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Four new taxa of Lycaenidae from Kyrgyzstan

(Lepidoptera, Lycaenidae)

by

Sergei Churkin & Vladimir Pletnev

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Abstract: The following new taxa are described: *Athamanthia infera* ***olga*** **subspec. nov.** (TL: Inn.Tian-Shan, Arpa river vall., Kichi-Karakoman r.), *Polyommatus yarkundensis* ***indago*** **subspec. nov.** (TL: Inn.Tian-Shan, Arpa river vall., Arpa v.), *Plebejus eversmanni* ***tatjana*** **subspec. nov.** (TL: Kyrgyzstan, Fergansky Mts., 15 km E Kalmak-Krchin v., Kugart r.), *Afarsia antoninae* ***saluki*** **subspec. nov.** (TL: Kyrgyzstan, Uzgensky Mts., Jassy r., Kara-Shoro loc.). The distribution and diagnostic characters of the new and closely related taxa are discussed. Important information about the subspecies structure of *Plebejus eversmanni* (Lang, 1884) and genitalia distinctions of *Afarsia* spp. is published.

Резюме: В статье описаны следующие новые таксоны: *Athamanthia infera* ***olga*** **subspec. nov.** (Внутренний Тянь-Шань, долина р. Арпа, р. Кичи-Каракоман), *Polyommatus yarkundensis* ***indago*** **subspec. nov.** (Внутренний Тянь-Шань, долина р. Арпа, п. Арпа), *Plebejus eversmanni* ***tatjana*** **subspec. nov.** (Киргизия, Ферганский хр., 15 км восточнее п. Калмак-Крчин, р. Кугарт), *Afarsia antoninae* ***saluki*** **subspec. nov.** (Киргизия, Узгенский хр., р. Яссы, Кара-Шоро). Рассмотрены распространение и диагностические особенности новых и связанных с ними таксонов. Приведена важная информация о подвидовой структуре *Plebejus eversmanni* (Lang, 1884) и признаки гениталий *Afarsia* spp.

A study of material collected in Kyrgyzstan during the last decade of the expeditions revealed four Lycaenidae taxa new to science. All the taxa seem to be important from zoogeographical point of view. The holotypes of the new taxa will be deposited in the Darwin State Museum (Moscow). Other paratypes are preserved in the authors' private collections. The images of genitalia were taken according to Krupitsky et al. (2017).
Abbreviations: FW - fore wing. HW - hind wing. HT - holotype. PT - paratype. TL - type locality.

Athamanthia infera o l g a **subspec. nov.** (tab. I: 1, 2, 3, 4).

HT ♂: Inn.Tian-Shan, Arpa river vall., Kichi-Karakoman r., 2650 m a.s.l., 26.07.2016, S. Churkin leg.
PTs: Same data as HT, 11 ♂♂, 6 ♀♀, S. Churkin & V. Pletnev leg.; 5 ♂♂, 5 ♀♀, Tian-Shan, Arpa river vall., Chon-Karakoman r., 2700-2900 m a.s.l., 24-25.07.2016, S. Churkin & V. Pletnev leg.

Description and diagnosis: FW length 14 mm in the HT, 12.5 - 15 mm in the ♂ PTs (usually 14 mm) and 13 - 15.3 mm in the ♀♀.
♂: The wings' shape is more acute, cubital-anal narrowing of the FW is more obvious than in the nearest *A. i. pseudoinfera* Churkin, 2006 (tab. I: 5, 6, 7, 8). Antennae and body colouration have no obvious distinctions.
The main colouration is the same as in *A. i. infera* (Nekrutenko, 1984), but orange-golden suffusion is absent as a rule while the whitish-grey suffusion is obvious externally from the FW discal cell. It means that the ♂ looks similar to *A. infera kekemerena* Lukhtanov, 2000 but diffuse whitish-grey spots are not so extended and have no bluish shades; when alive ♂♂ are dark, blackened but not bluish.
FW Upperside orange antemarginal band is dull (not so bright) and the colour is usually saturated (reddish).
Postdical row at the FW underside of the blackish spots is statistically removed to the margin (only 2 ♂♂ have normal position of this row, however, this character is also moderately variable in other taxa).
HW upperside usually with not distinctive whitish-bluish spots between the discal spot and margin, similar to *A. i. kekemerena* Lukhtanov and in opposite *A. i. infera* Nekrutenko/ *A. i. pseudoinfera* Churkin (where these markings are very rare).
HW underside is whitish, even more whitish than in *A. i. kekemerena* Lukhtanov, contrastingly differs from that of *A. i. pseudoinfera* Churkin; the size of the spots is smaller, the orange band is narrower and paler. Antemarginal whitish spot in Cu2-2A zone (near the tale) at the FW underside is developed, this spot erases two small blackish antemarginal spots - as a result the orange band looks broken in this zone. This feature is exceptional in nominate subspecies or *A. i. pseudoinfera* Churkin (if developed it correlates with abnormal colouration in general), being more obvious in *A. i. kekemerena* Lukhtanov, but also not so frequent and noticeable.
The black spot M3-Cu1 at the HW underside is shifted to the discal spot, so that the postdiscal row is strongly curved. In opposite, *A. i. pseudoinfera* Churkin is characterized by the M3-Cu1 spot is moved to the orange band. The nominate taxon (including reddish forms) demonstrates maximum variability of this character.

