differs from all the Asian representatives of the family in the following characters:

- the short, wide fore wing with a small light portion in discal area (cubitally),
- the tiny phallus,
- the very wide ostium and strongly sclerotized funnel-shaped antrum;
- the extended scabination zones on the bursa.

Composition. The genus includes two species: *T. watsoni* (Hampson, 1900) and *T. dierli* Yakovlev & Zolotuhin, sp. nov.

Distribution. Nepal and India.

Etymology. The new genus is named after the Nobel laureate, Rabindranath Tagore (1861–1941), who was a Bengali polymath – poet, writer, playwright, composer, philosopher, social reformer and painter.

Tagoria watsoni (Hampson, 1900) comb. nov.

Figs 1–3, 5–6, 8

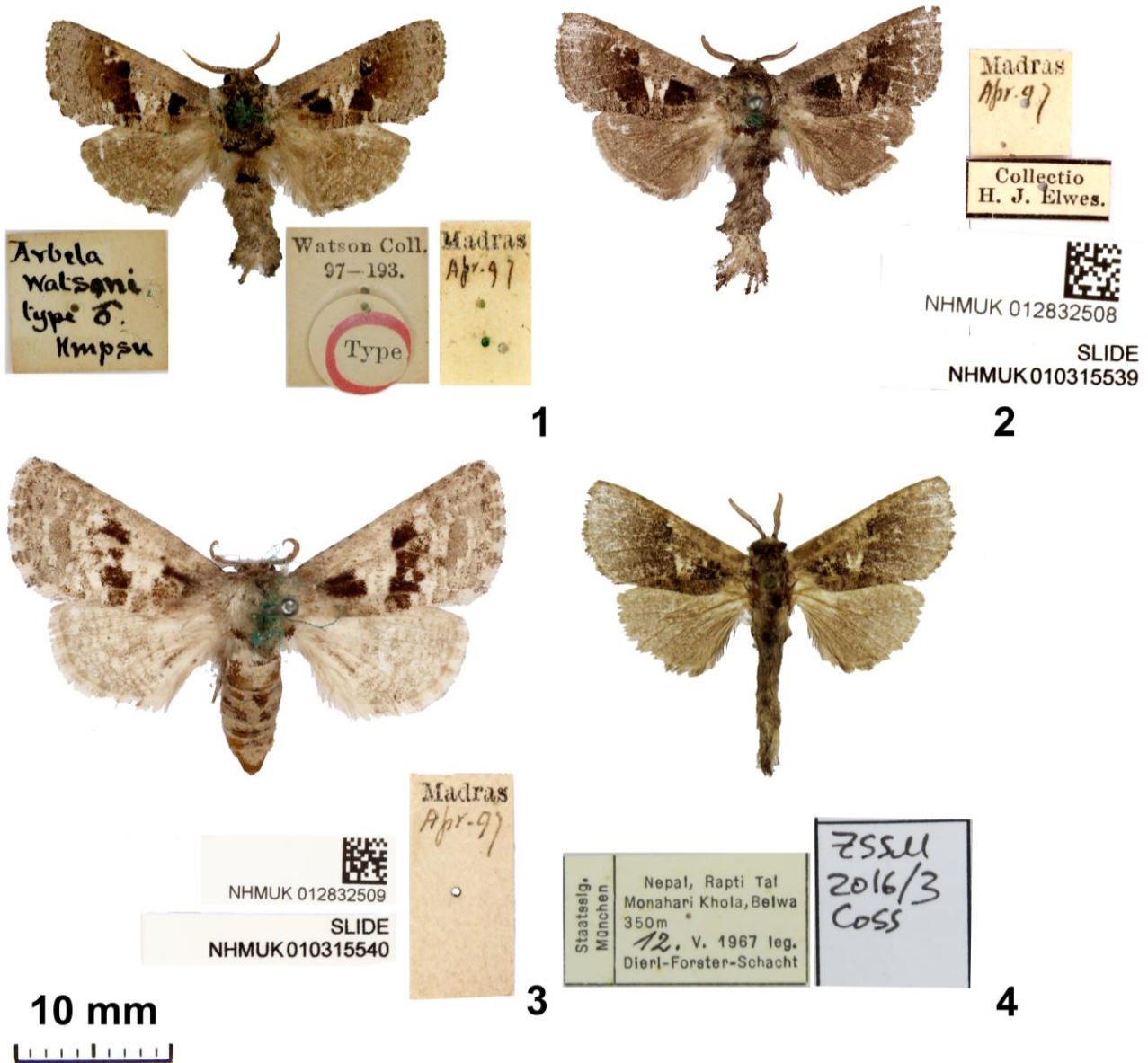
Arbela watsoni Hampson, 1900, J. Bombay Nat. Hist. Soc. 13: 228.

