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A final note on the taxon *Aricia (Ultraaricia) orpheus* and its relationship to *Plebejus (Aricia) anteros* (Lepidoptera: Lycaenidae)

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Summary. It is confirmed, based on research in the type locality of the taxon *Aricia (Ultraaricia) orpheus* Nekrutenko, 1980 and in further seven Bulgarian populations of *Plebejus (Aricia) anteros* (Freyer, [1838]), that *Aricia (Ultraaricia) orpheus* Nekrutenko, 1980 is an infrasubspecific taxon and a junior subjective synonym of *Lycaena anteros anteros* Freyer, [1838]. Several previously unnoticed factual errors in Nekrutenko's paper are also discussed, and the distribution of *P. (A.) anteros* in Bulgaria is summed up.

Резюме. Изследванията на материал от типовото находище на *Aricia (Ultraaricia) orpheus* Nekrutenko, 1980 и от други седем български популации на *Plebejus (Aricia) anteros* (Freyer, [1838]) потвърждават, че *Aricia (Ultraaricia) orpheus* Nekrutenko, 1980 е инфраподвидов таксон и младши субективен синоним на *Lycaena anteros anteros* Freyer, [1838]. Дискутират се някои фактологически грешки в работата на Некрутенко и се обобщава разпространението на *P. (A.) anteros* в България.

Samenvatting. Een slotbemerking over het taxon *Aricia (Ultraaricia) orpheus* en diens relatie met *Plebejus (Aricia) anteros* (Lepidoptera: Lycaenidae)

Door onderzoek van de type-lokaliteit van het taxon *Aricia (Ultraaricia) orpheus* Nekrutenko, 1980 en van zeven andere Bulgaarse populaties van *Plebejus (Aricia) anteros* (Freyer, [1838]) kon aangetoond worden dat *Aricia (Ultraaricia) orpheus* Nekrutenko een infrasubspecifiek taxon is en een jonger subjectief synoniem van *Lycaena anteros anteros* Freyer, [1838]. Verschillende vroeger niet opgemerkte feitelijke fouten in het artikel van Nekrutenko worden aangeduid, en de verspreiding van *P. (A.) anteros* in Bulgarije wordt besproken.

Résumé. Une note finale sur le taxon *Aricia (Ultraaricia) orpheus* et sa relation avec *Plebejus (Aricia) anteros* (Lepidoptera: Lycaenidae)

Basé sur une étude de la localité type du taxon *Aricia (Ultraaricia) orpheus* Nekrutenko, 1980 et de sept autres localités bulgares de *Plebejus (Aricia) anteros* (Freyer, [1838]), il est possible de confirmer que *Aricia (Ultraaricia) orpheus* Nekrutenko est un taxon infrasubspécifique et un synonyme subjectif plus récent de *Lycaena anteros anteros* Freyer, [1838]. Plusieurs erreurs,

auparavant non remarquées, dans l'article de Nekrutenko, sont discutées et la distribution de *P. (A.) anteros* en Bulgarie est établie.

Key words: Lepidoptera – Lycaenidae – *Plebejus* – *Aricia* – *anteros*– *orpheus* – taxonomy – synonymy – distribution – Bulgaria – Balkan Peninsula.

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In a revision of the taxa belonging to *Ultraaricia* Beuret (Nekrutenko 1980) the taxon "*Aricia (Ultraaricia) orpheus* sp. nov." was described from Bulgaria. It was said to differ by the similar *Plebejus anteros* (Freyer, [1838]) by a larger size, the constant presence of a black spot in the discal cell on the underside of the forewing (which Nekrutenko claimed to be absent in *anteros*), and by features of the male genitalia. However, soon afterwards studies of Turkish (Koçak 1983: 30) and Greek (Coutsis 1983: 200) material demonstrated conclusively that in fact the specimens described by Nekrutenko represent nothing more than an individual form frequently occurring within populations of typical *anteros* (see also Hesselbarth *et al.* 1995: 641–642). Coutsis (1983) and Hesselbarth *et al.* (1995) specifically stressed that genital differences such as had been supposedly discovered by Nekrutenko were in fact non-existent in this individual form.

Thus "*Aricia (Ultraaricia) orpheus*" turned out to be a particularly short-lived taxon which should have certainly deserved no further discussion were it not for a recent checklist of Balkan butterflies, in which "*Ultraaricia orpheus*" was listed as a bona species together with "*Ultraaricia anteros*" (Jakšić 1998: 12). Lest further confusion be generated by this publication, it appears necessary to once again dwell upon the subject of morphological variability of *anteros* with the addition of previously unpublished information from Bulgaria, including the type locality of *orpheus*.