Genitalia (fig. 1 - 4) similar to that of the nominate taxon, but the falces are thinner (especially the basal part). Worth to note, that comparing with *A. i. pseudoinfera* Churkin the new taxon has a smaller sized genitalia (at least, by 25%) and obviously not such a strong valva with weak "hillock" (see in: Churkin, 2006); thus, the genitalia looks even more similar to *A. i. infera* Nekrutenko.

From *A. i. kekemerena* Lukhtanov it differs easily by the less developed distal end of the uncus and structure of the aedoeagus. The additional investigations show that noted distinctions of *A. i. kekemerena* Lukhtanov are very stable, so, the question of the status of this butterfly is open.

The ♀ has typical colouration and displays all listed features of the ♂ together with sexual dimorphism known for the group. The orange band is wider but dull and not bright. The position of the postdiscal row which is moved to the margin is more obvious. The underside is slightly yellowish (in all taxa the ♀♀ have more yellowish undersides than the ♂♂), being distinctively paler (and whitish) comparing to that of *A. i. pseudoinfera* Churkin. The shifting of the black spot M3-Cu1 at the HW underside is strongly developed.
Two ♀♀ have a bright band and it correlates with the reddish suffusion covering the discal space - at the same time, exactly these two specimens demonstrate the postdiscal black row being dislocated at maximum. These ♀♀ have a moderate yellowish underside so that the whitish anal spot becomes slightly yellowish too, remaining well obvious.

Biology: The butterfly flies in the Valleys of both Karakoman rivers together with *Plebejus arpa* Churkin & Pletnev, 2012 and the local race of *Plebejus idas* L. (the latter was abundant at the grassy slopes). The food plant is *Atraphaxys laetevirens* (provisionally, because two species of food plants are registered). In such a cold Valley the plants are oppressed, the quantity of the butterflies is not high.

Distribution: Known only from the TL. The discovering of this new taxon in highland isolated Valley at the angle between Fergansky range and Torugart Mts., was quite a surprise. The direct distance from the TL of *A. i. pseudoinfera* Churkin is about 100 km, not that far (but not short for the small Lycaenidae distributed inside the high mountain system) - however, distribution areas are widely and fully isolated by the Chaartash/Ak-Shyirak Mts. and the watershed between this range and the system of Fergansky Mts. [i.e. by the mountain zone between Naryn Valley and the main part of Alabuka (Ala-Buga) Valley; both Valleys merge but too far away in the east]. There are no food plants at the typical Tianshanian flattened alpine biotops of this watershed.
Arpa Valley (which is only slightly explored and till now has no normal roads) presents the upper part of Alabuka basin, Arpa and Alabuka Valleys are separated by high Dzhaman-Too Range, where the Arpa River flows through the rocky canyon. However, some food plants might be present inside the canyon since the food plants are widely distributed at Alabuka and other tributaries. So the distribution area of new subspecies is wider - but we never collected such butterflies at Alabuka or on the northern slopes of Dzhaman-Too during 10 field seasons.

