

Notes on the taxonomy of the genus *Kretania* (BEURET, 1959) with the description of a new species from the Black Sea Coast of Russia

(Lepidoptera, Lycaenidae)

by

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Zusammenfassung: Die Gattung *Kretania* BEURET, 1959 wurde zum ersten Mal in Rußland gefunden. *Kretania zamotajlovi* spec. nov. wird von der Abrau-Halbinsel (Rußland, Nordwest-Kaukasus, Krasnodar Region) beschrieben und mit den Taxa *K. psylorita* (FREYER, 1845), *K. eurypilus eurypilus* (FREYER, [1851]), *Kretania eurypilus pelopides* VAN DER POORTEN, 1984, *Kretania eurypilus euaemom* (HEMMING, 1931), *K. iranica* (FORSTER, 1938) und *K. csomai* (BÁLINT, [1993]) verglichen.

Summary: The genus *Kretania* BEURET, 1959 is recorded for the first time for the territory of Russia. *Kretania zamotajlovi* spec. nov. is described from Abrau peninsula on the Black Sea Coast of the North-West Caucasus (Krasnodar territory, Russia). Diagnosis of this species is given in comparison to *K. psylorita* (FREYER, 1845), *K. eurypilus eurypilus* (FREYER, [1851]), *Kretania eurypilus pelopides* VAN DER POORTEN, 1984, *Kretania eurypilus euaemom* (HEMMING, 1931), *K. iranica* (FORSTER, 1938), and *K. csomai* (BÁLINT, [1993]).

Резюме: Представитель рода *Kretania* BEURET, 1959 впервые обнаружен на территории России. Описывается *Kretania zamotajlovi* spec. nov. с полуострова Абрау на Черноморском побережье Северо-Западного Кавказа (Краснодарский край, Россия). Дается диагноз вида в сравнении с *K. psylorita* (FREYER, 1845), *K. eurypilus eurypilus* (FREYER, [1851]), *Kretania eurypilus pelopides* VAN DER POORTEN, 1984, *Kretania eurypilus euaemom* (HEMMING, 1931), *K. iranica* (FORSTER, 1938) и *K. csomai* (BÁLINT, [1993]).

Introduction

The genus *Kretania* BEURET, 1959 is a compact, probably monophyletic group of lycaenids, comprising up to 4–5 hitherto known species. Its affinities with other lycaenids, belonging to the tribe Polyommagini, seem to be obscure. *Kretania* is treated either as a subgenus of *Plebeius* (see HESSELBARTH et al., 1995), or as a subgenus of *Polyommatus* (see BÁLINT & JOHNSON, 1997), or, at last, as a different genus (SAMODUROV, 2000). We consider species of the genus *Kretania* as relatives of *Plebejides* SAUTER, 1968. Both genera show a bulk of common features: similar type of pattern of wing underside and presence of sclerotized area at the interior side of the valves in the males. This area looks like a sclerotized projection in the *Plebejides*-species, and like a sclerotized plate in the *Kretania*-species. The species of the genus *Kretania* have a typical Anatolian-Iranian distribution (s. WILTSHIRE, 1957) (fig. 1) inhabiting southern Greece, island Crete, Turkey, Lebanon, Syria, Iran, Turkmenistan, Afghanistan, North Pakistan and North India. We refer earlier described taxa of the genus to 4 species, giving a review below.

Studying the Lepidoptera fauna of the Abrau peninsula, southeastwards of Anapa, at the extreme northwest of the Caucasus, the first author found a local population of an unknown lycaenid species. Identification of the series collected revealed that it also belongs to the genus *Kretania*, hitherto unknown from the territory of Russia. Comparison of the collected butterflies with all known species and subspecies of *Kretania* revealed, that they represent a new taxon, which is described below.

