Atalanta (Dezember 2004) **35**(3/4):315-321, colour plate XIII, Würzburg, ISSN 0171-0079

Lasiommata zagrossica spec. nov. from Iran

(Lepidoptera, Nymphalidae, Satyrinae)

by

VLADIMIR A. LUKHTANOV & ALEXANDRE A. DANTCHENKO

received 29.X.2004

Summary: *Lasiommata zagrossica* spec. nov. is described from Iran (Chaharmahal-va-Bakhtiyari Prov., Central Zagros, Gardaneh-ye-Cheri Pass, W of Samsami, 2800 m). The new species represents an unique combination of characters, some of which can be found in other species of the genus *Lasiommata*. The general design of the wing upperside and androconial brand in *L. zagrossica* are similar to that known in *L. maera, L. adrastoides* and *L. petropolitana*. *L. zagrossica* and *L. petropolitana* share such typical characters as rounded outline of the forewing, thin transverse median band of the hindwing upperside and discal cell with distinct transverse dark lines. The evenly curved (not undulated) discal line on the hindwing underside is similar in *L. zagrossica* to that known in *L. menava, L. maeroides, L. felix* and *L. hindukushica*.

Zusammenfassung: *Lasiommata zagrossica* spec. nov. wird aus Iran (Chaharmahal-va-Bakhtiyari Prov., Zentral Zagros, Gardaneh-ye-Cheri Pass, W von Samsami, 2800 m) beschrieben. Die neue Art unterscheidet sich von *L. maera, L. adrastoides* und *L. petropolitana* durch die gebogene (nicht gezähnte) Diskallinie auf der Unterseite der Hinterflügel. *L. zagrossica* unterscheidet sich von der Arten der *L. menava*-Gruppe durch die gänzlich andere Form des Duftschuppenfleckes. Die taxonomische Stellung von *Lasiommata zagrossica* und einigen anderen Arten der Gattung *Lasiommata* wird diskutiert.

Introduction

According to the most recent publications (BOZANO, 1999; CHARMEUX, 2001), the genus *Lasiommata* WESTWOOD, 1841 consists of 16 species. Only 4 of them, namely *L. maera* (LINNAEUS, 1758), *L. petropolitana* (FABRICIUS, 1787), *L. megera* (LINNAEUS, 1767) and *L. menava* (MOORE, 1865) have more or less widely extended ranges in the Palearctic region. Other species are very local and restricted in their distribution to particular mountain systems of the southern Palearctic and northern Africa. The phylogenetic relationship among the species requires further study. Preliminarily, the following 5 main groups of species can be recognized.

1. The *L. megera*-group includes 2 species: *L. megera* (LINNAEUS, 1767) and *L. paramegaera* (HÜBNER, 1824), which are distributed in the western Palearctic. Fulvous colour of the basal area on the forewing upperside is typical for this group.

2. The *L. majuscula*-group includes 2 species: *L. majuscula* (LEECH, 1892) and *L. minuscula* (OBERTHÜR, 1923), which are distributed in the south-eastern Palearctic (China). A large bipupillated apical ocellus on the forewing is typical for this group. The taxon *kasumi* YOSHINO, 1995 was considered to be related to *L. minuscula* (BOZANO, 1999). However, the taxon