Note: The population is absolutely clearly isolated from all others. It is logical to suppose that the discovered taxon presents the traces (or remnants) of the descendent of *infera*-like butterflies in the last interglacial period.
The new taxon clearly differs from the nearest *A. i. pseudoinfera* Churkin because the latter presents the most orange-reddish and yellowish variant of the species.
The mounted specimens resemble *A. i. kekemerena* Lukhtanov (with some differences marked above) - but since the latter taxon is distributed very far away in Suusamyr Valley, the genetic exchange is excluded. However, alive specimens of *A. i. kekemerena* Lukhtanov are clearly bluish - this feature was firstly noted by the first author in his review of the complex (Churkin, 2006). Unfortunately, it is not obvious at the prepared specimens, but we are sure that it presents very important distinction. The alive specimens of the new taxon are dark and blackened being identical to two other subspecies.
Worth to note that the new taxon does not present the ecological form - the highland populations of nominate subspecies show exactly the opposite characters being more colourful and orange. *Athamanthia i. kekemerena* Lukhtanov flies on warm slopes at medium altitudes.

Etymology: The new taxon is named after Olga Katkova, the wife of the second author (the latter discovered this nice *Athamanthia*).

Polyommatus yarkundensis i n d a g o **subspec. nov.** (tab. I: 9-12, 17-20).

HT ♂: Inn.Tian-Shan, Arpa river vall., Arpa v., 2900 m a.s.l., 18.07.2012, S. Churkin leg.
PTs: Same data as HT, 12 ♂♂, 6 ♀♀, S. Churkin & V. Pletnev leg.; 1 ♀, Tian-Shan, Arpa river vall., 15 km W Arpa v., 2700-2800 m a.s.l., 2.-3.08.2011, S. Churkin leg.; 3 ♂♂, Inn.Tian-Shan, Arpa river vall., Kichi-Karakoman r., 2650 m a.s.l., 26.07.2016, S. Churkin leg.

Note: *Polyommatus yarkundensis* Moore, 1878 and *P. kashgharensis* Moore, 1878 were described in one and the same paper as two different species. Both belong to the *icarus*-complex, the cohabitation of two *icarus*-like butterflies in one small region with poor fauna was doubtful. Later, in "Lepidoptera Indica" these two taxa were treated as two forms of one species - forms of "wet" and "dry" seasons (Swinhoe, 1909-1913). The terminology is not correct for Kashgaria, but it is known (and our investigations also confirm it) that *icarus*-populations of highlands or living in better conditions often have more developed underside patterns than those living in deserts or under dry conditions. Moore died before the due volume of "Lepidoptera Indica" was published, so that the synonymy was created by Swinhoe, and his position in publication was certainly in agreement with Moore.
Swinhoe used as the main name "*yarkundensis*" that correlates with the simple fact that this name was published by Moore before the name "*kashgharensis*". According to the ICZN rules (ICZN: 24.2), *Polyommatus yarkundensis*

Moore, 1878 is the valid name.
However, its synonym *P. kashgharensis* Moore, 1878 is mistakenly figured in the publications. We have not found any reasons for this mistake, since no actual study on this matter is available, and nobody yet tried to prove that both taxa present distinct species.

Polyommatus kashgharensis Moore, 1878 was included in "The Guide of the Russian butterflies and adjacent territories" edited by Tuzov, but this case presents only the result of the efforts to find any available names for *P. icarus* (Rottemburg, 1775) distributed in Russian Central Asia (Churkin & Zhdanko, 2008).

The known distribution of *P. yarkundensis* Moore includes western Kashgaria, and it is logical to assume that some Kashgarian fauna may penetrate the southern edges of Tian-Shan, for example Arpa Valley. However, the first author has collected several times at the southern edges of At-Bashi, Aksai and Terek Valleys as well as south-western part of Kokshaal range where the species was not found.
Polyommatus i. effatus Churkin, Zhdanko, 2008 (tab. I: 13-16, 21-24) was described based on a small highland population occurring in Baibiche-Too Mts. (not far from the small village Orto-Syrt, 2950 m a.s.l., between downstream of Alabuka Valley and At-Bashi Valley), this place was selected as a very distant from the possible areas of the contacts with other (lowland) races of *P. icarus* Rottemburg. We suppose that the distribution area of the subspecies covers the main part of the Inner and Central Tian-Shan (except North Tian-Shan populated by the nominate race according to the opinion of Zhdanko), the situation in Alai and West Tian-Shan needs further clarification.
It happened that the new subspecies of *P. yarkundensis* Moore was found very close to the TL of *P. i. effatus* Churkin & Zhdanko; the direct distance is less than 40 km. Moreover, the upper part of At-Bashi Valley although must be populated by *icarus*-butterflies but Arpa is separated southwardly by the watershed (more than 3000 m, that is not too high for the complex in study). In north-west direction, the Arpa River flows through the canyons inside of Dzhaman-Too range and joins with the Alabuka River, the confirmed area of *P. i. effatus* Churkin, Zhdanko.