The present author's research on the morphological variability of *Plebejus anteros* in eight separate Bulgarian localities fully confirms the conclusions of Koçak (1983), Coutsis (1983) and Hesselbarth *et al.* (1995). Of particular relevance is my research in the type locality of *orpheus*, Mt. Alibotush. There, on 3.VII.1994, I found *anteros* to be very abundant in the upper reaches of Hambar Dere gorge, at 1400–1600 m. The type series of "*Aricia (Ultraaricia) orpheus*" consists of a male holotype and seven paratypes (3♂, 4♀) with data given by Nekrutenko as "Mts. Alibotusch 1600 m, 21.VII.1929, Al. K. Drenowski leg."; in addition there is a pair (♂, ♀) from "Mts. Pirin, 1000 m, 11.VI.1929, Al. K. Drenowski leg." (Nekrutenko 1980: 63). Hambar Dere gorge is situated in the eastern half of the mountain and it is in this part that Drenovsky collected most extensively during his expeditions. In fact, as far as can be judged by Drenovsky's own accounts (e.g. Drenowski 1930; 1931), most of material from Alibotush collected in the altitude range 1200–1700 m originates precisely from this gorge. Therefore Hambar Dere can be regarded with a very high degree of certainty as the site of origin of most of the type series of "*Aricia (Ultraaricia) orpheus*". The two paratypes from "Pirin, 1000 m" probably

originated from the immediate vicinity of Alibotush, most likely the surroundings of Paril or Gaitaninovo villages where Drenovsky by his own accounts collected repeatedly (Drenowski 1931). Fig. 1 shows the known distribution of *P. anteros* in Bulgaria and the location of Hambar Dere gorge.

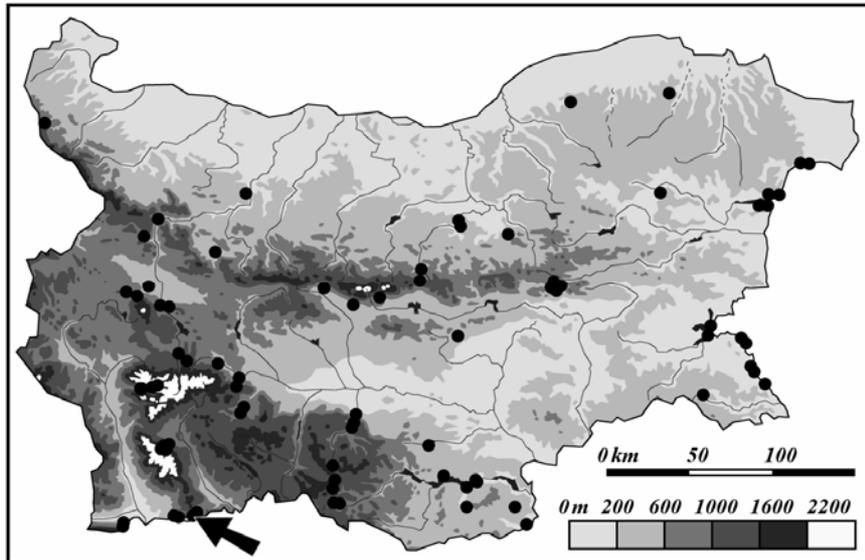


Fig. 1. Known distribution of *Plebejus (Aricia) anteros* (Freyer, [1838]) in Bulgaria (black dots), after Abadjiev (2001), and unpublished data (leg. et coll. Z. Kolev; leg. et coll. D. Staykov; leg. A. Slivov, coll. Institute of Zoology – Sofia). The black arrow in the lower left-hand corner indicates the restricted type locality of *Aricia (Ultraaricia) orpheus* Nekrutenko, 1980 (Mt. Alibotush: Hambar Dere gorge, 1600 m).

The specimens of the population of *anteros* in Hambar Dere gorge are completely identical with all other populations of *anteros* in the country studied by myself. This population does not, in its entirety, match the description of *orpheus*. The size is greatly variable in both sexes, as typical for *anteros*, with only very few specimens being as large as the type specimens of *orpheus* which have forewing lengths of 15.5 ± 0.5 mm (Nekrutenko 1980: 63). More important, the expression of the discal spot on the underside of the forewings is also very variable in both sexes. In the said locality in Alibotush I managed to find specimens in which both forewings had discal spots as well as specimens completely lacking such. Most convincing is the fact that, along with these, specimens were found in which such a spot was present on one of the wings while being absent on the other (Fig. 2: 1). Such "transitional" specimens are to be found in all populations of *anteros* studied by myself (Fig. 2: 3, 4, 7 & 8)¹.

¹ It is interesting to note that with respect to this character *anteros* and its closest relatives such as e.g. the taxon *crassipunctus* Christoph, 1893 (cf. Hesselbarth *et al.* 1995: 387) differ from the other members of subgenus *Aricia* which lack such discal spots.

Hence it can be concluded that, as elsewhere in Bulgaria (pers. observ.), Greece (Coutsis 1983) and Turkey (Koçak 1983), the supposedly species-specific external characters as defined by Nekrutenko for *anteros* and *orpheus* are not only greatly variable but actually form a complete cline. The examination of the type population thus confirms that Nekrutenko's concept of "*Aricia* (*Ultraaricia*) *orpheus*" as a taxon distinct from *anteros* and constant in its characters is fallacious.