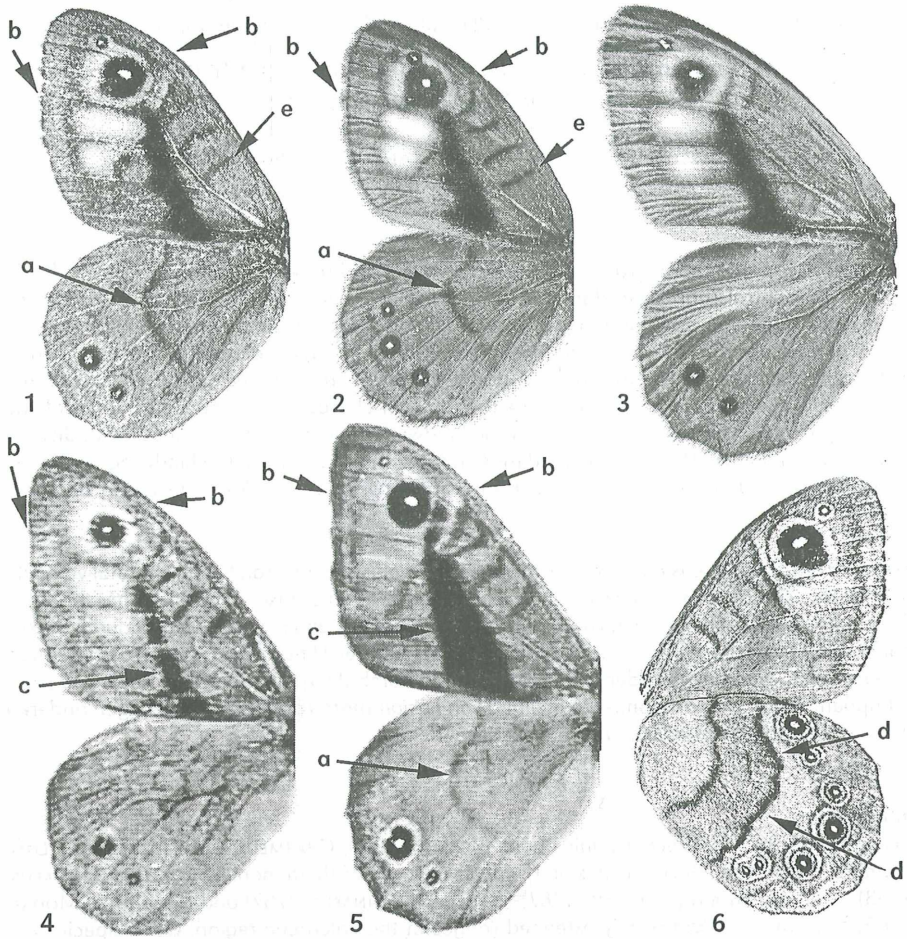
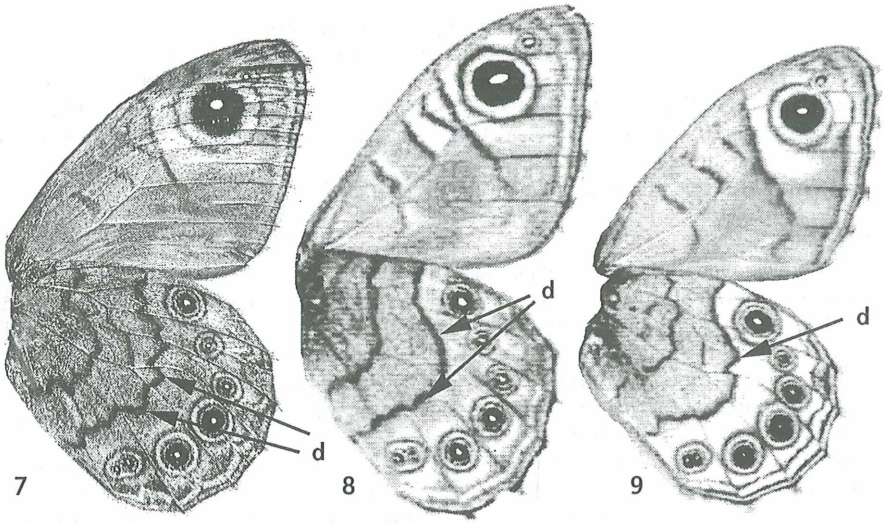


Fig. 1: *L. zagrossica* spec. nov., upperside, a – thin transverse median band of the hindwing upperside, b – rounded outline of the forewing, e – discal cell with distinct transverse dark lines.
Fig. 2: *L. petropolitana*, upperside, a – thin transverse median band of the hindwing upperside, b – rounded outline of the forewing, e – discal cell with distinct transverse dark lines.
Fig. 3: *L. maera*, upperside, wings without transverse dark lines.
Fig. 4: *L. hindukushica*, upperside, b – elongated forewing, c – the androconial brand is extremely narrow.
Fig. 5: *L. menava*, upperside. a – transverse median band of the hindwing, b – elongated forewing, c – wide androconial brand.
Fig. 6: *L. zagrossica* spec. nov., underside. d – evenly curved discal line of the hindwing.
Fig. 7: *L. maera*, underside. d – undulated discal line of the hindwing.
Fig. 8: *L. menava*, underside. d – evenly curved discal line of the hindwing.
Fig. 9: *L. shakra*, underside. d – sharply angled discal line of the hindwing.



kasumi, originally described by YOSHINO (1995) in the genus *Lasiommata*, is very similar to *Crebeta deidamia* (EVERSMANN, 1851) and should be placed in the genus *Crebeta* MOORE, [1893]. That genus shows a mix of characters, which can be found in the genera *Lopinga* MOORE, 1893 and *Lasiommata*.

