Critical notes on some recent butterfly records (Lepidoptera: Papilionoidea & Hesperioidea) from Bulgaria and their source collection

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Summary. The author reviews several cases of proven or suspected errors in label data in the collection of Alexander Slivov kept at the Institute of Zoology – Sofia (IZS), Bulgaria. It is argued that these errors are attributable to mislabelling of material collected elsewhere, and it is concluded that records based on such material should, in the absence of independent confirmation, be considered highly doubtful and preferably disregarded altogether. This is of particular importance in the case of species not recorded from Bulgaria before, of which several (*Pyrgus andromedae*, *Muschampia proto*, *Boloria titania*, *Pseudochazara graeca*, *Pseudochazara geyeri* and *Chilades trochylus*) have recently been published as new to the country. Of these, only the record of *P. andromedae* from Mt. Pirin has been independently confirmed. The findings of the present report lead to the exclusion of Rhodopi Mts. from the range of *Boloria graeca*. It is also shown that the type series of the taxa *Smoljana* Slivov, 1995 and *Boloria* (*Smoljana*) *rhodopensis* Slivov, 1995 has apparently originated not from Rhodopi at all but from the northern part of Mt. Pirin.

Резюме. Обсъждат се няколко случая на екземпляри от колекцията на Александър Сливов, съхранявана в Института по Зоология на БАН (София), които имат грешни или съмнителни данни. Съобщения на базата само на тези материали, без независимо потвърждение, трябва да се смятат за съмнителни и е най-добре да бъдат пренебрегвани. Това е от особено значение за видове като *Pyrgus andromedae*, *Muschampia proto*, *Boloria titania*, *Pseudochazara graeca*, *Pseudochazara geyeri* и *Chilades trochylus*, които бяха наскоро публикувани като нови за България. От тях само за *P. andromedae* е доказано, че се среща в страната. Освен това, Родопите се изключват от ареала на *Boloria graeca* и се показва, че типовата серия на *Smoljana* Slivov, 1995 и *Boloria* (*Smoljana*) *rhodopensis* Slivov, 1995 произлиза не от Родопите, а от северен Пирин.

Key words: Lepidoptera – nomenclature – distribution – Bulgaria – Balkan Peninsula – erroneous labelling – *Pyrgus andromedae* – *Muschampia proto* – *Boloria titania* – *Boloria graeca* – *Pseudochazara graeca* – *Pseudochazara geyeri* – *Chilades trochylus*.

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Introduction

Recently a new subgenus "*Smoljana*" of the genus *Boloria* Moore, [1900] and a new species "*Boloria* (*S*[*moljana*].) *rhodopensis*" were described from Mt. Rhodopi in southern Bulgaria (Slivov 1995). The differences justifying the erecting of these taxa were subjected to critical analysis and shown to have no basis in reality by Abadjiev & Beshkov (2000), who synonymised them with respectively *Boloria* Moore, [1900] and *Boloria graeca balcanica* (Rebel, 1903). These authors also analysed the numerous inconsistencies and outright errors of the original description, including the interesting issue of the origin of the type material, about which they wrote: "The type locality of *Boloria* (*Smoljana*) *rhodopensis* (Smolyan Lakes) is in the square with UTM grid reference 35TLG01;it is widely separated from the known range of distribution [sic] of other high montane *Boloria* (*Boloria*) spp. in Bulgaria (Fig. 11). Very recently,

special enquiries in order to locate this species (or other representatives of the subgenus *Boloria*) in this area have been done; all of these proved fruitless (S. Beshkov; Z. Kolev, pers. comm.). The possible mislabelling of the specimens of the type series needs to be mentioned here, although we do not have any clear evidence at hand. It is possible that they do not come from the Rhodopi Mountains at all, as has been established for at least part of the material of *Erebia orientalis* Elwes, 1900 and *Euphydryas cynthia* ([Denis & Schiffermüller], 1775) from Slivov's collection."