For the study we used (besides literature and museum collections) the series of *P. yarkundensis* Moore collected recently near Kashgar. The data is: SW Kashi, Keng Tau Mts., Oytag loc., 2650 m, 4. - 6.06.2013, A. Floriani leg.

We do not discuss the status and relations with another part of the *icarus*-complex - *P.* (*icarus*) *fugitiva* (Butler, 1881) -*P.* (*icarus*) *bienerti* Balint, 1993 because the distribution areas of the new taxon and the above mentioned complex are widely divided by large mountain systems.

Description and diagnosis: FW length 14.7 mm in the HT, 13.7 - 15.5 mm in the ♂ PTs (usually 14-15 mm) and 13.5 - 15 mm in the ♀♀ (smaller than *P. icarus effatus* Churkin & Zhdanko where the normal length is 15 mm in both sexes).
The colouration of the antennae and the body are variable (for example antennae are sometimes mainly yellowish at the underside, sometimes this colour is strongly reduced) and have no taxonomic value.

The ♂ is bluish and shining (under good light it looks like some *Agrodiaetus* Hübner, 1822); rarely (3 ♂♂) it is violet-blue, i.e. with typical *icarus*-colouration. The thin blackish margins looks more contrasting and obvious owing to the bright ground colour.
FW underside with typical pattern, but both black discal spots are often partly or fully reduced. The antemarginal spot in the anal angle of the FW is also usually reduced as well as the blackish spot in the row nearby. All violet ♂♂ are characterized by obviously reduced pattern while the bluish specimens sometimes have more developed spots (and one bluish ♂ has an *icarus*-like pattern). *Polyommatus i. effatus* Churkin & Zhdanko has two discal spots, and as a rule, the last antemarginal spot is clearly obvious even if it is partly reduced.
The HW underside is steel grey with sharp whitish rings around the black postdiscal spots. Bluish-green basal suffusion is moderately developed and often extends to the discal spot - but not dense. The pattern is reduced, the postdiscal spots are small, especially two upper spots at the costal side, the anal spot is also small or fully reduced, the antemarginal spot at the anal angle is usually also reduced. The nominate taxon has significantly reduced underside pattern, especially antemarginal row, the black spots looks like the dots. *Polyommatus i. effatus* Churkin & Zhdanko usually has two antemarginal spots at the anal angle, all patterns are developed, all spots are normally developed, large and ringed by not contrasting whitish rings (more correctly - areolas) because the ground colour is not that steel-dark but simply greyish or (usually) light greyish.

Genitalia (fig.1 - 5): It is clear that the problem of the statuses in the *icarus*-complex can not be solved without the comparison of the genitalia taken from different areas of the distribution. Such work is out of the limit of the present paper, but we studied the genitalia of the PTs of the new taxon and *P. i. effatus* Churkin & Zhdanko (Fig.1 - 6). The differences were observed - in addition, the genitalia of the new subspecies seem to be very similar to that of nominate *P. yarkundensis* Moore, 1878 (only one dissection of the latter was done). We suppose, that the genitalia might "work" only in the contact zone - and their variability can be great outside of it, as it is known for some other young complexes.
The ♂♂ of new the taxon have a more gracile uncus with a lightly but distinctively shorter distal part comparing with *P. i. effatus* Churkin & Zhdanko (especially when you observe both genitalia together side by side). At the same time, the valva has an obviously different combination of the processes: dorsal process is narrow (its base is also narrow so that the valva looks not bunchy) and is situated at the costal (upper) margin of the narrow caudal process. Valva of *P.*

i. effatus Churkin & Zhdanko looks bunchy, with widened end of the dorsal process, the latter is situated close to the centre of the caudal process (from the lateral view). Being flattened by the glass, the dorsal process of *P. yarkundensis* Moore is approximately 1.2 - 1.4 times narrower than the process of *P. i. effatus* Churkin & Zhdanko.
We also studied the ♂♂ which were collected at Kara-Koman River in Arpa Valley in 2016 at the altitude 2650 m a.s.l. - both colour forms were caught, both have identical genitalia with that of the main TL. We did not studied the aedoeagus.

