

**A new subspecies of *Parnassius charltonius* GRAY, 1853  
from the Sarykolsky Mountain Ridge in Tadjikistan**

(Lepidoptera, Papilionidae)

by

L. V. KAABAK, A. V. SOTSHIVKO & V. V. TITOV

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**Summary:** In this paper a new subspecies of *Parnassius charltonius* GRAY, 1853 named *mistericus* subsp. nov. is described.

**Zusammenfassung:** In dieser Arbeit wird die neue Unterart *Parnassius charltonius mistericus* subsp. nov. beschrieben.

Only one very small isolated population of *Parnassius charltonius* GRAY, 1853 was known earlier from Eastern Pamir. This population was discovered by the first author in the mountain range Mynkhadzhir and named as subspecies *anjuta* STSHETKIN & KAABAK, 1985 (KAABAK & LESIN, 1994). In 1994 the first author discovered one more population of *Parnassius charltonius* in Eastern Pamir 70 km SE from the Mynkhadzhir range. Three specimens of this new population were collected on 30. and 31. July 1994 in the spurs of the Sarykolsky Mountain Ridge. On 1.–3. August several butterflies were collected by A. V. SOTSHIVKO and V. V. TITOV. But only in 1995 the authors were able to collect a representable series, the analysis of which has proved that according to the colouration of the wings this population of *P. charltonius* is most similar to the subspecies of the Himalayan-Hindukush group *deckerti* (*deckerti* FRUHSTORFER, 1909; *serenissimus* BRYK, 1932; *ella* BRYK, 1932; *otto* BRYK, 1932; *sakai* EISNER, 1978; *corporaali* BRYK, 1935; *ducalis* BOULLET & LE CERF, 1912; *robertjan* EISNER, 1959; *anjuta* STSHETKIN & KAABAK, 1985). The list of members of this group was given by WEISS (1991). A series of pronounced differences discovered allows to nominate the butterflies from Sarykolsky Mountain Ridge as a new subspecies:

*Parnassius charltonius mistericus* subsp. nov.

Holotype ♂: Tadjikistan, South-East Pamirs, western spurs of Sarykolsky Mts Ridge, Dunkel-dyk Lake, rocky crumbling slope, 4300 m above sea level, 02.VIII.1995, leg. A. SOTSHIVKO. Paratypes: the same place, 4300–4600 m above sea level, 1 ♂ 30.VII.1994, 2 ♂♂ 31.VII.1994, ♂ 22.VII.1995., 2 ♂♂ 23.VII.1995, 3 ♂♂ 24.VII.1995, 2 ♂♂ 27.VII.1995, 2 ♂♂ 28.VII.1995, 1 ♀ 26.VII.1995, 1 ♀ 31.VII.1995, 1 ♀ 05.VIII.1995 (leg. L. KAABAK); 3 ♂♂ 26.VII.1995, 1 ♂ 27.VII.1995, 2 ♂♂ 30.VII.1995, ♂ 03.VIII.1995, 2 ♀♀ 28.VII.1995, 3 ♀♀ and 1 ♂ 02.VIII.1995, 1 ♀ 01.VIII.1995, 1 ♀ 05.VIII.1995, 1 ♀ 06.VIII.1995, 1 ♀ 08.VIII.1995 (leg. A. SOTSHIVKO); 1 ♀ 02.VIII.1994, 5 ♂♂ 23.VII.1995, 1 ♂ 26.VII.1995, 1 ♂ 27.VII.1995, 1 ♂ 28.VII.1995, 1 ♂ 29.VII.1995, 1 ♂ 04.VIII.1995, 1 ♀ 26.VII.1995, 2 ♀♀ 27.VII.1995, 1 ♀ 28.VII.1995, 1 ♀ 30.VII.1995, 3 ♀♀ 02.VIII.1995, 1 ♀ 03.VIII.1995 (leg. V. TITOV).

Type material is presented in the collections of L. V. KAABAK, A. V. SOTSHIVKO, V. V. TITOV.