The extensive search by the present author for *B. graeca* in the stated type locality of the taxa described by Mr. Alexander Slivov, as well as elsewhere in the highest parts of Rhodopi, eventually led to the realisation that *B. graeca* apparently does not occur in that mountain range at all. This prompted an examination of the materials of A. Slivov, currently part of the collection of the Institute of Zoology – Sofia (hereafter abbreviated as IZS), which led to the discovery of numerous cases of clear mislabelling. In particular, specimens of the taxa *Euphydryas cynthia* ([Denis & Schiffermüller], 1775), *Erebia orientalis infernalis* Varga, 1971, *Erebia rhodopensis* Nicholl, 1900 and *Erebia melas leonhardi* Fruhstorfer, 1917 were found which bear labels "Rhodopi, h.[hizha, = "chalet"] Perelik, 1600 m, 23–24.7.80, Slivov [leg.]" or "Rhodopi, h.[hizha, = "chalet"] Smol.[yanski] ezera, 1600 m, 13–14.07.79, Slivov [leg.]". In reality none of these taxa, which are confined only to the upper subalpine and alpine zone (typically above 2000 m) of Bulgaria's highest mountains (Buresch & Tuleschkow 1929; Abadjiev 2001), occur anywhere in Mt. Rhodopi that is a lower mountain (highest point 2191 m) without a true alpine zone[1]. Their locality data must therefore be erroneous, as also those of the type specimens of "*Boloria* (*Smoljana*) *rhodopensis*" which bear identical labels "Rhodopi, h. Smol. ezera, 1600 m, 13–14.07.79, Slivov". This is the most reasonable explanation for the absence of *Boloria graeca* from the vicinity of the Smolyan Lakes or their wider surroundings. The only place where all these five taxa occur together is the northern part of Mt. Pirin in southwestern Bulgaria, to which *Erebia orientalis infernalis* is in fact endemic. Since it is realistic to assume that all mislabelled specimens have been collected in the same locality or general area, it is herewith concluded that the type material of "*Boloria* (*Smoljana*) *rhodopensis*" has also originated from northern Pirin, most likely the vicinity of Vikhren peak where A. Slivov has done virtually all of his collecting (cf. Varga & Slivov [1977]). It must also be mentioned that the only other record of *B. graeca* from Rhodopi, Satovcha village (Buresch & Tuleschkow 1929), is definitely erroneous. This village lies at less than 1100 m and its wider surroundings do not exceed 1200-1300 m; the natural vegetation is mostly mixed deciduous forests (pers. observ.) and there are no habitats that might be considered even remotely suitable for *B. graeca*. This species is absent from Greek Rhodopi as well (Tolman & Lewington 1997; Tolman 2001; Coutsis &

[1] The paradox of *Erebia rhodopensis* being absent from the mountain after which it has been named is explained by the fact that Mt. Rila, whence this species was actually described, was still considered merely a part of Rhodopi, rather than a separate massif, at the beginning of the 20th Century.

Ghavalás 2001). The actual distribution of *B. graeca* in Bulgaria and the erroneous records from Rhodopi are shown in Fig. 1.