3. The *L. maera*-group includes 5 species: *L. maera* (LINNAEUS, 1758), *L. meadewaldoi* (ROTHSCHILD, 1917), *L. adrastoides* (BIENERT, 1870, *L. maderakal* (GUÉRIN-MENÉVILLE, 1849) and *L. petropolitana* (FABRICIUS, 1787). The last species is a boreal element with a nearly transpalearctic distribution. *L. maera* is a west Palearctic species. Three other taxa are extremely local: *L. meadewaldoi* inhabits the Moroccan High Atlas, *L. maderakal* inhabits Ethiopia, and *L. adrastoides* was found in Talysh and Elburs Mountains in northern Iran and south-eastern Azerbaijan. An undulated discal line of the hindwing underside is typical for this group (fig. 7d).

4. The *L. shakra*-group includes 3 species: *L. shakra* (KOLLAR, 1844), *L. maerula* (C. & R. FELDER, 1867) and *L. ananda* CHARMEUX, 2001, which are distributed in Afghanistan, Pakistan and in the Himalaya region. A sharply angled discal line of the hindwing underside is typical for this group (fig. 9).

5. The *L. menava*-group includes 4 species: *L. menava, L. maeroides* (C. & R. FELDER, 1867), *L. felix* (WARNECKE, 1929) and *L. hindukushica* (WYATT & OMOTO, 1966), which are distributed in the Himalaya region, Central Asia, Iran, Transcaucasia, Saudi Arabia and Yemen. An evenly curved discal line of the hindwing underside is typical for this group (fig. 8).

A new species of the genus *Lasiommata* was discovered during our Iranian expedition of 2003. This species shows a mixture of characters found in groups 3 and 5 and will be described below.

Lasiommata ***zagrossica*** **spec. nov.**
(colour plate XIII, figs. 1, 2; text figs 1, 6)

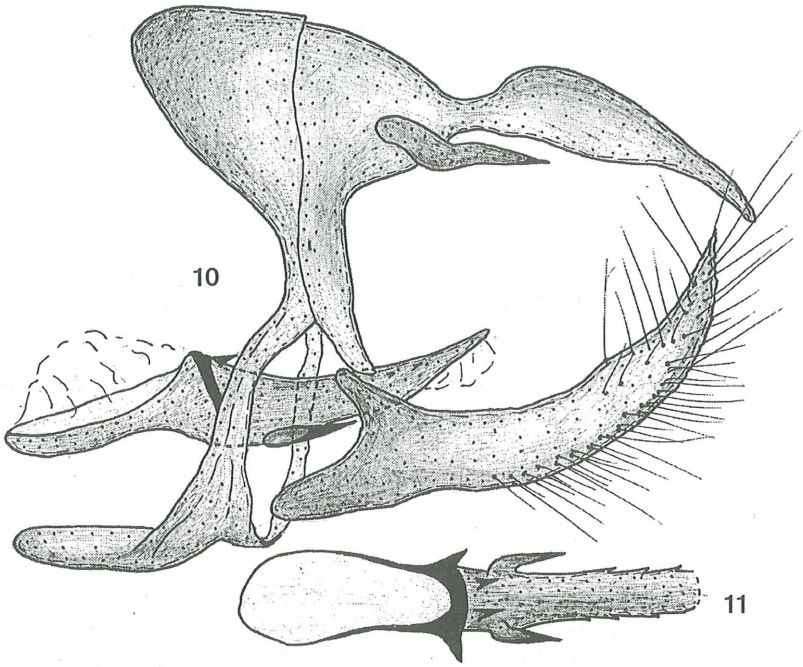
Holotype ♂: Iran, Chaharmahal-va-Bakhtiyari Prov., Central Zagros, Gardaneh-ye-Cheri Pass, W of Samsami, 2800 m, 17.VII.2003, V. LUKHTANOV leg., in Museum of Comparative Zoology, Harvard University, USA.
Paratypes: 2 ♂♂, same data as holotype, leg. A. DANTCHENKO.