Abbreviations:

CS	collection of V. I. SHCHUROV
EMEM	Entomologisches Museum Ulf Eitschberger, Marktleuthen, Germany
KSAU	Kuban State Agrarian University, Krasnodar, Russia
SPSU	St. Petersburg State University, St. Peterburg, Russia
TL	type-locality
ZSM	Zoologische Staatssammlung München, Germany
ZISP	Zoological Institute of the Russian Academy of Sciences, St. Petersburg, Russia

Genus *Kretania* BEURET, 1959

Kretania BEURET, 1959, Mitt. ent. Ges. Basel (N.F.) 9: 83.

Type-species: *Lycaena psylorita* (FREYER, 1845).

1. *Kretania psylorita* (FREYER, 1845)

Lycaena psylorita (FREYER, 1845). Neuere Beitr. Schmett. 5: 146, Taf. 469, Abb. 3, 4.

TL: „auf dem Berge Ida auf der Insel Creta“

Distribution: Crete.

Diagnosis: Can be easily separated from the other species of the genus by the very small submarginal and antemarginal spots of the wing underside. The male genital structures are similar to those of *K. eurypilus* (see figs 190 and 191 in HIGGINS, 1975 and figs 49,3 and 49,4 in JAKŠIČ, 1998).

2. *Kretania eurypilus* (FREYER, [1851])

2a. *Kretania eurypilus eurypilus* (FREYER, [1851]) – Colour plate XV, figs 7, 8

Lycaena eurypilus (FREYER, [1851]). Neuere Beitr. Schmett. 6: 148, Taf. 573, Abb. 4.

TL: Türkei, Amasya.

(= *carmon* GERHARD, [1851]). *Lycaena carmon* GERHARD, [1851]. Versuch einer Monographie der Europäischen Schmetterlingsarten: 15; Taf. 25, Abb. a, b, c). TL: Türkei.

Distribution: Asia Minor, Transcaucasia, West Iran.

Note. The indication of *Kretania eurypilus* for Altai (*“eurypilus subsp.: Altai”*) (BÁLINT, 1993b: 440) is obviously erroneous. This species does not occur in the boreal part of Central Asia or even further in Siberia.

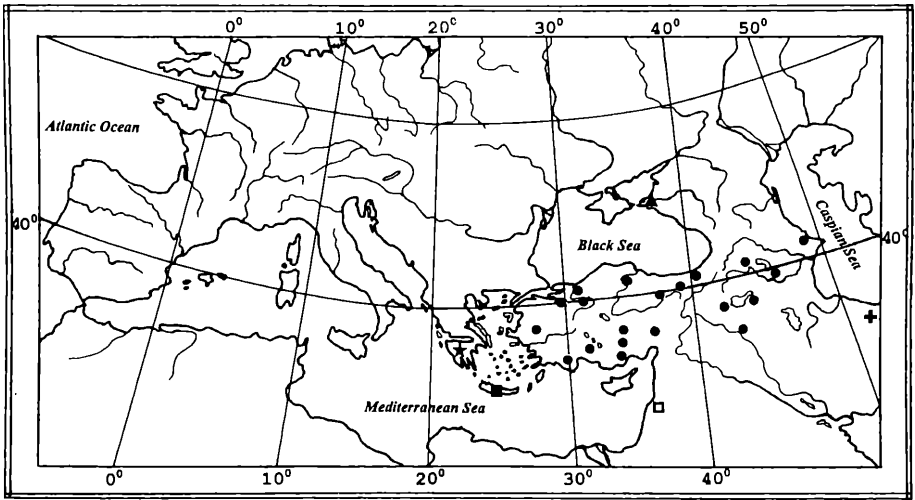


Fig. 1: Distribution of *Kretania* (BEURET, 1959)-species in the Western Palearctic.

- *Kretania psylorita* (FREYER, 1845)
- *Kretania eurypilus eurypilus* (FREYER, [1851])
- ★ *Kretania eurypilus pelopides* VAN DER POORTEN, 1984
- *Kretania eurypilus euaemom* (HEMMING, 1931)
- + *Kretania iranica* (FORSTER, 1938)
- ▲ *Kretania zamotajlovi* spec. nov.