♀: Two forms are known (same as for the nominate taxon). The bluish form is more abundant. Bluish ♀♀ have (as a rule) only 2-3 orange spots at the FW, the width of the blackish margins is moderately variable, HW also sometimes with series of orange spots externally edge with black rhombus spots, sometimes without such pattern.
The ground colour of bluish ♀♀ copies the ground colour of the ♂♂ being not bright and shining - it means that such *effatus*-forms are violet in contrast to the soft blue colour of the new taxon. In addition, the violet colour of *icarus*-♀♀ is usually deeper than in the ♂♂. The bluish form of the nominate subspecies from Kashgar is also violet, we have not seen any form of *P. yarkundensis* Moore with the colour as in bluish ♀♀ of the new subspecies.
The uppersides of the brownish form is similar to that of *effatus*-♀♀, but orange spots are obviously smaller and their quantity is less.
The underside provides the most attractive distinction of the species: it is dark steel grey with true blackish hue, while *P. i. effatus* Churkin & Zhdanko is characterized by typical *icarus*-colouration: grey with brownish hue. In addition, the latter has enlarged spots at the underside, while in the new taxon the pattern is reduced (sometimes even more than in the ♂♂) and spots are small. As a result, the ♀♀ of the two taxa could be recognized immediately - only worth to note that older ♀♀ often lost some scales and their underside looks not so blackened.
We have not found any intermediate specimens but the series of ♀♀ of both taxa are small.

Biology: Unknown. The biotope is typical for the *icarus*-complex in Tian-Shan: the series was collected at a humid alpine meadow near a spring. Local and not numerous. Flies together with a local race of *Polyommatus venus* (Stgr., 1886).

Note: Worth to note that in 2017 we found the small population of *Parnassius romanovi varvara* Churkin, 2009 in Arpa Valley. It is the second known place for the species in Tian-Shan system. The butterflies of the newly discovered population differ from the nominotypical ones by the absence of confluence of black discal spots at the FW (only 3-5% of nominotypical specimens have these spots normally separated, while the situation is opposite in the new case). We suppose, that it is not enough to make the subspecies status, and Arpa population presents only a local race/variant of *P. r. varvara* Churkin, 2009. The food plant is *Corydalis pseudoadunca* M. Pop. (M. Mikhailova, pers. comm.).

The hybridization between two taxa can be expected. Moreover, the original description of *P. i. effatus* Churkin & Zhdanko stated that several PTs are slightly bluish and differ from the normal colour of the typical races (tab. I: 14, 22). It can be the result of the hybridization (or, for example, of the pressure of natural conditions, because slightly bluish ♂♂ are known from the upper part of Naryn basin, for example - too far from the studied area). The problem is that we do not know the results of possible hybridization which can eliminate "wrong" specimens or lead to the super variability and transfer the "wrong" genes outside of the contact zone. We did not find any actually hybrid populations close to the watershed between At-Bashi and Arpa Valleys although we collected here in 1999 and 2011 (another promising area - lowlands of Arpa River and Dzhaman-Too Canyons are inaccessible).
However, the above mentioned territories seem to be the key for the problem solution in regard to true relationships and statuses.

Distribution: Known only from the upper part of the Arpa river Valley.

Etymology: Indago (Lat.) - the hunt, the pursuit (the stalking, etc.), basing on flair, search with the scent.

***Plebejus eversmanni t a t j a n a* subspec. nov.** (tab. II: 1- 6).
HT ♂: Kyrgyzstan, Fergansky Mts., 15 km E Kalmak-Krchin v., Kugart R., 2500 - 2600 m a.s.l., 3.-4.07.2006, S. Churkin leg.
PTs: 2 ♀♀, same data as HT; 2 ♂♂, 2 ♀♀, same loc., 2000-2700 m a.s.l., 12.-13.06.2001, S. Churkin leg.; 7 ♂♂, 6 ♀♀, same loc., 23.-27.06.2005, 2400-2600 m a.s.l., S. Churkin, V. Pletnev & S. Saluk leg.; 3 ♂♂, 2 ♀♀, same loc., 20.-21.06.2013, 2500-2700 m a.s.l., S. Churkin, V. Pletnev & S. Saluk leg.