Type material (syntypes) in NHMUK.

Type locality: “Madras” [Chennai].

Material examined. Male (syntype), Madras, Apr. [18]97, Watson Coll. (NHMUK); 2 males, 1 female, Madras, Apr. [18]97, collection H.J. Elwes (NHMUK, individual number NHMUK: 012832508, 012832509, 012832511; slides NHMUK: 010315539, 010315542, 010315540 – female).

Redescription. Male. Length of fore wing 12–13 mm. Fore wing light-brown, with small brown strokes along costal edge; brown portion basally (at base of cubital veins); light creamy strokes more distally, wide brown band in discal area with two bright brown spots at top of discal cell and in cubital zone; poorly expressed brown pattern of strokes postdiscally, submarginally and marginally; thin brown band submarginally. Fringe on fore wing mottled, creamy between veins, brown at veins. Hind wing light-brown with poorly developed pattern of brown strokes; marginal area creamy without pattern. Fringe on hind wing creamy, unicolorous.



Figures 1–4. Adult specimens of *Tagoria*: 1. *T. watsoni*, male, syntype (NHMUK); 2. *T. watsoni*, male, Madras (NHMUK); 3. *T. watsoni*, female, Madras (NHMUK); 4. *T. dierli*, male, holotype (ZSM).

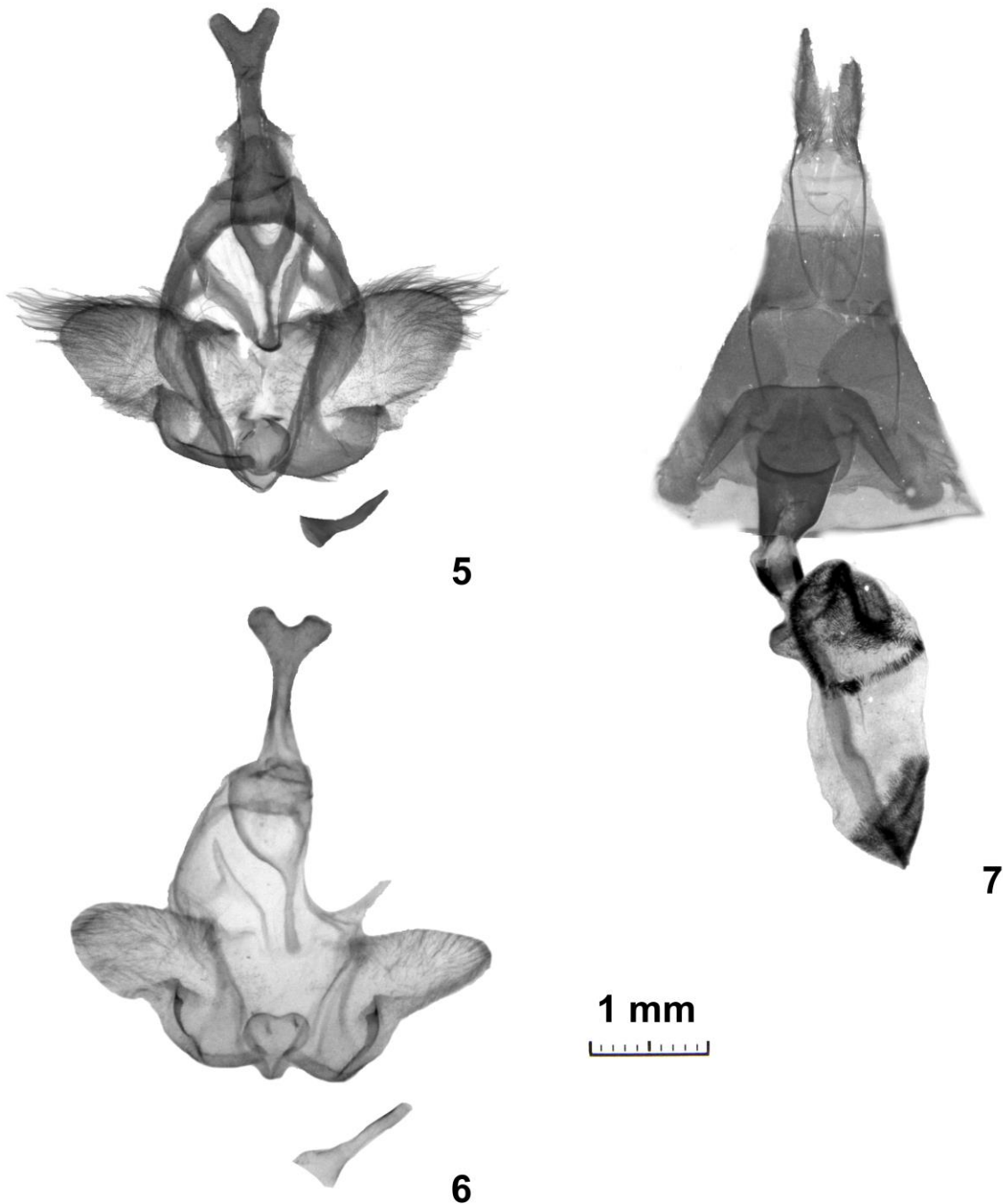
Male genitalia. Uncus thin, long, apically slightly extended, with wide semicircular bifurcation, uncus halves thick, diverging to sides; subscaphium dorsally strongly extended, abdominal half narrow, funnel-shaped; gnathos arms short, lamellar; gnathos lamellar, with long thin lateral processes; costal edge of valve