2b. *Kretania eurypilus pelopides* VAN DER POORTEN, 1984

Kretania eurypilus pelopides VAN DER POORTEN, 1984 Nota Lepid. 7 (2): 164.

TL: South Peloponnesos.

Distribution: South Greece.

2c. *Kretania eurypilus euaemom* (HEMMING, 1931)

Polyommatus eurypilus euaemom HEMMING, 1931. Anns. Mag. nat Hist. (10)8: 536.

TL: Lebanon, Hermon.

Distribution: Syria, Lebanon.

Note. The taxon *euaemom* was treated as a distinct species by BÁLINT & JOHNSON (1997), but with no reasons given.

3. *Kretania iranica* (FORSTER, 1938)

Lycaena (Plebeius) eurypilus FR. (*carmon* GERH) *iranica* FORSTER, 1938. Ent. Rdsch. 55: 215.

TL: Iran, Elburs, Tadit i Suleiman, Vandarban-Tal.

Distribution: Iran, ?Turkmenistan, ?Afghanistan.

Diagnosis: Can be separated from the related taxa by the structure of the valve apical part in male genitalia (see fig. 12 in BÁLINT, 1993b).

Note. This taxon, originally described as a subspecies of *K. eurypilus*, got full species status (BÁLINT, 1993b; HESSELBARTH et al., 1995) on the basis of differences in valve structure (see fig. 12 in BÁLINT, 1993b) and presumed sympatry with *K. eurypilus* in South-East Turkey (BÁLINT, 1993a).

4. *Kretania csomai* (BÁLINT, [1993])

Polommatus (Kretania) csomai BÁLINT, [1993]. Linn. Belg. 13: 434.

TL: "Chitral"

Distribution. Chitral.

Diagnosis: Can be separated from the related taxa by the darker ground colour of the wing underside and the different shape of the valve in male genitalia (fig. 11 in BÁLINT, 1993b).

5. *Kretania zamotajlovi* spec. nov.

(Figs 2, 3. Colour plate XV, figs 1–6; colour plate XVI)

Material

Holotype ♂: Russia, Krasnodar territory, Black Sea Coast, Abrau peninsula, 10 km SE Anapa, neighbourhood of Sukko, Navagir Mt. Range, 120 m, 31.V.2000, V. SHCHUROV (ZISP).

Paratypes: 16 ♂♂, 12 ♀♀, same data as holotype (ZISP, KSAU, CS, EMEM, SPSU).

Description

Holotype ♂: Forewing length (base–tip) 11.9 mm. Upperside: ground colour gray, with weak metallic gloss; marginal border blackish; forewings without dark and orange maculae; hindwings in cells Rs–A with blackish spots of antemarginal row, separated from marginal strip by whitish intervals, that are widest in anal angle; orange submarginal lunules absent; fringe dichromatic: inner part gray, outside part grayish-white, in hindwings somewhat lighter colored than in forewings (colour plate XV, fig. 1). Underside: ground colour light gray; black spots of postdiscal series bordered by fine white rings; lunules of submarginal row small, orange-pale, in forewings less legible; hindwing in anal angle with black antemarginal spot, situated in cell Cu1–Cu2, possessing small nitidous spot of light-blue scales; several light-blue scales present also inside black spot of cell A; fringe grayish-white (colour plate XV, fig. 2).

Variability of male wing pattern rather insignificant. Length of male forewing (base–tip) 11.8–14.1 mm. On the upperside of the wings the black antemarginal spots and white intervals may vary in their development. In some specimens hindwings with hardly discernible orange-pale submarginal spots, in the majority of the males they are completely absent. On the underside the orange submarginal lunules might be rather wide, however their dimension and sharpness do not correlate with the expression of the maculae from above. Some specimens possess quite legible orange lunules from below, but no orange spots from above.