Description
Male. Forewing length of the holotype (base–tip) 21 mm.
Upperside: Forewing grayish-brown with a yellow-brown postdiscal band. Black androconial brand is well developed and has a form similar to that in *L. maera*. Single black apical ocellus is centered with a white pupil, with a minute subsidiary ocellus above it towards apex. Discal cell with distinct transverse dark lines (fig. 1e). Hindwing unicolorous grayish-brown, with two ocelli surrounded by narrow yellow-brown rings. A transverse thin median band is clearly developed just as in *L. petropolitana* (fig. 1a).
Underside: Ground colour of the forewing is grayish-brown with a large yellow-brown field in the central area and with clear brown transverse lines. A single black apical ocellus is surrounded by a narrow yellowish ring and centered with a white pupil, with a minute subsidiary ocellus above it towards apex. Ground colour of the hindwing is light grayish-brown, slightly darker in the area of the discal band. Discal line evenly curved in the same way as in *L. shakra* or *L. menava*, not undulated as in *L. maera* and *L. petropolitana* (fig. 6d). Postdiscal area with black ocelli, which are surrounded by yellowish and brown rings and centered white.

Male genitalia (figs. 10, 11).
Tegumen massive. Uncus narrow at the basis. Brachia slender and curved. Valve long and narrow, with borders almost parallel and thin sharp apex. Aedeagus straight with two huge sharp ventral spines, two large dorsal teeth and several small lateral teeth.

Female unknown.

Differential diagnosis
The new species represents an unique combination of characters, some of which can be found in other species of the genus *Lasiommata*. The general design of the wing upperside (colour, wing pattern and the form of the androconial brand) in *L. zagrossica* is similar to that known in *L. maera, L. adrastoides* and *L. petropolitana*. *L. zagrossica* and *L. petropolitana* share such typical characters as rounded outline of the forewing (figs. 1b, 2b), thin transverse median band of the hindwing upperside (figs. 1a, 2a) and discal cell with distinct transverse dark lines (figs. 1e, 2e). The evenly curved discal line on the hindwing underside in *L. zagrossica* is similar to that known in *L. menava* (fig. 8d), *L. maeroides, L. felix* and *L. hindukushica*. The light colour of the hindwing underside in *L. zagrossica* is similar to that in *L. schakra* and *L. menava*.
It is interesting to note that in addition to *L. petropolitana* and *L. zagrossica*, the transverse median band of the hindwing upperside can be found in some other species of *Lasiommata*, e. g. in *L. adrastoides, L. meadewaldoi* and *L. menava* (fig. 5a), but is lacking in *L. maera*. Most likely, the absence of this character is an apomorphy of *L. maera*. At the same time this character seems to be a plesiomorphic state for *L. zagrossica* and was inherited from a common ancestor of the *L. maera*-group. On the contrary, the curved discal line of the hindwing underside



Figs. 10, 11: Male genitalia of *Lasiommata zagrossica* spec. nov., Holotype.
Fig. 10: General view without the left valva. Fig. 11: Aedeagus, dorsal view.

seems to be an apomorphy of *L. zagrossica*. This apomorphy evolved probably in *L. zagrossica* and in the lineage of *L. menava* independently from each another.

L. zagrossica differs from other species of the genus in the following characters:
L. megera, L. paramegaera, L. majuscula, L. minuscula, L. shakra, L. maerula and *L. ananda*: totally different in general wing design.
L. petropolitana: underside ground colour is much darker than in *L. zagrossica*; transverse discal line on the hindwing underside is undulated; median dark line on forewing underside is broken at vein M3 (see explanation of this character in Bozano, 1999: 8); male genitalia with sinuous uncus and very long brachia (Higgins, 1975; Nekrutenko, 1990).
L. maera, L. meadewaldoi, L. adrastoides and *L. maderakal*: discal cell of the forewing upperside without transverse dark lines (fig. 3); underside ground colour is darker; transverse discal line on the hindwing underside is undulated.
L. hindukushica: androconial brand is extremely narrow (fig. 4c), forewing is more elongated, postdiscal area of the forewing upperside is red brow, hindwing underside is dark brownish-gray (Wyatt & Omoto, 1966; Sakai, 1981; Bozano, 1999).
L. menava, L. maeroides and *L. felix*: androconial brand is totally different.

