

Paelearctia rasa spec. nov, a new tiger moth from China

(Lepidoptera, Arctiidae)

by

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Summary: The description of *Paelearctia rasa* spec. nov. specimens found in the Karlik Mountains (China) is given. *Paelearctia rasa* spec. nov. differs from other species of this genus by a variety of external features and by a very light underside of the hindwings with a large black discal spot and by the structure of the genitalia. The form of the male genitalia—valves and aedeagus—is different, and the ductus of the female genitalia is heavily sclerotized, the bulla branches off from the ductus base and there are 2 rounded spiny signa in the form of a sunken plate.

Introduction

The new species was caught by the Czech collectors S. NYKL and M. KOPP in the Karlik range of the Tian-Shan mountains at an altitude of 3300 m. The locality of its finding and the Karlik range itself are at the edge of the eastern part of the Tian-Shan Mountains more to the east of the Bogda-Shan Range (fig. 1). According to our data, the Lepidoptera fauna of this range is poorly investigated. There are no data available on representatives of *Paelearctia* originating from this locality.

From the species found in the Chinese Tian-Shan, only *Paelearctia glaphyra aksuensis* BANGHAAS, 1927 (Central Tian-Shan) and *P. glaphyra manni* (STAUDINGER, 1881) (Kungess river, headwaters) are described. Both above mentioned taxa have been investigated by V. DUBATOLOV, and there is no doubt that they belong to the species *Paelearctia glaphyra* EVERSMAHN (DUBATOLOV, 1996).

On the basis of the material available, we investigated the following species of the genus *Paelearctia* from the Kirghiz Tian-Shan Mountains in Kirghizia: *P. wagneri* PÜNGELER, *P. golbecki* DUBA-

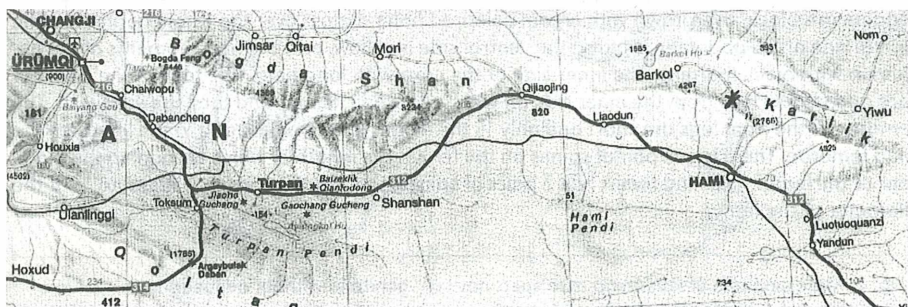


Fig. 1: Map with the locus typicus of *Paelearctia rasa* spec. nov.

TOLOV, *P. gratiosa* GRUM-GRSHIMAILO and *P. gracilis* DUBATOLOV. We also investigated species belonging to the species-complex of the Pamirs-Nepal: *P. hauensteini* KAUTT, 1996, *P. glaphyra altotibetana* DE FREINA (1997), and *P. sarycola* DE FREINA (1997), which is described from the Sarykol Mountains. The authors' collections contain 1 ♂ (E. Pamir, Sarykolsky Mts. Lake Dunkel'dyk, leg. V. Titov). This is the second known locality of this species and it is new for the fauna of Tadzhikistan. P. KAUTT's (1996) paper, which is a detailed analysis of species found in Kashmir, the Pamirs, Nepal and Tibet, was also taken into consideration. The analysis of actual data and literature available shows that the series of Lepidoptera from the genus *Palearctia* obtained by us differs from all other known species and is to be described as a new species.

***Palearctia rasa* spec. nov.**

(colour plate XXIIb, figs. 1–7)

Type material

Holotype ♂: China, Xin-Jiang, Karlik Mount., 3300 m, 85 km North-East of Hami city, 20.–30.VI.1998, leg. STANISLAV NYKL, in coll. Museum Witt, Munich.