Female. Forewing length (base–tip) 13.5–14.5 mm, average (10 specimens) 13.8 mm. Upperside: wings of fresh specimens gray with weak metallic gloss, in aged butterflies they gain a mild brownish shade; forewings without orange maculae (colour plate XV, figs 3, 5); hindwings with an easily distinguishable complete row of rounded blackish spots of antemarginal row, separated from black marginal border by fine light interval; cells M2–A with orange lunules of submarginal row bordering black antemarginal spots. The majority of females possesses only

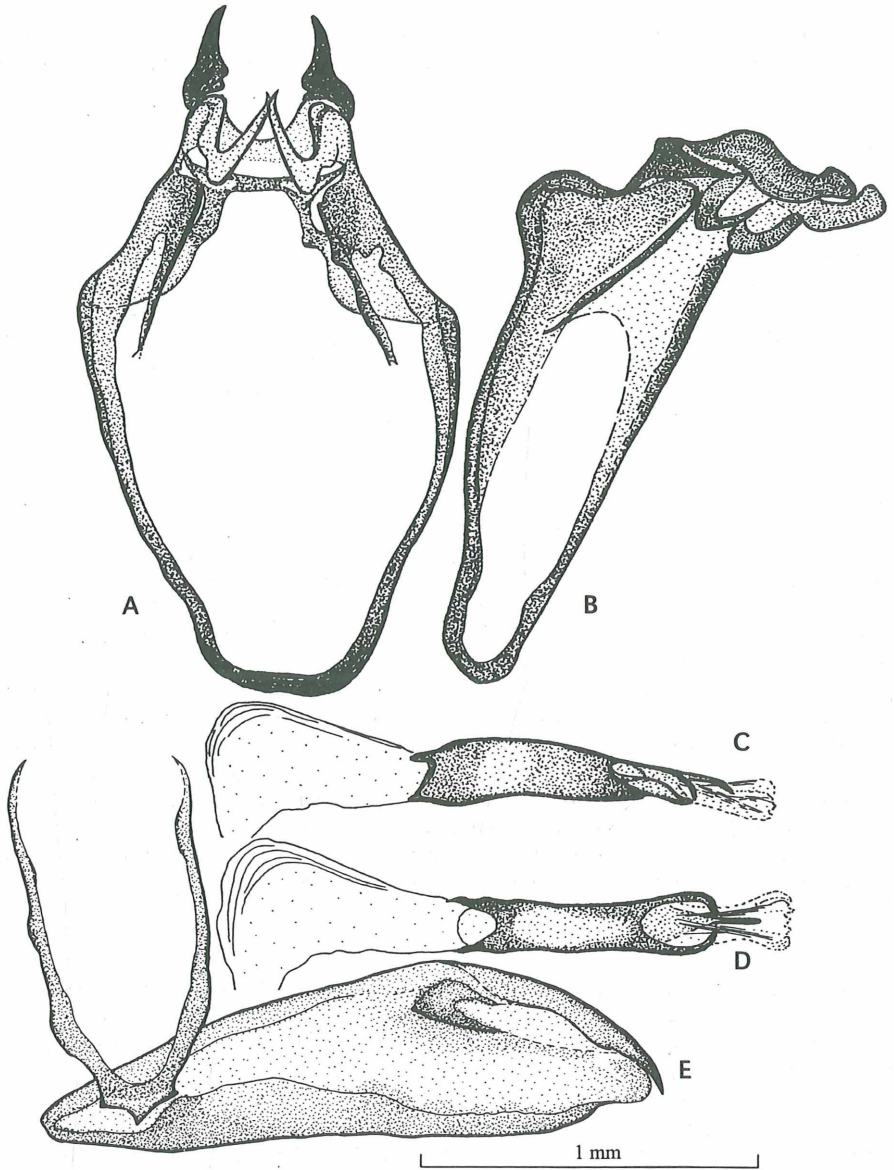


Fig. 2: *Kretania zamotajlovi* spec. nov., male genitalia (holotype). A - vinculum, apical view; B - tegumen and vinculum, lateral view; C - aedeagus, lateral view; D - aedeagus dorsal view; E - juxta and inner side of left valve.