practically smooth, outer edge semicircular, saccular edge curved, strongly sclerotized, with small harpe, saccus tiny, juxta lamellar, semicircular; phallus very small, slightly curved on border between basal and medium thirds, equal to 1/3 of valve in length, coecum very extended, vesica aperture in dorso-apical position, about 1/2 of phallus in length, vesica without cornuti.

Female. Length of fore wing 14.5 mm. Wing slightly more extended than that of male. Wing pattern resembles that of male but significantly lighter, all dark elements reduced.

Female genitalia. See the genus description.

Diagnosis. *T. watsoni* differs from *T. dierli* in the lighter pattern, more distinctive postdiscal band, wider valve and shorter subscaphium.



Figures 5–7. Genitalia of *Tagoria*: 5. *T. watsoni*, male, Madras (slide NHMUK: 010315539); 6. *T. dierli*, male, holotype (slide ZSM-Coss 2016/3); 7. *T. watsoni*, female, Madras (slide NHMUK: 010315540).

Etymology. The species is named after Captain Edward Yerbury Watson (1864–1897), a prominent British entomologist, specialist in Hesperiidæ killed in action at Maidan 8th November 1897.

Distribution. SE India (Tamil-Nadu).

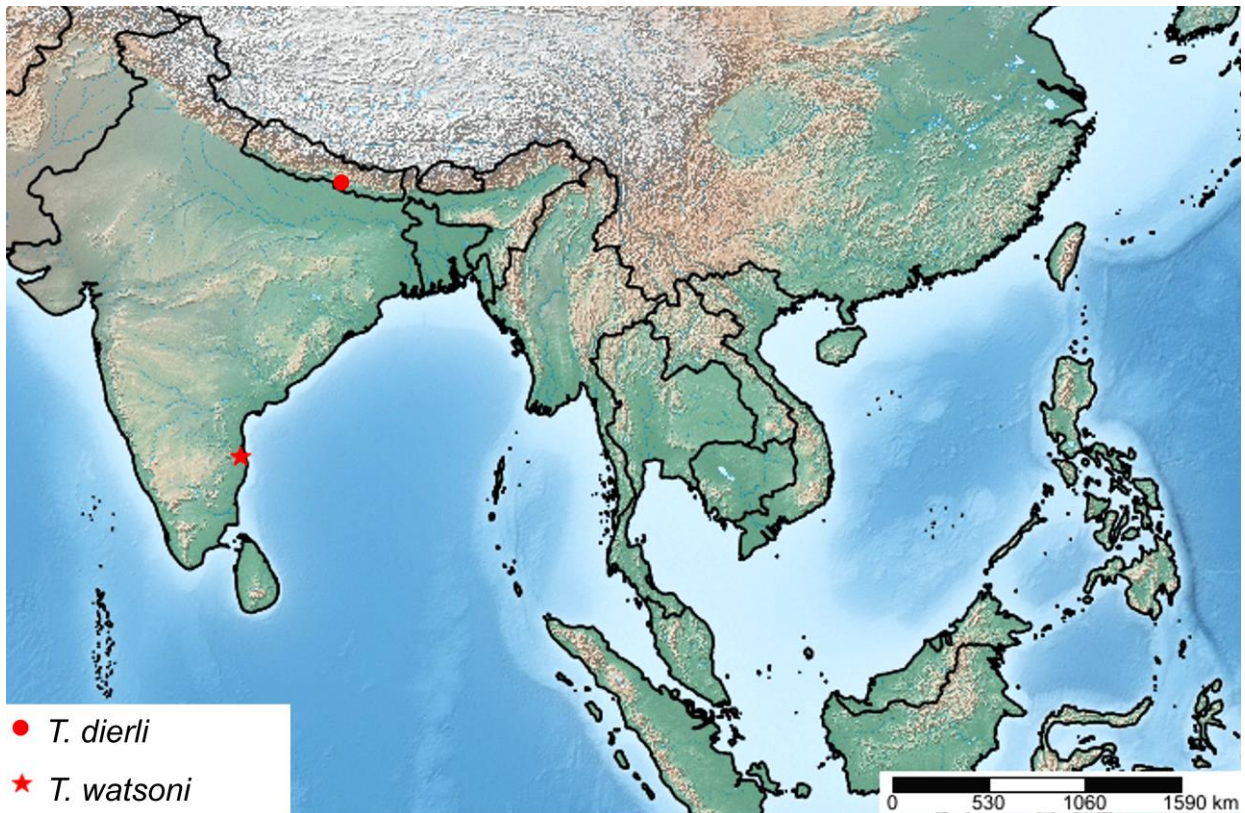


Figure 8. Distributional map of *Tagoria*.

***Tagoria dierli* Yakovlev & Zolotuhin, sp. nov.**

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Figs 4, 7, 8

Material. Holotype, male, Nepal, Rapti Tal, Monahari Khola, Belwa, 350 m, 12.v.1967, leg. Dierl, Forster & Schacht (ZSM, slide ZSM-Coss 2016/3).

Description. Male. Length of fore wing 12 mm. Fore wing brown, with dim dark-brown portions at root and postdiscally, small light portion discally (in cubital area), border creamy, fringe brown. Hind wing brown, without pattern, border creamy, fringe brown.

Male genitalia. Uncus thin, long, slightly extended apically, with wide semicircular bifurcation, uncus halves thick, widely diverging to sides; subscaphium strongly extended dorsally, with very long narrow abdominal end, funnel-shaped; gnathos arms short, lamellar; gnathos lamellar with long thin lateral processes; valve slightly elongated, costal edge almost smooth, outer edge