Paratypes: 13 ♂♂, 8 ♀♀, same labels as holotype. 1 ♂, 1 ♀, China, Xin-Jiang, Karlik Mount., 3300 m, 80 km North-West of Hami city, 18.–19.VII.1998, e.l. M. KOPP. 1 ♂, 1 ♀, China, Xin-Jiang, Karlik Mount, 3400 m, 75 km NW of Hami city, 6.–9.VII.1997.

Paratypes are kept: 1 ♂ in Kaunas T. Ivanauskas Zoological Museum; 2 ♂♂, 1 ♀ in coll. Mr. ARMIN HAUENSTEIN; 2 ♂♂, 1 ♀ in coll. Mr. PETER KAUTT; 1 ♂ – in coll. ULF EITSCHBERGER; the other specimens in coll. of the authors.

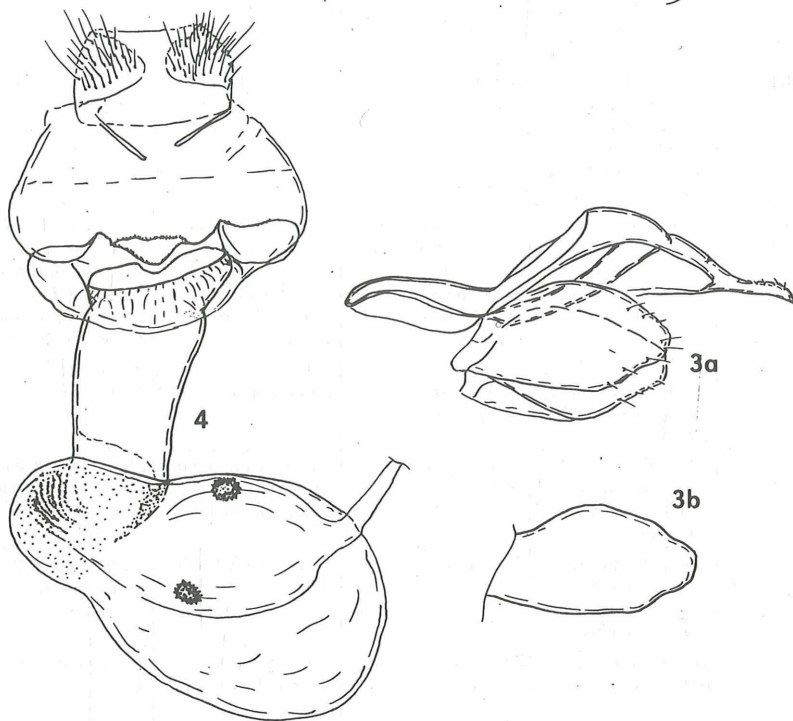
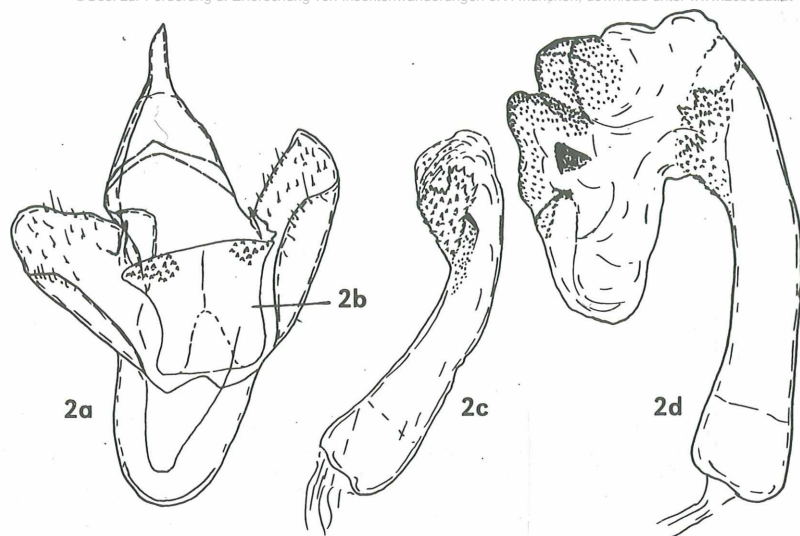
Description