### Description

**Male** (colour plate IIa, fig. 1). The length of the forewing of the holotype is 37 mm (that of the paratypes 35–37 mm, one out of 10 specimens measuring 39 mm). The marginal semitransparent dark band of the forewing is rather broad (up to 6 mm at the top) with a slight curve in the M2-M3 area. The submarginal band is dark, also broad (up to 4 mm), pronounced zigzag at the M2 vein. The marginal and submarginal bands are divided by a narrow (1.5–2.5 mm) light band of the main background colour. An almost black broad (up to 3 mm) postdiscal band adjoins to the submarginal band at M2, where it has a sharp break. Its fragments, between veins M3 and Cu2, are extremely broad and have an intense black dusting; the area at Cu2-A is broad and black. The discal spot and the central cell spot are deep black and become rather narrow towards the costal edge. The light spot between the discal spot and the central cell spot is narrow. The basal part of the central cell is slightly dark dusted. The hindwing has a pronounced oval bright-red spot-ocellus with black bordering, bulged at the inner edge of the ocellus. The external edge of the spot is bordered by a light band of the main background colour. The postdiscal spot at the costal vein is black, small, often having no red dusting; the anal angle spot is not big and has a transverse prolongation. The ocelli in the submarginal area are large with pronounced blue dusting. The hindwing's submarginal hyaline dark band is broad and embraces ocellus 2 up to its inner edge.

**Female** (colour plate IIa, fig. 2). The length of the forewing is 36 mm. It has all the subspecies's characteristic features of the male, the differences are as follows: the light band between the marginal and submarginal bands of the forewing is narrower (1–2 mm); the submarginal hyaline dark band of the hindwing is broader and often reaches the costal edge spot; the red anal angle spot is more developed. The small costal edge spot of the female is red in contrast to the black one of the male and more pronounced. Some of the females have a light bordering along the external edge of ocellus 2.

### Comparative diagnosis

As far as the subspecies under description is most similar to ssp. *deckerti* from Ladakh and Zaskar, ssp. *anjuta* from East Pamirs, ssp. *corporaali* from Karakorum and ssp. *otto* from East Ladakh, we compared it with these particular subspecies. Specimens used for comparison were taken from the collection of the Museum of Zoology of Russian Academy of Sciences and from the private collections of L. V. KAABAK, A. V. SOTSHIVKO, V. V. TITOV and Y. A. TARASOV. The difference from ssp. *deckerti* is as follows: The new subspecies is smaller in size and has a more sharp top angle of the forewing. Its forewing's discal spot becomes narrower towards the costal edge, whereas that of ssp. *deckerti* becomes broader. The light band between the marginal and submarginal bands of the forewing of the new ssp. is narrower than that of ssp. *deckerti*. The red postdiscal spot of the hindwing of the new subspecies (ocellus 2) is smaller than that of ssp. *deckerti* and there is no dark dusting along the veins of the discal cell and between the discal cell and Sc.

The difference from ssp. *anjuta* is as follows: the new subspecies is smaller, the top angle of its forewing is sharper. The postdiscal band of the forewing adjoins to the submarginal band

along vein M2 in the form of a not so well pronounced rectangle as that of ssp. *anjuta*, and about 50% of the specimens obtained do not have it at all. The light band between the submarginal and marginal bands of the forewing of the new subspecies is narrower and differing in its width. Ocellus 2 on the hindwing of the new subspecies is smaller and less round than that of ssp. *anjuta*. The light bordering along the external edge of ocellus 2 of males of ssp. *anjuta* is less pronounced and is missing in the case of females.

The difference from ssp. *corporaali* is as follows: The top angle of the forewing of the new subspecies is sharper than that of ssp. *corporaali*. The forewing's discal spot of ssp. *corporaali* is almost right-angled. The light band between the submarginal and marginal bands of the forewing of the new subspecies is narrower, the red spots on its hindwing are smaller than that of ssp. *corporaali*.

The difference from ssp. *otto* is as follows: The top angle of the forewing of the new subspecies is sharper than that of ssp. *otto*. The forewing's discal spot of ssp. *otto* becomes somewhat broader towards the costal edge in contrast with the new subspecies. The light spot between the discal spot and the central cell spot of the new subspecies is narrower than that of ssp. *otto*.

### Variability

Different specimens of ssp. *mistericus* of the series obtained differ from each other to a certain extent in size, shape, width and intensity of the dark colouration. Some specimens differ in shape and size of the postdiscal spots of the hindwing. Some of them have a tiny white spot in ocellus 2, while others do not have it. Most of the females of ssp. *mistericus* have a light bordering along the external edge of ocellus 2, some females do not have it.