semicircular, saccular edge strongly curved, sclerotized, with small harpe, saccus tiny, juxta lamellar, semicircular; phallus very small, slightly curved on border between distal and medium thirds, equal to 1/3 of valve in length, with strongly extended coecum, vesica aperture in dorso-apical position, about 1/2 of phallus in length, vesica without cornuti.

Female unknown.

Diagnosis. *T. dierli* differs from *T. watsoni* in the darker pattern, poorly expressed postdiscal band, narrow valve and long subscaphium.

Etymology. The species is named after the well-known German entomologist Wolfgang Dierl (1935–1996), specialist in Psychidae, explorer of the entomofauna of Nepal, one of the collectors of the new species.

Distribution. Nepal (Mid-Western Region)

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References

- Hampson, G.F. (1900) The Moths of India. Supplementary Paper to the Volumes in “The Fauna of British India”. Series II. Part II. *The Journal of the Bombay Natural History Society*, 13, 223–235.
- Hausmann, A. (1996) In memoriam Dr. Wolfgang Dierl (20.1.1935– 26.3.1996). *Nachrichtenblatt der Bayerischen Entomologen*, 45 (3/4), 50–55.
- Lafontaine, J.D. & Mikkola, K. (1987) Lock-and-key system in the inner genitalia of Noctuidae (Lepidoptera) as taxonomic character. *Entomologiske Meddelelser*, 55, 161–167.
- Lehmann, I. (2019) Description of two new genera and two new species of Metarbelidae (Lepidoptera, Cossioidea) from Nepal and Sumatra (Indonesia), Oriental Region. *Heterocera Sumatrana*, 13 (2), 47–72.
- Yakovlev, R.V. & Zolotuhin, V.V. (2020) Revision of the family Metarbelidae (Lepidoptera) of the Oriental Region. I. Introduction and genera *Encaumaptera* Hampson 1893, *Orgyarbela* gen. nov., and *Hollowarbela* gen. nov. *Ecologica Montenegrina*, 38, 84–101.
<http://dx.doi.org/10.37828/em.2020.38.11>
- Yakovlev R.V. & Zolotuhin V.V. (2021) Revision of the family Metarbelidae (Lepidoptera) of the Oriental Region. II. Two monotypic genera – *Ghatarbela* gen. nov. and *Micrarbela* gen. nov. – from the Western Ghats and Sri Lanka biodiversity hotspot. *Ecologica Montenegrina*, 42, 103–108.
<http://dx.doi.org/10.37828/em.2021.42.6>