Male. The forewing length is 12 mm in the holotype and 12–13 mm long in the paratypes. The wing extend from 26–28 mm respectively. The head is covered with long hair, the colour of which on the top and in the area of the forehead is cream. The ventral side of the head and the eyes are bordered with black hair. The upper part of the bipectinate antennae is covered with yellow scales, the lower part is covered with black scales. Each branch of the antennae is twice as long as the diameter of the antenna axis. The dorsal side of the chest is black, covered with cream-coloured hairs. The patagia is cream-coloured with an admixture of black hairs. The tegulae are black, overgrown with cream-coloured hairs almost over the whole perimeter. The dorsal side of the abdomen is black, the ventral side is yellow, only the first segments of the abdomen with black margins. The inner side of the coxa with long hairs, the tops of the coxae of fore and middle legs from the inner side on with yellow hair. Femur and tarsi are yellowish. The femur of the front legs are short and only 1/3 the length of the middle and 1/2 the length of the hind femur. There is one pair of spines on the femur, the length of which is equal to the diameter of the femur. The hind femur has 2 pairs of spines, the length of which is equal to 1/2 of the diameter of the femur.

Fig. 2: Male genitalia of *Palearctia rasa* spec. nov.; a – genitalia without aedoeagus; b – juxta; aedoeagus; d – aedoeagus overturned vesica.

Fig. 3: Male genitalia of *Palearctia rasa* spec. nov.; a – genitalia dorsal view; b – right valva.

Fig. 4: Female genitalia of *Palearctia rasa* spec. nov.



Tab. 1: Morphological characteristics of *P. rasa*, *P. sarycola*, *P. gratiosa rupicola* and *P. golbecki* of the genus *Palaearctia*.

	Species of the genus <i>Palaearctia</i>			
Parts of the body	<i>Palaearctia rasa</i>	<i>Palaearctia sarycola</i>	<i>Palaearctia gratiosa rupicola</i>	<i>Palaearctia golbecki</i>
Forewings (upperside)	The pattern is distinct and contrasting made of the cream-coloured, brown and black stripes and spots	The pattern is indistinct, transitional, made of brown and white stripes	The pattern is distinct, contrasting made of brown, black and brownish yellow stripes and spots	The pattern is distinct, made of brown, black and whitish cream stripes and spots
Ratio of the length and width of fore- and hindwings	13:0.7	13:0.7	11:0.6	11:0.6
Forewings (underside)	Brown, cream, very light with a large black discal spot. The pattern of the edge of the wing is the same as in the upper-side of the wing.	Grey in the radial cell with 2 black spots. The foundation of the wing with a broad broken in the middle brown stripe.	Light, with brown discal spot. The edge of the wing is indistinctly brown, the pattern is vague, the same as in the upper-side of the wing.	Dark with white thicker middle stripe. 3 brown spots distributed in the shape of triangle are seen in the distal part.
Hindwing (upperside)	In its central part, the wing is cream-coloured with a large brown discal spot. The edge stripe is broad, brown, bent from the inner side.	White with a broad edge-tightened brown stripe.	Cream white with a small discal spot. The edge line is broad, brown, tightened in the middle.	Brown with a lighter middle area, and a distinct brown discal spot. The edge line is not broken.
Hindwing (underside)	Cream black with distinct large discal spot, the outer stripe is broad, broken in the middle.	The central part of the wing is white, the discal spot is a small black speck. The edge line is broken in the middle.	Whitish cream with an indistinct discal spot. The edge line is broken twice and made of 3 separate parts.	Whitish black with the discal spot having an admixture of black scales, the outer stripe is broad, not broken, the discal spot is distinct, large.
Antennae	The outer side is covered with light yellow scales	Covered with white scales	cream-whitish	Whitish yellow
Head	White, the top of the head is cream-coloured, hair slightly raised up.	With grey snuggled scales	The forehead and the top of the head are cream-coloured.	With dishevelled white and brown hair.
Tegula	Black, overgrown with cream-coloured hair almost over the whole perimeter.	Greyish black	Black, outlined with cream-coloured hair	Brown, sides with long white hair
Patagia	Cream-coloured, central part is black	Black, sides are covered with hair	Cream-coloured, black in the central part	Brown with white tops