two orange lunules in the anal angle. The underside of the wings is similar to that in the male, more legible, orange spots wide and bright (colour plate XV, figs 4, 6). Fringe both from above and from below as in male. Dark and orange maculae of hindwing upperside vary in their development. Rarely they are completely missing.

Genitalia. Male (fig. 2). Valve long and narrow. Interior side (in area bearing sclerotized projection in close genus *Plebejides* SAUTER, 1968) with sclerotized plate of crescent shape (fig. 2E). Outer edge of plate stronger sclerotized. Noteworthy, *K. eurypilus* from Turkey also shows the same plate, even it was not figured by HIGGINS (1975) and JAKŠIĆ (1998). Costal process of valve with widely rounded, flat apex, without microscopic teeth. Tegumen narrow, its front processes long and wide, reaching $\frac{1}{2}$ length of the juxta (fig. 2A). Aedeagus faintly arched, its apex widely rounded, with faintly sclerotized area in the middle of distal edge (fig. 2C, 2D).

Female (fig. 3). Genitalia structure close to that of *Plebejides*. Apophyses anteriores rather lengthy, strongly amplate and curved apically (fig. 3A). Apophyses posteriores narrow and lengthy. Ostium ductus bursae strongly sclerotized (fig. 3B), antrum membranous. Anal papillae short and wide. Bursa copulatrix membranous, without signa and sclerotized fields.

Differential diagnosis

The type series was compared with *K. psylorita* from the island of Crete (ZSM), *K. eurypilus eurypilus* and *K. eurypilus euaemom* from various localities of Turkey, Transcaucasia, Syria, and Lebanon (ZSM, EMEM, ZISP, CS, SPSU), with the type series of *K. iranica* (ZSM) and the original descriptions of *K. eurypilus pelopides* (VAN DER POORTEN, 1984) and *K. csomai* (BÁLINT, 1993b). The new taxon appeared to be closest to *K. eurypilus*, though it differs by a different colour of the wing upperside in both sexes, being gray with a metallic gloss. The background of the forewings in both *K. eurypilus eurypilus* and *K. eurypilus euaemom* is dark brown, without gloss, in *K. eurypilus pelopides* it is grayish-brown, without gloss. This difference seems to be important enough to treat these taxa as different species, instead of subspecies of one species. Besides, the hindwing's upperside in the males of *K. eurypilus* bears orange submarginal spots; these spots are missing or reduced in *K. zamotajlovi*. The underside wing pattern in the males of *K. eurypilus* (colour plate XV, fig. 8) is brighter and more contrasting, with larger maculae. The differences in the male genitalia of *K. zamotajlovi* spec. nov. and *K. eurypilus* spp. are weak. In *K. zamotajlovi* the valve are narrower on the average, the sclerotized plate at the inner side of the valve is stronger developed, the branches of the juxta are shorter and do not reach the bottom of the tegumen.

Bionomics

K. zamotajlovi was found at pebbly mountain slope (colour plate XVI, fig. 1), at small glade of the southern exposition, enclosed by arid light forest, composed of the pubescent oak (*Quercus pubescens* WILLD.), hornbeam (*Carpinus orientalis* MILL.), smoke tree (*Cotinus coggygria* Scop.), and junipers (*Juniperus excelsa* BIEB. and *Juniperus foetidissima* WILLD.). During the period of flight activity of *K. zamotajlovi*, the herbaceous vegetation was represented by blooming *Seseli ponticum* LIPSKY, *Astragalus utriger* PALL., and *A. arnacanthoides* BORISS., 1940 (= *Astracantha arnacanthoides*). The last species is probable the larval food plant of *K. zamotajlovi*. We observed copulation of the butterflies (colour plate XVI, fig. 2) and oviposition on *Astragalus arnacanthoides* (colour plate XVI, fig. 3). The eggs were oviposited solitary on young, predominantly blooming, propagules. Egg circular and impressed, 0.61 mm in diameter and 0.43 mm in height. Chorion porous, with multiple microscopic outgrowths,