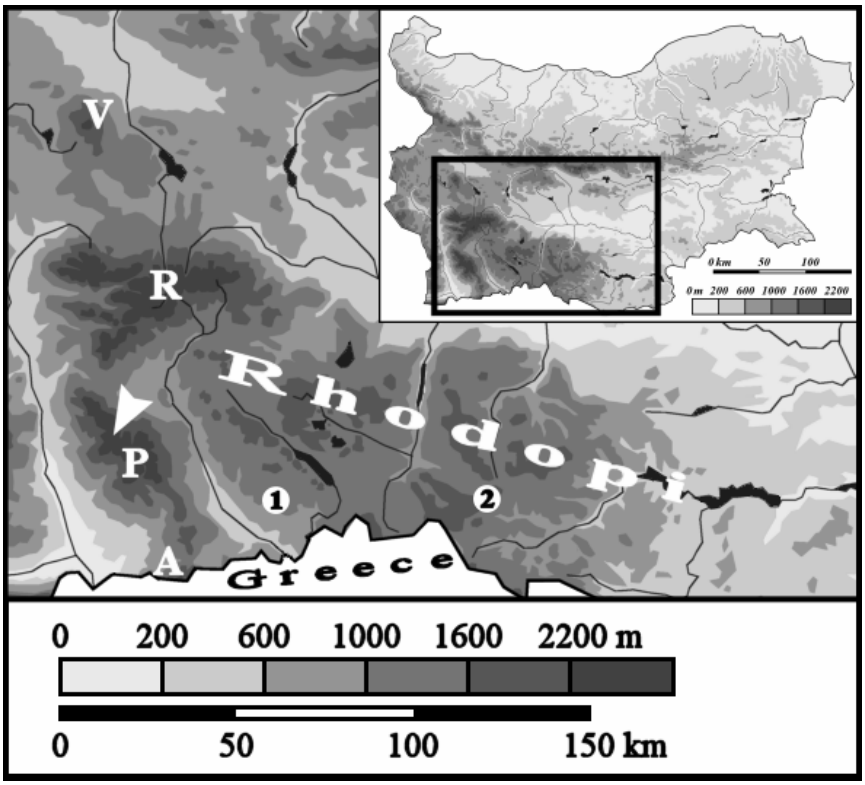

Fig. 1. Actual distribution of *Boloria graeca* in Bulgaria: V, Vitosha; R, Rila; P, Pirin; A, Alibotush; mostly between 1600 and 2200 m. False records from Rhodopi: 1, Satovcha village; 2, Smolyanski Ezera (see text for details). The vicinity of Vikhren peak in N Pirin, herewith inferred to be the actual place of origin of the type series of *Boloria* (*Smoljana*) *rhodopensis*, is marked with a white arrow.

While it has thus been possible to rectify this particular case, the discovery of erroneous and highly doubtful distributional data raises a broader and more important issue regarding the reliability of the materials of Mr. A. Slivov. An important source such as the collection of the IZS which is now known to contain erroneous locality data may, if used in an uncritical way, create regrettable distortions in the knowledge of the butterfly fauna of Bulgaria and the Balkans. It is therefore necessary to discuss this issue at some length.

On the reliability of the materials of Mr. Alexander Slivov

Apart from the mislabellings discussed above, I counted about 60 further cases of erroneous or doubtful labelling in the butterfly materials (supposedly)

collected by Mr. A. Slivov and deposited in IZS. The errors, including the above-discussed ones, have apparently arisen from faulty labelling procedures. Mr. A. Slivov used to collect primarily at light as his research centred on Noctuidae; butterflies were collected mostly on the side, time permitting. The Noctuid material was labelled first by junior staff at the Institute of Zoology – Sofia; the butterfly material was often labelled much later, according to the data of the already labelled Noctuid material in the same box (A. Slivov, pers. comm.).

It is obvious that such a practice can easily generate errors of the observed kind; in fact, cases of erroneous labelling due to similar reasons are known from even the largest and most respectable of Bulgarian public collections. Thus, after the acquisition of the private collection of Josef Haberhauer by the Royal (presently National) Museum of Natural History – Sofia in the early years of the 20th century, numerous specimens lacking locality data were labelled, some long afterwards, by Museum staff with the data "Sliven, coll. Haberhauer". This was done on the premise that all unlabelled material had originated from the vicinity of the town of Sliven in central-eastern Bulgaria, where Haberhauer had lived and collected for several years (A. Popov, pers. comm.). While this line of reasoning was justified for the bulk of Haberhauer's materials, it also resulted in a number of clear mislabellings in the cases of several species, such as *Albulina orbitulus* (Prunner, 1798) and *Lycaena thetis* Klug, 1834 (Lycaenidae). Based on Haberhauer's mislabelled specimens these were reported, respectively by Ganev & Bocharov (1982) and Ganev (1983), as new to Bulgaria. In reality neither occurs near Sliven or indeed anywhere else in the country (cf. Abadjiev 2001; Kolev in press).