The pattern of the forewings resembles that of *P. gratiosa rupicola*, but it is more contrasting to the prevailing cream colour (col. pl. XXIIb, figs. 1–7). The edge of the hindwings is brownish black, its inner area is light with a large kidney-shaped black spot. The underside of the hindwings is whitish, the kidney-shaped spot is large and distinct.

Genitalia. Male. In whole, the structure is typical for the genus (fig. 2). The uncus is elongated with a slightly sharpened tip. The valva (figs 2a, 3) is not rhombus-shaped but with a narrow end (slightly similar to some forms of *P. gratiosa rupicola*). The juxta (fig. 2b) with rows of big and small spines. The distal spines on the aedeagus (spurs) are developed as in the *gratiosa*-complex. The aedeagus is slightly bent, almost of the same width throughout its whole length. In its distal part, it becomes slightly wider. The wall in the distal part with massive spines. The vesica is large, pleated, with the cornutus of triangular plate and microscopic spines in the distal part (figs 2c, d).

Female (fig. 4). Papillae anales with long and thick hairs. Apophyses posteriores of the same width throughout the whole length. The ductus bursae is highly sclerotized, the ostium has the form of a crack, the edge of the dorsal ostium is wavy. The bursa copulatrix has the shape of a sack, with microscopic spines only in the area of its origin. It takes a 90° angle with the ductus bursae. Parallel to the bursa copulatrix, the bull branches off from the ductus bursae base, which makes about 2/3 of the size of the bursa. There are two large spiny signa in the shape of a rounded sank plate in the bursa.

Distribution and biology

P. rasa is known only from the Karlik Mountains. This is a small range in the north-west of China. The Karlik Mountains belong to the Tian-Shan Mountain system, but they are separated from the main Bogda Shan Range by a desert.

The biology of the new species is poorly investigated. Like many other species of the genus *Palaearctia* it is very active during day time. In the mentioned area it flies at an altitude of 3300–3400 m above sea level. The two specimens have been found by Mr. M. Kopp in China, Xin-Jiang, Karlik mount, 3300 m, 80 km north-west of Hami city, 18.–19.VII.1998. They are designated as ex larva, but we have no data on the appearance of the larva or pupa. Thus we may consider that these stages of development are unknown.

Discussion

According to the structure of its wing pattern, *Palaearctia rasa* is close to *P. gratiosa rupicola*, *P. sarycola* and *P. golbecki* (tab. 1). Superficially *P. gratiosa rupicola* is the most closest, from which it differs by size, colour of the wings and especially by the large diskal spot on the lower part of the wing, and also by the form of the male (gradually tapering valva, aedeagus) and female genitalia (sclerotised ductus and bursa with large bulla). The aedeagus of *P. rasa* is 1/3 times larger, and the vesica with the cornutus in the form of a plate is twice larger than in *P. gratiosa rupicola*. The edge of the distal part of the aedeagus of *P. rasa* is covered with spines for more than half of its perimeter. The other 3 species compared have no plates in their vesica. The spines at the distal end of the aedeagus of *P. gratiosa rupicola* and *P. sarycola* are located in an area in the shape of a triangle. The ductus ejaculatorius of *P. golbecki* is at the side of the aedeagus, the distal wall of the aedeagus has no spines. At the distal end it becomes distinctively narrower. In addition to other above-mentioned features, the vesica is covered with microscopic spines.

