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Palerontobia kozlovi – a new species and genus of high mountain tiger-moth from Qinghai

(Lepidoptera, Arctiidae)

by

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Abstract: A new species and genus ***Palerontobia kozlovi* gen. nov.** et **spec. nov.** are described from north-east Tibet (China, Qinghai), from specimens collected by the great Russian traveller Petr K. Kozlov in 1900. The holotype is preserved in the Zoological Institute, St.-Petersburg, Russia. The new genus is related to *Orontobia* DE FREINA, 1997, differing by a short and simple uncus, an apical valva process lacking subapical broadening, and an aedeagus without an apical sclerotized plate at the apex. The wings of the new species are almost black, semihyaline, and are without visible patterning.

While sorting and identifying the noctuids collected during the 1899-1900 expedition to Mongolia and North-West Tibet by the great Russian traveller PETR K. KOZLOV (a follower of N. M. PRZEWALSKI), Dr. ALEKSEI MATOV, a specialist on Noctuidae in the Zoological Institute, St.-Petersburg, found a blackish Noctuid moth collected in north-west Tibet. The moth lacks clearly visible wing patterning and resembles a *Trichanarta* species of the Noctuidae. After preparing a microscope slide of the ♂ genitalia and consulting with Dr. L. RONKAY, he determined it as an unknown member of Arctiinae, Arctiidae. During my visit to the Zoological Institute in St.-Petersburg in January-February, 2008, Dr. MATOV kindly gave me this specimen for description. Study showed that it is a member of Arctiini s. str. (=*Arctia* genus group by FERGUSON, 1985) externally resembling a very dark species of *Orontobia* DE FREINA, 1997. Nevertheless, the genitalia of this strange moth is characterized by a reduction of the main autapomorphic characters of the genus *Orontobia*, so it is assumed that it is not only a new species but also a representative of a new genus described below.

***Palerontobia* gen. nov.**

Type species: ***Palerontobia kozlovi* spec. nov.**

Etymology: The generic name consists of two parts: "Pale", a part of the genus name *Palearctia*, and "rontobia", a part of the genus name *Orontobia*.

Description: External characters of the genus *Orontobia* DE FREINA (type species *O. dalailama* DE FREINA, 1997): head clothed in long shaggy hairs; palpi porrect, short, with long hairs; eyes small and oval, without hairs, situated on a naked sclerite (in the *Orontobia* this sclerite is covered with hairs); male antennae doubly serrate; proboscis reduced; legs covered in dense hairs, the middle set with a single pair of short stout spurs (hind legs absent in the holotype), and the claws with a slight indentation at the center; forewings with vein R_2 originating from vein R just near the discal vein: venation type C by SOTAVALTA (1964). Wings semihyaline, forewings almost entirely dark with a

few light scales scattered across the surface of the wing; a space at the discal vein is the darkest. Hindwings also dark with an almost invisible pattern. Tympanum with a small flattened inflation.

♂ **genitalia** (fig. 1-2): Uncus short and straight, slightly curved down at the tip; valvae slightly alternating convex-concave, diamond-shaped, with a finger-like apical process that lacks any widening at the apex; there are no peniculi; the transtilla consists of two band-like sclerotized branches; saccus moderately long, broad, rounded at the apex. Juxta short and transversal. Aedeagus probably straight (it was torn into two parts when everting the vesica), broad, without scleritized plates; vesica bag-like, with a few short and broad additional lobes.