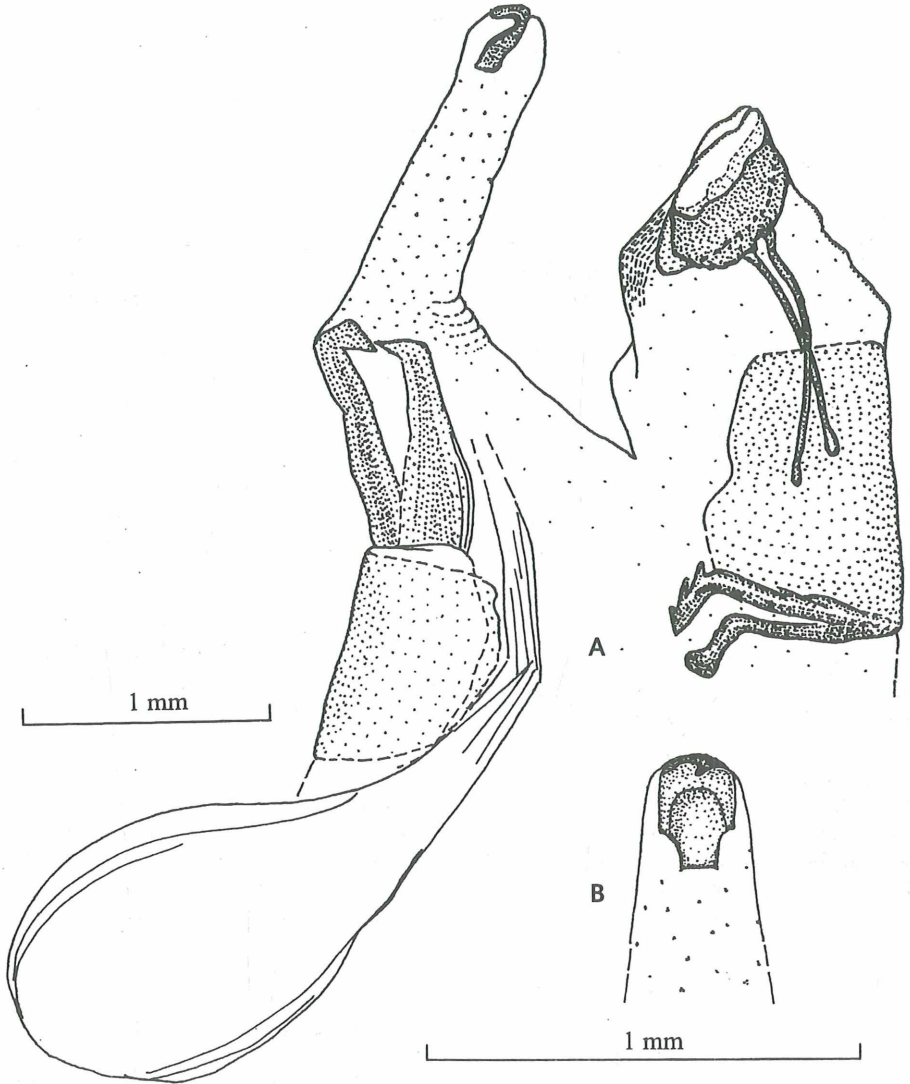


Fig. 3: *Kretania zamotajlovi* spec. nov., female genitalia. A – general view; B – ostium ductus bursae, ventral view.

servings for eggs fixation. The dissection of several fresh females has shown, that their fertility varies from 37 to 40 eggs. At the end of May (2000) in the population prevailed strongly worn males and rather fresh females. Young females and especially males were rare. Freshest (dur-

ing collecting time) males had the minimal length of the forewing. Apparently, the beginning of flight activity of *K. zamotajlovi* spec. nov. in 2000 took place in the middle of May. By the end of June only hatched eggs were found on the plants.