Although he never admitted so during several discussions with me, several circumstances indicate that A. Slivov himself has not trusted some of his collection's data. For example, his material includes correctly identified specimens of *Neptis sappho* (Pallas, 1771), *Melitaea diamina* (Lang, 1789), *Boloria eunomia* (Esper, 1800), *Pseudochazara geyeri* (Herrich-Schäffer, 1846), *Muschampia tessellum* (Hübner, [1803]) and *Muschampia proto* (Ochsenheimer, 1808) which according to their labels have been collected by him on "Belasitsa" between 1975 and 1981. Yet none of these species is present in the comprehensive list of the butterflies of Mt. Belasitsa (Slivov & Nestorova 1988), even though the occurrence of any one of them on that mountain would have certainly been worth a special mention. Most significant of all, the collection of Slivov includes correctly identified specimens of *Pyrgus andromedae* (Wallengren, 1853), *Muschampia proto*, *Boloria titania* (Esper, 1793), *Pseudochazara graeca* (Staudinger, 1870), *P. geyeri* and *Chilades trochylus* (Freyer, 1844) that, according to their labels, have been collected in Bulgaria. However, despite being well aware that none of these had ever been recorded from the country (A. Slivov, pers. comm.), he himself did not publish them for nearly 20 years after their supposed time of capture. It was only when this material became the focus of studies by other Bulgarian lepidopterists that four of these six species were reported as "new to Bulgaria" (Slivov & Abadjiev

1999a; 1999b; 1999c). Based on these publications, the range of *Boloria titania* and *Chilades trochylus* was stated to include Bulgaria in the latest guide on European butterflies (Tolman 2001). In his recently published distribution atlas of Bulgarian butterflies Abadjiev (2001) included also *Muschampia proto* and *Pyrgus andromedae* in the fauna of the country, although for all six species he stated that their occurrence in Bulgaria "needs confirmation". Such a warning is completely absent from the reports by Slivov & Abadjiev (1999a; 1999b; 1999c). So far, I have been able to obtain independent confirmation for only one of these species: Dr. Zoltan Varga has written to me that during a joint expedition with A. Slivov [in 1970] he personally collected one male of *P. andromedae* on the northern side of Vihren peak, in the Kazana cirque (Z. Varga, in litt. 19.01.2002). This corroborates the data of the two *andromedae* specimens in the collection of Slivov.

The remaining five species "new to Bulgaria" are among the most doubtful of all the material in the collection of A. Slivov. In most cases there is at best only circumstantial evidence of this, such as e.g. marked discrepancies between dates of supposed capture of "Bulgarian" specimens and actual flight time in the case of *Pseudochazara geyeri*, or absence of suitable habitats (pers. observ.) in the general area where specimens have supposedly been collected (*P. geyeri* and *P. graeca* from Mt. Alibotush). In other cases (*Chilades trochylus*, *Boloria titania*) there is no actual reason why populations of these species could not exist where they were supposedly collected, except that these places, or the wider area with similar ecological features to the respective stated locality, happen to be relatively well-studied by lepidopterists, including myself. Similarly, with regard to *Muschampia proto*, *Pseudochazara geyeri* and *P. graeca*, which were supposedly collected in immediate proximity to Greek territory, I am informed by Mr. John G. Coutsis (in litt.) that these species are entirely absent from the region of Greece adjacent to Belasitsa and Alibotush. Thus the locality data of these five species (see Fig. 2) must be considered highly suspect pending further information and preferably disregarded altogether for the time being.