### Biotop

The place of observation of ssp. *mistericus* is characterised by the following features: rocky tops, rocky or detritus cliffs, detritus slopes at an elevation of 4300–4600 m with thinned out xerophilous vegetation. Plants of the genus *Corydalis*, known to be the foodplants of the caterpillars of *P. charltonius*, were not found in the places of inhabitation of ssp. *mistericus*. Alongside with *P. charltonius* the most frequently observed representatives of Rhopalocera were the following species: *P. staudingeri* A. BANG-HAAS, 1892; *C. marcopolo* GRUM-GRSHI-MAILO, 1888; *Pieris deota* (NICÉVILLE, 1883) and *Pontia callidice* (HÜBNER, 1800).

### References

- KAABAK, L. V. & V. V. LESIN (1994): On two subspecies of *Parnassius charltonius* GRAY, 1853: ssp. *anjuta* STSHETKIN & KAABAK, 1985 and ssp. *ljudmilae* LESIN & KAABAK, 1991 (Lepidoptera, Papilionidae). – *Atalanta* **25**: 161–162, 424–425.
- WEISS, J. C. (1991): The Parnassiinae of the World. – *Sciences Nat. France* **1**: 26–33.

**Explanation of colour plate IIa (p. 453):**

1	2

**Fig. 1:** *Parnassius charltonius mistericus* subsp. nov. Holotype ♂, Tadjikistan, South-East Pamirs, western spurs of Sarykolsky Mtn Ridge, Dunkeldyk Lake, 4300 m, 02.VIII.1995, leg. A. SOTSHIVKO.

**Fig. 2:** *Parnassius charltonius mistericus* subsp. nov. Paratype ♀, Tadjikistan, South-East Pamirs, western spurs of Sarykolsky Mtn Ridge, Dunkeldyk Lake, 4300 m, 02.VIII.1995, leg. A. SOTSHIVKO.

**Adresses of the authors**

**L. V. KAABAK, A. V. SOTSHIVKO & V. V. TITOV**  
**Moscow Society of Nature Investigation**  
**Hertsen st. 6**  
**Moscow 103009**  
**Russia**

## Colour plate IIa

KAABAK, L. V., SOTSHIVKO, A. V. & V. V. TITOV: A new subspecies of *Parnassius charltonius* GRAY, 1853 from the Sarykolsky Mountain Ridge in Tadjikistan (Lepidoptera, Papilionidae). – *Atalanta* **27** (1/2): 195–198.

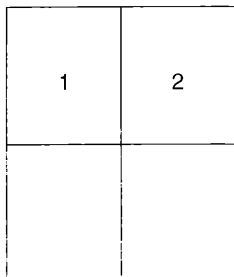


Fig. 1: *Parnassius charltonius mistericus* subsp. nov. Holotype ♂, Tadjikistan, South-East Pamirs, western spurs of Sarykolsky Mtn Ridge, Dunkeldyk Lake, 4300 m, 02.VIII.1995, leg. A. SOTSHIVKO.

Fig. 2: *Parnassius charltonius mistericus* subsp. nov. Paratype ♀, Tadjikistan, South-East Pamirs, western spurs of Sarykolsky Mtn Ridge, Dunkeldyk Lake, 4300 m, 02.VIII.1995, leg. A. SOTSHIVKO.

## Colour plate IIb

SOTSHIVKO, A. V. & L. V. KAABAK: A new subspecies of *Parnassius staudingeri* A. BANG-HAAS, 1882 from the Sarykolsky Mountain Ridge in Tadjikistan (Lepidoptera, Papilionidae). – *Atalanta* **27** (1/2): 199–202.