Additional material: 3 ♂♂, 2 ♀♀, Kyrgyzstan, North Alai, Gulcha r., Katta-Karakol v., 15.07.2000, 2600 m a.s.l., S. Churkin & A. Zhdanko leg.; 1 ♂, Kyrgyzstan, North Alai, Ak-Bura r., Kyzyl-Tala v., 28.06.2008, 2600 - 2800 m a.s.l., S. Churkin; 1 ♀, same loc., 1.-2.07.2009, S. Churkin leg.

Note: The lectotype designation of *Plebejus eversmanni* (Lang, 1884) was made by Balint (1999) as well as the synonymy *P. eversmanni* (Staudinger, 1886) from Samarcand. Populations of this species distributed in the main part of the North Alai were treated as nominate for the long time according to Staudinger's data. However, now the situation is obscured and needs clarification.
Unfortunately, the photo of the lectotype is not available, thus, it is not possible to bring the subspecies system in order.

We decided to describe a new taxon because its distribution area and characters are exceptional.
We studied several hundreds of specimens collected in numerous localities of "Russian" Central Asia. It is easy to see that in general all populations might be divided into two big clusters. The northern one (main part of Alai and Ghissar, Tian-Shan) has extended wings (and thus, moderately rectangular general shape), the postdiscal row of spots at the HW underside is moved to the antemarginal pattern. Another cluster is characterized by the moderately square shape, the postdiscal series at the HW underside is moved to the cell (West and East Pamirs, Alai Valley, Darvas, Afghanistan).
Some populations from either cluster might be mainly bluish, some might be very dark (at the upperside, with obvious individual variability), the developing of the antemarginal pattern also provides some important features. This level of the distinctions presents the true subspecies level, in our opinion.
The habitual differences between two clusters of the subspecies look very serious, and in some territories (at Ghissar, for example) the populations of both clusters can be found not far away from each other. However, the analyses of the series show that the hybridization is obvious. We also dissected some ♂♂ from different areas (including Afghanian series) and found that the characters of the genitalia seem to be very stable. The detailed study is out of the limit of the present paper, but we believe that both clusters compose one species.

Below we will compare the new subspecies with the taxa distributed in the neighbouring territories - Alai, Transalai and Tian-Shan. The first important taxon is *P. e. grumi* (Staudinger, 1901) known from Transalai and belonging to the second cluster. It is a moderately big butterfly with reduced antemarginal HW pattern at the underside, the upperside is variable but often darkened. Another taxon, which we will treat as nominate (as it is figured as nominate in many papers and books) belongs to the first cluster. It is smaller, often more bluish at the upperside, while the antemarginal pattern is well developed forming a moderate permanent band of spots at the underside (sometimes even at the upperside). The distribution of this taxon is strange and includes the main part of North Alai (Surmetash r., Dugoba r., Sokh r.), a part of Ghissar (in zoogeographical sense) and a part of Tian-Shan. We also collected the series of this taxon at Chatkal range (many places, including lowland population from Sumsar vicinity, 1100 m a.s.l.), Suusamyr range, Moldo-Too range. It was also collected in two places in the system of northern Fergansky Mts.: Kok-Bell Pass and near Karakul Town (15 km SE Karakul, 1300-1400 m, 17.06.2000).
The new taxon was collected at Kugart (Kek-Art) River, at the middle part of the Fergansky range. It is related to *P. e. grumi* (Stgr.) without any doubt. The area of the nominate subspecies becomes disjunctive resulting in important implications.

Description and diagnosis: FW length 16 mm in the HT, 15.5-17.5 mm in the ♂ PTs (usually 16-16.5 mm) and 15-17 mm in the ♀♀. The size is even more than in *P. e. grumi* (Stgr.) (13.5-17 mm, usually 15-16), while the nominate subspecies has the size: FW length vary from 12.5 to 14.5 in lowland populations (Sumsar v. at the foothills of Chatkal range; Sokh River between Alai and Turkestan ranges) to 13-15 in all other places. We studied more than 100 specimens from many localities, and only 2 specimens (♀♀) have the size 16 mm, having the extended wing shape and maximum development of the underside pattern.
The colouration of the antennae, head and body has no taxonomically value.
The shape of the butterflies looks moderately square, while nominate taxon has narrower wings and rectangular general shape. This character is not absolute stable but abruptly obvious in series.