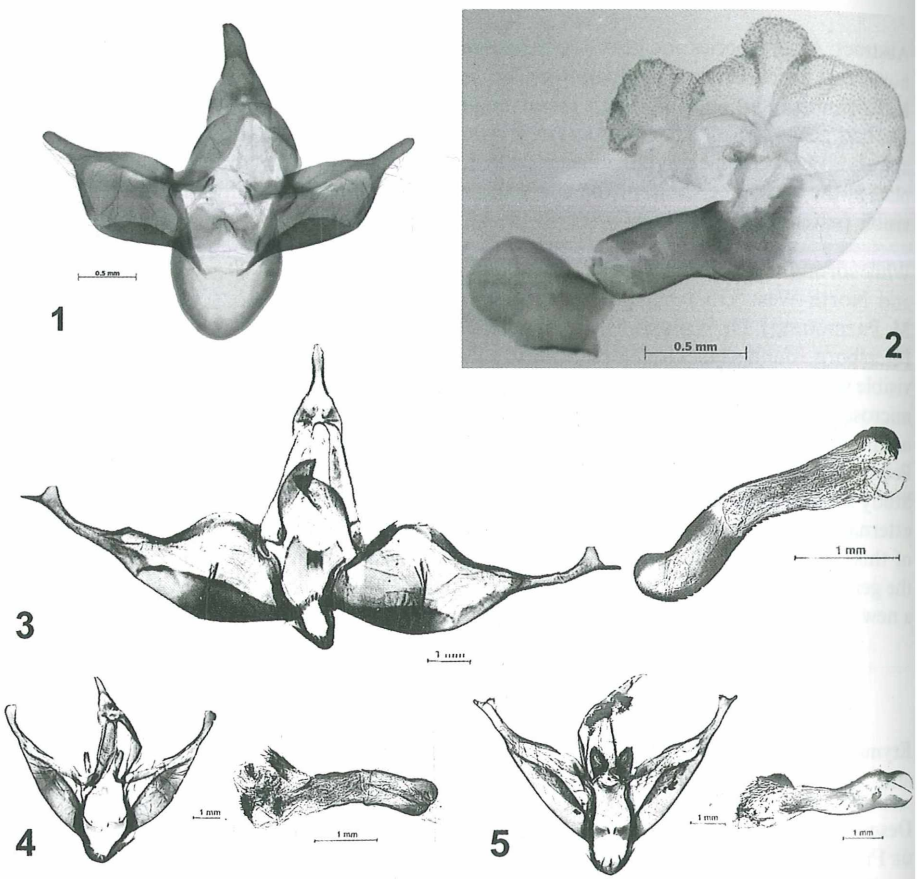

Fig. 1, 2: ♂ genitalia with aedeagus of ***Palerontobia kozlovi*** **gen. nov.** et **spec. nov.**, holotype, China, Qinghai province, river By-chu (Nyamtso), basin of Blue river [Tongtian he, Zhi Qu, Yangtze headwater], 14000', 11.VII.[19]00, KOZLOV leg.

Fig. 3: ♂ genitalia (general view and aedeagus) of *Orontobia secreta dalailama* DE FREINA, 1997, the type species of the genus; from: DE FREINA (1997, fig. 2).

Fig. 4: ♂ genitalia (general view and aedeagus) of *Orontobia taglangla* DE FREINA, 1997; from: DE FREINA (1997, fig. 6).

Fig. 5: ♂ genitalia (general view and aedeagus) of *Orontobia mooseri* DE FREINA, 1997; from: DE FREINA (1997, fig. 7).

Remarks: Judging from the moth's general appearance and small size, it resembles a curious *Palearctia* FERGUSON, 1984, a species with a reduction in the wing pattern to an almost entirely black colouration. But the ♂ genitalia show that it is a true member of Arctiini s. str. (=*Arctia* genus group), by the nearly straight uncus (in many Micrarctiini species it is slightly s-curved), and the slight but noticeably irregular (convex-concave) valvae (in Micrarctiini the valvae are often flat) with a true apical finger-like process (in Micrarctiini this process is formed by costal sclerotization, while the distal edge of the valva often bears additional processes and prominences).

From all known Arctiini genera, the external view of the new one resembles only very dark species within the West Chinese high mountain genus *Orontobia* DE FREINA, 1997. Nevertheless, the ♂ genitalia of both genera are quite different: in *Orontobia* species (fig. 3-5) the valvae are very irregular, with a curved costal edge, and the apical valva process has a noticeable widening near or at the apex; moreover, in all *Orontobia* species the peniculi (the sclerotized processes at the transtilla bases) are strongly expressed, and the aedeagus bears a strongly scleritized plaque with spines at the apex, while in *Palerontobia* there is only a slightly more scleritized area.

Taking into account the Arctiini phylogeny model (DUBATOLOV, 2007, 2008), *Palerontobia* should be included into the clade *Orontobia-Oroncus-Acerbia-Platyperpia* by the apical valva process that has a round section (not flat), the very small eyes of a day-flying moth, and short branches on the antennae. Nevertheless, some important characters of the new genus appear to be slightly reduced, such as the slerotized plaque or spines at the apex of the aedeagus, the wing pattern, peniculi, and the S-like inflexion of the apical valva process. Some characters, like a short uncus with a broad base, are as in *Acerbia* SOTAVALTA, 1963, but the true position of the new genus in the clade *Orontobia-Oroncus-Acerbia-Platyperpia* may be clarified only by a study of the yet unknown ♀ genitalia. It looks more probable that the new genus is more closely related exactly to *Orontobia*, but has autapomorphies like a reduction of the slerotized plague or spines at the apex of the aedeagus, peniculi, a S-like inflexion, and subapical broadening of the apical valva process.