Imagines are always associated with places of vegetation of *A. arnacanthoides*. The butterflies of both sexes fly very low over stony ground. Additional feeding of the butterflies was observed at racemes of *Thymus marshallianus* WILLD.

Distribution

The known geographic range of *K. zamotajlovi* spec. nov. covers a plot of about 800 m² on the southern slope of Navagir Mt. Range (fig. 1). It is not inconceivable that this species could be found also in the district of Gelendzyk, at Tuapshakh and Markotkh Mt. Ranges, where the larval food plant, *Astragalus arnacanthoides* BORISS., 1940, occurs. All these localities are situated at the extreme northwest of the North Caucasus, near the Black Sea Coast between the cities of Anapa and Tuapse. *K. zamotajlovi* is geographically separated from the other taxa of the genus *Kretania* (fig. 1). The hiatus between geographic range of *K. zamotajlovi* and known localities of *K. eurypilus* in Transcaucasia and in the Eastern Caucasus is about 500–1000 km. Since the food plant of the caterpillars, *A. arnacanthoides*, is a local endemic of the North-West Caucasus (BORISSOVA, 1946), it seems improbable, that *K. zamotajlovi* could be found in other parts of the Caucasus. Theoretically, we cannot exclude findings of *K. zamotajlovi* in the Crimea peninsula (Ukraine), where *Astragalus arnacantha*, extremely close to *Astragalus arnacanthoides*, occurs.

Etymology

The species epithet derives from the name of Prof. Dr. ALEXANDR S. ZAMOTAJLOV (Krasnodar, KSAU), explorer of Carabidae of the Caucasus and Eastern Palaearctic, permanent fellow traveler and teacher of the senior author.

Acknowledgements

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Explanation of colour plate XV (p. 293):

Fig. 1: *Kretania zamotajlovi* spec. nov., holotype ♂, Russia, Krasnodar territory, Black Sea Coast, Abrau peninsula, 10 km SE Anapa, Sukko env., Navagir Mt. Range, 120 m, 31.V.2000, V. SHCHUROV leg., upperside.

Fig. 2: Idem, underside.

Fig. 3: *Kretania zamotajlovi* spec. nov., paratype ♀, the most characteristic phenotype, same data as holotype, upperside.

Fig. 4: Idem, underside.

Fig. 5: *Kretania zamotajlovi* spec. nov., paratype ♀ with the most intensive submarginal spots, same data as holotype, upperside.

Fig. 6: Idem, underside.

Fig. 7: *Kretania eurypilus eurypilus* (FREYER, [1851]) ♂, Turkey, Nigde, Taurus, Aladaglar, Demirkazik Dag, 1400 m, 27.–30.VI.1997, V. SHCHUROV leg., upperside.

Fig. 8: Idem, underside.

1	2
3	4
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7	8

Explanation of colour plate XVI (p. 295):

Fig. 1: Type locality of *Kretania zamotajlovi* spec. nov., in the foreground its larval food plant, *Astragalus arnacanthoides* BORISS.

Fig. 2: Copulation of *Kretania zamotajlovi* spec. nov.

Fig. 3: Oviposition of *Kretania zamotajlovi* spec. nov. at *Astragalus arnacanthoides* BORISS.

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Colour plate XV

SHCHUROV, V. I. & V. A. LUKHTANOV: Notes on the taxonomy of the genus *Kretania* (BEURET, 1959) with the description of a new species from the Black Sea Coast of Russia (Lepidoptera, Lycaenidae). – *Atalanta* **32** (1/2): 217–225.