Etymology

The new species is named after one of the authors wife's first name: SALDAITIENĖ RASA. In Lithuanian it means "morning dew" and it is pronounced as [rasa].

Acknowledgments

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Explanation of colour plate XXIIb (p. 595):

Fig. 1: *Palearctia rasa* spec. nov., holotype ♂, upperside. China, Xin-Jiang, Karlik Mount, 3300 m, 85 km North-East of Hami city, 20.–30.VI.1998, leg. STANISLAV NYKL.

Fig. 2: *Palearctia rasa* spec. nov., paratype ♀, upperside. China, Xin-Jiang, Karlik Mount, 3300 m, 85 km North-West of Hami city, 18.–19.VII.1998, e.l.

Fig. 3: *Palearctia rasa* spec. nov., paratype ♂, underside. Same label as fig. 1.

Fig. 4: *Palearctia rasa* spec. nov., paratype ♀, upperside. Same label as fig. 1.

Fig. 5: *Palearctia rasa* spec. nov., paratype ♂, underside. Same label as fig. 2.

Fig. 6: *Palearctia rasa* spec. nov., paratype ♂, underside. Same label as fig. 1.

Fig. 7: *Palearctia rasa* spec. nov., ♂, underside. Same label as fig. 1.

1	2	3
4	5	6
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Colour plate XXla

MONASTYRSKII, A. L. & A. L. DEVYATKIN: New taxa and new records of butterflies from Vietnam (Lepidoptera, Rhopalocera). – *Atalanta* **31** (3/4): 471–492.

1	2
3	4

Fig. 25: *Dodona katerina* spec. nov., holotype ♂. C. Vietnam, Gia Lai Prov., Kon Ka Kinh Nature Reserve, 1500 m, 3.IV.1999, leg. A. L. MONASTYRSKII, upperside.

Fig. 26: Id., underside.

Fig. 27: *Dodona maculosa phuongi* subspec. nov., holotype ♂. N. Vietnam, Bac Can Prov., Ba Be National Park, 2.VI.1997, leg. BUI XUAN PHUONG, upperside.

Fig. 28: Id., underside.

Colour plate XXlb

SALDAITIS, A., IVINSKIS, P. & S. CHURKIN: *Paelearctia rasa* spec. nov, a new tiger moth from China (Lepidoptera, Arctiidae). – *Atalanta* **31** (3/4): 505–510.

Fig. 1: *Paelearctia rasa* spec. nov., holotype ♂, upperside. China, Xin-Jiang, Karlik Mount, 3300 m, 85 km North-East of Hami city, 20.–30.VI.1998, leg. STANISLAV NYKL.

Fig. 2: *Paelearctia rasa* spec. nov., paratype ♀, upperside. China, Xin-Jiang, Karlik Mount, 3300 m, 85 km North-West of Hami city, 18.–19.VII.1998, e.l.

Fig. 3: *Paelearctia rasa* spec. nov., paratype ♂, underside. Same label as fig. 1.

Fig. 4: *Paelearctia rasa* spec. nov., paratype ♀, upperside. Same label as fig. 1.

Fig. 5: *Paelearctia rasa* spec. nov., paratype ♂, underside. Same label as fig. 2.

Fig. 6: *Paelearctia rasa* spec. nov., paratype ♂, underside. Same label as fig. 1.

Fig. 7: *Paelearctia rasa* spec. nov., ♂, underside. Same label as fig. 1.

1	2	3
4	5	6
7		

Farbtafel XXlc

EITSCHBERGER, U.: Eine neue Art der Gattung *Callionima* LUCAS, 1857 aus Peru (Lepidoptera, Sphingidae). – *Atalanta* **31** (3/4): 493–496.

Abb. 1: *Callionima juliane* spec. nov., Holotypus ♂, Nordperu, 1000 m, Dep. Amazonas, Rio Maranon, Balzas, März–April 1998, local people leg., depointiert im EMEM.

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Colour plate XXIIa/XXIIb – Farbtafel XXIIc



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