Palerontobia ***kozlovi*** **spec. nov.** (colour plate 15: 1-2)

Etymology: the new species is named in honour of PETER K. KOZLOV, a follower of N. M. PRZEWALSKY, who first collected it.

Material: Holotype ♂, China, Qinghai province, the By-chu (Nyamtso) river, the Blue River basin [Tongtian he, Zhi Qu, Yangtze headwater], 14000', 11.VII.[19]00, KOZLOV leg. The holotype is preserved in the Zoological Institute, Russian Academy of Sciences, St.-Petersburg, Russia.

Remarks about the type locality: According to the description of KOZLOV's travels in 1899-1900 (KOZLOV, 1947), By chu is a small river on the southern slope of the Bayan Har Shan Mts. SSW from the Lake Gyaring Hu, in a north-eastern part of an unnamed river basin not far from

Bagan. According to a modern map of the region that I have received due to the kindness of J. GRIESHUBER, this place has the coordinates: ~34° 07' N, 96° 38' E (fig. 6). The holotype was collected in the upper part of the By chu River basin (colour plate 15, fig. 4), not far from the Bayan Har Shan crest between the Chzhabu-vrun pass and Khi Chu River (KOZLOV, 1947). *Sinoarctia kasnakovi* DUBATOLOV, 1987 is another interesting tiger-moth taken in the same locality.

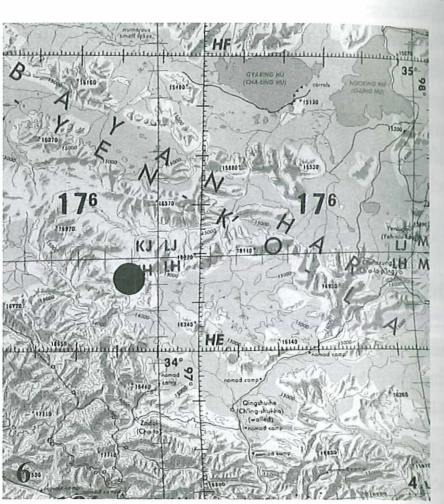

Fig. 6: Modern map showing the type locality of ***Palerontobia kozlovi* gen. nov.** et **spec. nov.**; by courtesy of JOSEF GRIESHUBER.

Description: Forewing length 10.9 mm. Head with long dark brown hairs. Antennae doubly serrated with branches not longer than the diameter of the core. Thorax also clothed in long dark brown hairs. Fore edge of the patagiae bordered with a few whitish hairs. Legs covered with brown scales, femora also with long brown hairs. Abdomen dark, laterally with yellowish hairs. Forewings slightly semihyaline, covered with dark brownish grey scales. Additional sparse light grey scales are also concentrated between the central cell and the costal margin, both in the apical one-third of the central cell and beyond the discal vein; a few light scales are also diffused in the submarginal part of the forewing. All this gives an impression of a discal spot.
Hindwings lighter than the forewings, with paler grey scales in the postdiscal area and at the external margin between veins M_2-Cu_2, as well as in apical part of the cell.

♂ **genitalia** (fig. 1-2): are described above.

Remarks: Among the *Orontobia* species with described ♂ genitalia, the new species resembles *O. mooseri* DE FREINA, 1997, with darkening just at the discal vein on the forewings. Nevertheless, the wings of the latter species are semi-transparent, while in the new one they are translucent; the ♂ genitalia of these two species also have differences at a generic level.

There is only one species that might be conspecific with the new one, *Orontobia coelestina* (PÜNGELER, 1904). It was described from the Altyn-Tagh Mts. in SE Xinjiang (the modern name of this range is Altun Shan) based on a single ♀ (colour plate 15: 3). It has a similar completely

dark forewing ground-pattern with just a trace of a discal spot. The hindwings are much lighter, a whitish grey with a broad dark base, a dark discal streak, and two narrow band-like submarginal spots. Such differences might be caused by sexual dimorphism. Nevertheless, *O. coelestina* (PÜNG.) and the new species occur in different mountain ranges. The distance between the type localities is about 1000 km, too much to consider both to be conspecific, but it cannot be ruled out that *O. coelestina* (PÜNG.) is a member of the new genus. Moreover, conspecificy of *O. secreta* (DRAUDT, 1931) (=*kansuensis* DE FREINA, 1997) from Gansu and NW Qinghai, and *O. s. dalailama* DE FREINA, 1997 from Tibet (also widely separated by mountain ranges) has not been proven by a comparison of the *O. coelestina* (PÜNG.) genitalia. It therefore seems plausible that they are different species.