Fig. 1: *Kretania zamotajlovi* spec. nov., holotype ♂, Russia, Krasnodar territory, Black Sea Coast, Abrau peninsula, 10 km SE Anapa, Sukko env., Navagir Mt. Range, 120 m, 31.V.2000, V. SHCHUROV leg., upperside.

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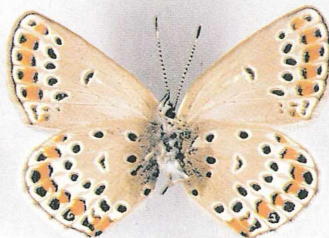
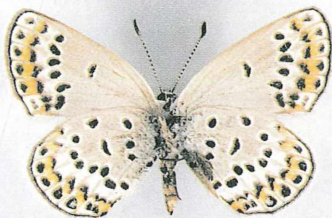
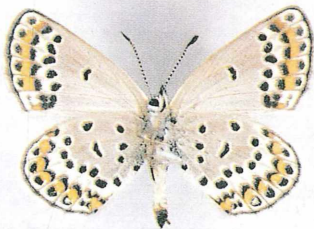
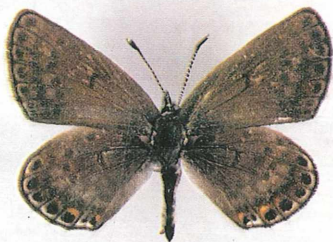
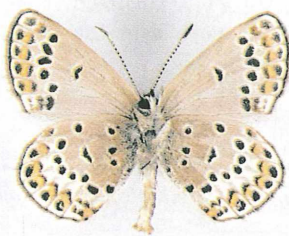
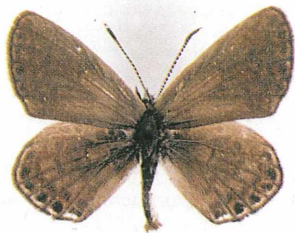
Fig. 6: Idem, underside.

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Fig. 8: Idem, underside.

1	2
3	4
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Colour plate XV



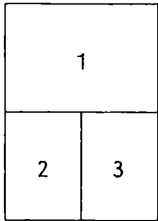
Colour plate XVI

SHCHUROV, V. I. & V. A. LUKHTANOV: Notes on the taxonomy of the genus *Kretania* (BEURET, 1959) with the description of a new species from the Black Sea Coast of Russia (Lepidoptera, Lycaenidae). – *Atalanta* **32** (1/2): 217–225.

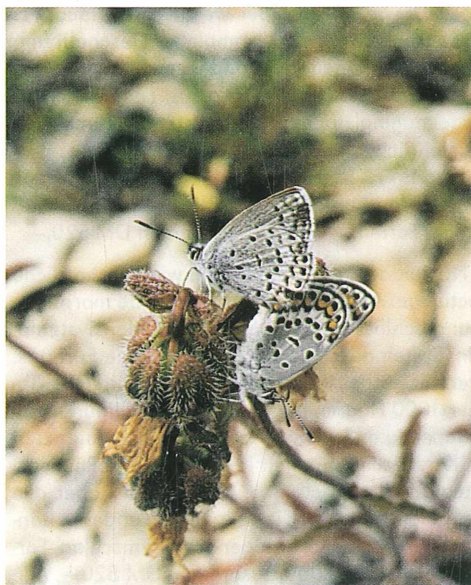
Fig. 1: Type locality of *Kretania zamotajlovi* spec. nov., in the foreground its larval food plant, *Astragalus arnacanthoides* BORISS.

Fig. 2: Copulation of *Kretania zamotajlovi* spec. nov.

Fig. 3: Oviposition of *Kretania zamotajlovi* spec. nov. at *Astragalus arnacanthoides* BORISS.



Colour plate XVI



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