Bionomics

L. zagrossica was found on an abrupt rocky limestone slope near an isolated mountain summit (col. pl. XIII, fig. 3). Vegetation was practically absent in this biotope. Other slopes of this summit were covered by a rich subalpine xerophilous vegetation with the predominance of *Onobrychis cornuta*. *L. zagrossica* was flying together with *Superflua sassanides* (KOLLAR, 1849) (Lycaenidae), *Hyponephele shirazica* CARBONELL, 1997 and *Lasiommata megera* (Nymphalidae, Satyrinae).

Distribution

The known geographic range of *L. zagrossica* spec. nov. covers a small spot on the northern slope of Kuh-e-Mili Range in the central Zagros Mountains. Most probably this species could be also found in other parts of the Zagros Mountains. However, *L. zagrossica* seems to be a very local inhabitant. So, in spite of the fact that we undertook a special search of this species in Zarde Kuh Range near Chelgerd (a few kilometers to the north from the type locality), we were not able to find it there. Only *L. menava* was found in Zarde Kuh in the biotopes where we expected to observe *L. zagrossica*.

Etymology

Zagros is a major mountain system in the western and south-western Iran.

Acknowledgements

We wish to express our sincere thanks to Dr. ULF EITSCHBERGER for his friendly attention and the publication of this paper. The work has been supported by the Putnam Expedition Fund of the Museum of Comparative Zoology (Harvard University), by the Russian Research Foundation (Grant RFFI 02-04-49138), and by the Russian Federal Programs "Universities of Russia" (Grant UR 07.01.056) and "Support of the leading scientific schools" (Grant NSH-2232.2003.4).

References

BOZANO, G. C. (1999). Satyridae part I. Subfamily Elymniinae, tribe Lethini. Guide to the butterflies of the Palearctic region. – Omnes Artes, Milano. 58 pp.

CHARMEUX, J.-F. (2001): Une nouvelle espèce de *Lasiommata* (Lepidoptera: Nymphalidae, Satyrinae) du nord-ouest Pakistan. – Phegea **29**: 113–119.

HIGGINS, L. G. (1975): The classification of European butterflies. – Collins, London.

NEKRUTENKO, J. P. (1990): The Butterflies of the Caucusus. Part 1. Kiev: Naukova Dumka, 216 pp, 32 color plates (in Russian).

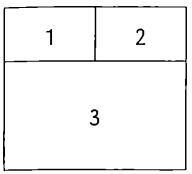
SAKAI, S. (1981): Butterflies of Afghanistan. – Tokyo, Kodansha, 272 pp. 48 color plates (in Japanese).

WYATT, C. & K. OMOTO (1966): New Lepidoptera from Afghanistan. – Entomops **6**: 170–200.

YOSHINO, K. (1995): New butterflies from China. – Neo Lepidoptera **1**: 1–4, 30 figs.

Explanation of colour plate XIII (p. 471):

Figs. 1, 2: *Lasiommata zagrossica* spec. nov., holotype ♂. Iran, Chaharmahal-va-Bakhtiyari Prov., Central Zagros, Gardaneh-ye-Cheri Pass W of Samsami, 2800 m, 17.VII.2003, V. Lukhtanov leg.
Fig. 3: Biotope of *Lasiommata zagrossica* spec. nov.



adresses of the authors

Vladimir A. Lukhtanov
Department of Entomology
Faculty of Biology
St. Petersburg University
Universitetskaja nab. 7/9
199034 St. Petersburg, Russia

Alexandre V. Dantchenko
Avangardnaja st. 11-160
195493 Moscow
Russia

LUKHTANOV, V. A. & A. A. DANTCHENKO: *Lasiommata zagrossica* spec. nov. from Iran (Lepidoptera, Nymphalidae, Satyrinae). - Atalanta **35** (3/4): 315-321.

Figs. 1, 2: *Lasiommata zagrossica* spec. nov., holotype ♂. Iran, Chaharmahal-va-Bakhtiyari Prov., Central Zagros, Gardaneh-ye-Cheri Pass W of Samsami, 2800 m, 17.VII.2003, V. LUKHTANOV leg.
Fig. 3: Biotope of *Lasiommata zagrossica* spec. nov.