Fig. 2. Undersides of *Plebeius* (*Aricia*) *anteros anteros* (Freyer, [1838]) from Bulgaria. 1–7: ♂♂, 8: ♀; all Z. Kolev leg. et coll. 1.– Mt. Alibotush, Hambar Dere gorge, 1600 m, 3.VII.1994; 2.– Rhodopi Mts., Lukovitsa river gorge, 300 m, 11.VI.1994; 3.– idem, 22.VI.1991; 4.– Stara Planina Mts., Karandila nature park, 1000 m, 21.VII.1999; 5–8: idem, 22.IX.2002. Scale bar = 1 cm.

At this point the central problem of the type series of *orpheus* must be addressed, or, more precisely, the question of how such a uniform series of specimens, so unlike a random sample of typical *anteros* from the same (or, for that matter, any) locality, ever came into existence. Nekrutenko's version is as follows: "It can just be supposed now that, getting into difficulties with determination and trying to avoid publication of misidentification [Nekrutenko believed – erroneously, as shall be shown below – that Drenovsky never mentioned *anteros* from Alibotush in his publications], Drenovsky turned for advice to Sheljuzhko, who was a recognized authority in Palearctic Lepidoptera, and sent him a round number (5 males and 5 females) of specimens. This way the material found itself in the collection of the Kiev State University. For unknown reasons it fell out of Sheljuzhko's attention and until now remained undescribed." (Nekrutenko 1980: 66).

My own interpretation of the facts is that the type series of "*Ultraaricia orpheus*" is no more than a biased sample, originally selected by Drenovsky for the presence of discal spots on both wings. Drenovsky was a perceptive and broad-minded expert on Bulgarian and Balkan Lepidoptera. His numerous publications testify to his consistent attempts to assess the individual and geographical variation of even trivial species against published descriptions and illustrations. It is therefore in keeping with the facts to suppose that, upon cross-checking his material of *anteros* from Alibotush and the neighbouring parts of Pirin against the illustrations in Seitz's famous catalogue (1907–1909), the standard reference work at that time, Drenovsky must have found out that part of his material differed from the illustrated specimen's underside (Seitz 1909: Plate 80, *c*) in that they possessed forewing discal spots. These specimens he must have separated from the rest, "typical" *anteros* and sent to Leo Sheljuzhko, a foremost expert on Lycaenidae, for an opinion. Since Sheljuzhko apparently never published on these specimens (cf. Nekrutenko 1980: 66) it is most likely that he recognized them as only a part of a cline not worthy of a formal designation. Whether he communicated this to Drenovsky or whether the latter reached the same conclusion on his own (or, most likely, both), it is most probable that Drenovsky himself did not attach any significance to the matter as there is no mention of it in any of his publications.

Finally, there are some other factual errors in Nekrutenko's paper that have evaded notice so far and therefore must be commented upon. In the remarks following the description of *orpheus* he writes (p. 65–66): "The specimens that served as the type material were collected by Al. K. Drenowski, who was a member of the Royal Natural History Institute [sic] (Sofia) expedition exploring the Lepidoptera of the Alibotush mountain range in 1929–1930." In fact Drenovsky, the pioneer of butterfly and insect studies on Alibotush, was never a member of the expeditions to that region organized by the Royal Entomological Station at the Royal Museum (sic!) of Natural History – Sofia. The latter were led by Krûstyû Tuleshkov, who was Drenovsky's rival when it came to the exploration of Mt. Alibotush; therefore Drenovsky and Tuleshkov concentrated

their simultaneous research on different (respectively the eastern and western) parts of the massif.

Nekrutenko continues (p. 66): "The most strange fact is that in the reports of this expedition Drenowski (1930, 1931, 1932) and Tuleschkow (1929, 1931) passed over in complete silence this quite unusual butterfly find [*Ultraaricia orpheus*] (*anteros* is also absent in their faunal lists)". In fact already in his first paper on the butterflies of Alibotush Tuleschkow wrote about "*Lycaena anteros*": "[Common in all mountain meadows up to 1600 m]" (Tuleschkow 1929). Similarly, Drenovsky wrote about *anteros*: "[The most widespread [in Alibotush] species of its genus [*Lycaena*]", found in all forest glades at 1000–1700 m]" (Drenowski 1933).

A final misrepresentation is found in Nekrutenko's statement (p. 65) that "...the distributional picture of *A. (U.) anteros* in the Balkan Peninsula is not clear, and there are only three reliable records for Bulgaria (Buresch & Tuleschkow 1930: 164)...". In fact, the said work lists no less than 27 (!) separate localities from all parts of Bulgaria and from an altitude range of 0–1600 m; how Nekrutenko arrived at the conclusion that of these only three were to be regarded as reliable, is beyond comprehension.

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