At present it is not possible to say what the true origin of these specimens may be, in case they have not been collected in Bulgaria. A. Slivov is not known to have collected in places outside the country where any of these species occurs. Therefore, mislabelling of unlabelled material collected by others outside Bulgaria (in other words, a situation directly comparable to the aforementioned case of J. Haberhauer's collection) appears a likely explanation. This receives further support from the fact that the collection of A. Slivov includes several specimens (collected, according to their labels, in Bulgaria) of species that in reality occur nowhere near the country. The two most blatant examples of such species are a female *Euchloe tagis* (Hübner, 1804) [correctly determined!] labelled "Kresna [gorge], 16.4.[19]75" and a female *Colias thisoa* Ménétriès, 1832 [determined as "*Colias balcanica*"] labelled "[Mt.] Vitosha, 1700-1900 m, 26.6.[19]80"!

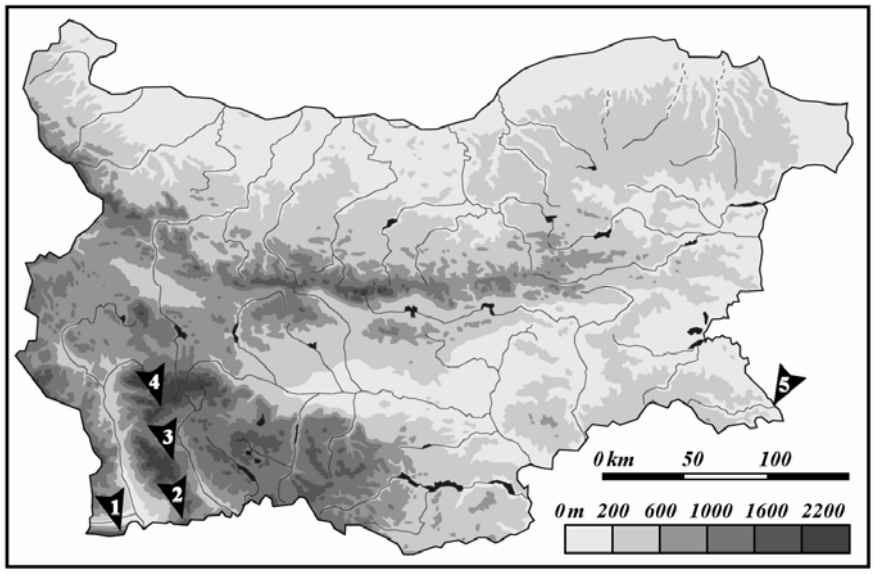

Fig. 2. Uncertain butterfly records from Bulgaria, all supposedly collected by A. Slivov. Locality data as stated on the labels, in quotation marks; additions after Slivov (pers. comm.), Slivov & Abadjiev (1999a, b, c) and author's corrections and interpretations, in square brackets. (1) *Muschampia proto*, *Pseudochazara geyeri*: "[Mt.] Belasitsa [the vicinity of the chalet Belasitsa, 800-1100 m]"; (2) *Pseudochazara geyeri*, *Pseudochazara graeca*: "[the northern slope of Mt.] Alibotush [near the village of Goleshevo] 1100m"; (3) *Boloria titania*: "[Mt.] Pirin, h.[=chalet] Gotse Deltchev 1900 m"; (4) *Boloria titania*: "Rila, h.[=chalet] Makedoniya [1900 m]"; (5) *Chilades trochylus*: "[Black Sea coast, the road between the town of] Ahtopol – [and the mouth of] Veleka [river], *Quercus* [woodland?!]".

Conclusion

Specimens with apparently erroneous or doubtful locality data comprise a relatively small part of the materials (supposedly) collected by Mr. A. Slivov, yet they cast doubt on much of the data it contains. This is unfortunate as the collection, one of the largest and best-organised of its kind in Bulgaria, contains many species – butterflies as well as moths – that are presently considered very rare or which have very few known localities in the country; furthermore, many of the localities from which there is interesting material have never been visited by other lepidopterists. The facts presented here call for authors to abstain from publishing further doubtful data from this collection or subsequently using any such published records. The uncertain locality data should only be used to highlight places requiring further studies and species to be looked for: only in this way can these be ultimately confirmed or refuted. In broader terms, the regrettable situation described here should once again serve as a reminder of the inestimable importance of proper and timely labelling of collected material.

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