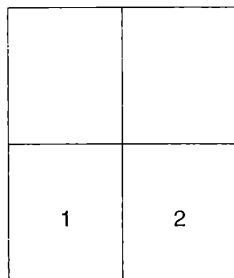
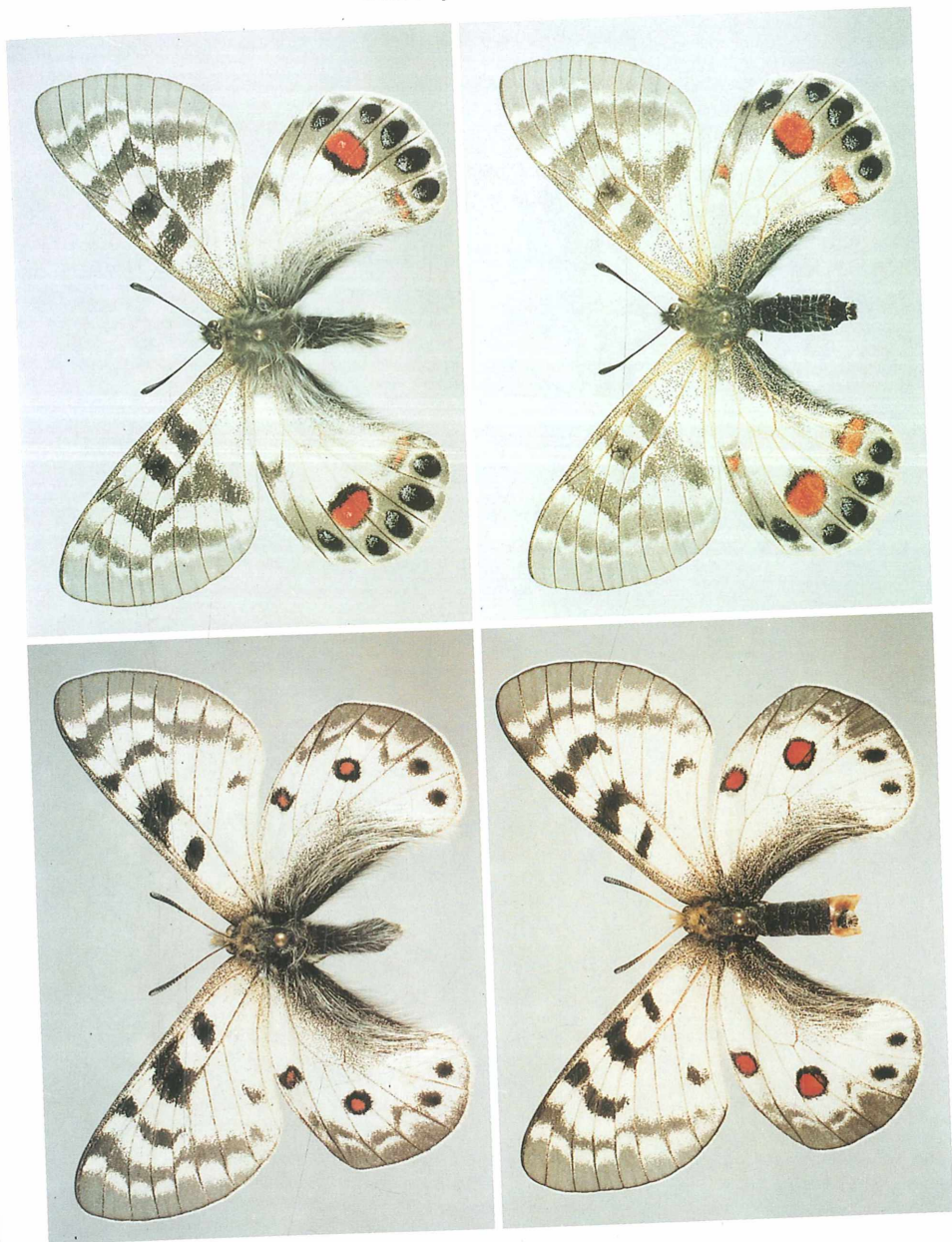


Fig. 1: *Parnassius staudingeri dunkeldykus* subsp. nov. Holotype ♂, Tadjikistan, South-East Pamir, Western spurs of Sarykolskiy Mtn. Ridge, Dunkeldyk Lake, 4300 m, 04.VIII.1995, leg. A. SOTSHIVKO.

Fig. 2: *Parnassius staudingeri dunkeldykus* subsp. nov. Paratype ♀, Tadjikistan, South-East Pamir, Western spurs of Sarykolskiy Mtn. Ridge, Dunkeldyk Lake, 4300 m, 04.VIII.1995, leg. A. SOTSHIVKO.

**Colour plate IIa/b**



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