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Colour plate 15/ Farbtafel 15

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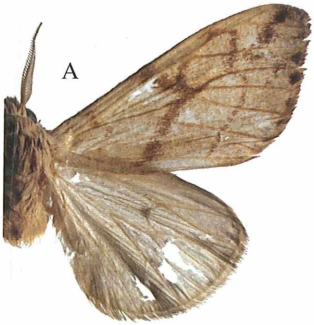
1: *Palerontobia* ***kozlovi*** **gen. nov.** et **spec. nov.**, holotype ♂, China, Qinghai province, river By-chu (Nyamtso), basin of Blue river [Tongtian he, Zhi Qu, Yangtze headwater], 14000', 11.VII.[19]00, KOZLOV leg. **2**: As fig. 1 with abdomen and label. **3**: *Orontobia coelestina* (PÜNGELER, 1906), holotype ♀ (in NH Museum, Berlin); from DE FREINA (1997: pl. I, fig. 8). **4**: A cut from the map of P. KOZLOV (1947) showing the type locality of *Palerontobia* ***kozlovi*** **gen. nov.** et **spec. nov.**



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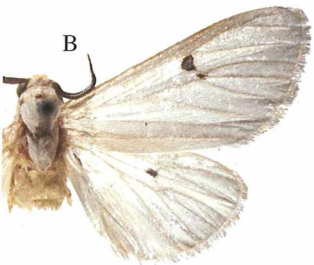

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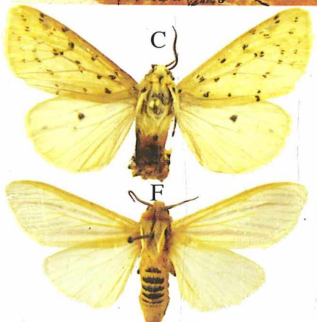

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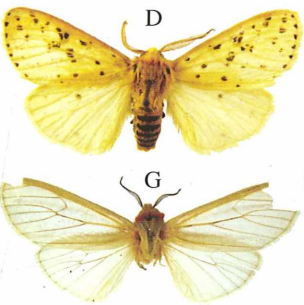

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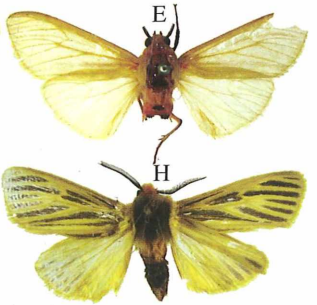

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A: *M. aurantiaca* (HOLLAND, 1893), ♂, Guinée, Kindia, river Tabuka, 7.X.1982, S. MURZIN leg. (SZMN). **B**: *E. quadrilunata* (HAMPSON, 1901), ♂, Guinée, Kindia, river Tabuka, 26.V.1983, S. MURZIN leg. (SZMN). **C**: *E. testacea* (WALKER, 1855), ♂, South Africa, Kwa Zulu-Natal Prov., 15 km NE of Pietermaritzburg, Cumberland National Reserve, 2.XII.2004, P. USTJUZHANIN leg. (SZMN). **D**: *E. scioana* (OBERTHÜR, 1879 [1880]), ♂, Rwanda, Butare, XII.1977, A. POPOUDINA leg. (SZMN). **E**: *A. lutescens* (WALKER, 1855), lectotype ♂, Sierra Leone, "1156 / 16. *Spilosoma lutescens*" / Arctiidae genitalia slide No. 81 (BMNH). **F**: *A. lutescens* (WALKER, 1855), ♂, Guinée, Kindia, Pastoria, 20.XI.1983, S. MURZIN leg. (SZMN). **G**: *A. sublutescens* (KIRIAKOFF, 1958), holotype ♂, Uganda, [Ankole Prov.], Ruwenzori Range, Ibanda, 4700 ft., 4-12.IX.1952, D. S. FLETCHER leg., Arctiidae genitalia slide No. 80 (BMNH). **H**: *T. luteoradians* (DE TOULGOËT, 1956), ♂, Madagascar, Antananarivo, 1200 m, 17-19.XII.2000, S. MURZIN leg. (SZMN).