♂: The upperside is blackish with a weak or medium developed dark-bluish suffusion. Usually it is developed at the base of the wings, rarely slightly obvious at the disc of the FW and at the anal angle of the HW. Discal spots are visible but not sharp. HW antemarginal spots visible only in anal-cubital zone, not contrasting and only rarely developed slight pale-bluish areolas.
The nominate taxon has a very variable upperside, but usually the bluish suffusion covers the main part of the wings; the HW antemarginal pattern is well developed, forming more or less a permanent band. Some specimens have bluish suffusion strongly reduced or even almost absent, but (as a rule) they are the smallest specimens with developed antemarginal band (interestingly, the ground colour is not so dark, i.e. the specimens are very often dark-brownish, but not really blackened).
The upperside of *P. e. grumi* (Stgr.) is similar to that of the new taxon with all degrees of variability from the rare more or less bluish to fully blackened specimens.

Underside with all characters of the species, but strongly different from that of the nominate taxon. The latter have moderately light underside ground colour (varies from whitish to slightly brownish) with enlarged sharp black spots (white rings are absent or not sharp/distinctive), some spots at the FW are always abnormally enlarged and stretched; the postdiscal rows on both wings are moved towards the margin and nearly touch the antemarginal spots (especially M-spots; this feature is well obvious in series). The most recognizable differences are the enlarged and united antemarginal spots: the orange (or yellow) parts of the spots are well developed and join each other forming an almost permanent orange band (the exceptions with not so widened orange segments are not so rare, but the tendency of the uniting of the antemarginal spots are practically always clearly obvious comparing to all other studied taxa).
In contrast, *P. e. grumi* (Stgr.) has a grey underside with very small spots. These postdiscal spots have distinct white rings, some spots (especially at the HW) are often totally reduced; postdiscal rows at both wings are moved towards

the base, so that the space between postdiscal and antemarginal row is extended. The spots (at the HW as well as at the FW) are rarely enlarged but never abnormally stretched and never touch the antemarginal pattern. The HW antemarginal spots are distinctively disjoined by grey colour, orange segments (spots) are very small and usually developed only at the anal/cubital zone (that is for bluish-green segments also).
The new subspecies is similar to *P. e. grumi* (Stgr.). The black spots are obviously smaller than in nominate taxon and practically never stretched/enlarged - but at the same time do not look like dots, the number of spots is complete. The underside is not that deep grey. The distance between postdiscal rows and antemarginal rows at both wings are not as wide as in *P. e. grumi* (Stgr.) but even the M-spots do not demonstrate the tendency to touch the antemarginal pattern. Orange segments (spots) at the HW underside are small and disjoining, but all spots are larger being more or less developed (the bluish-green segments are also obvious only in anal-cubital spots, the exception is not found). The basal bluish-greenish suffusion is not dense but obvious and usually extends to the cell, while in the nominate taxon this suffusion is almost absent so that the basal black spots are also well obvious. *Polyommatus e. grumi* (Stgr.) also has the basal suffusion reduced, while the basal spots are very small.

Genitalia: As mentioned above, we studied the genitalia of different subspecies (selected from Afghanistan, Ghissar, Alai and Tian-Shan). Differences were not found, however, it is necessary to note that it was not the detailed review.

The ♀ varies from fully darkened to nice specimens with pale bluish basal parts at the upperside (such variability is known for all studied subspecies). Sometimes the unclear row of linear bluish spots is visible in the antemarginal area of the FW. Bluish forms have a distinct discal black spot on the FW and several blackish antemarginal spots with pale-bluish areolas on the HW. The underside shows the same distinctions as in ♂♂, but all spots are statistically more developed. It means that in comparison to the ♀♀ of the neighbouring subspecies, the differences will be the same. It is worth to note that nominate ♀♀ have a fully joined antemarginal band (the exceptions are very rare or absent in all studied populations). *Polyommatus e. grumi* (Stgr.) has nearly the same size of the underside spots in both sexes, so, that the differences vs. these ♀♀ look more abrupt.HW underside basal suffusion is reduced compared to ♂♂.

Biology: Not studied. The biotop seems to be more humid than for the nominate subspecies. Flies together with *Melitaea palamedes* Grum-Grshimailo. Butterflies were collected at 2000-2200 m a.s.l. also, but were always broken (keeping all distinctions and big size). Very local, not numerous.

Distribution and variability: The specimens collected at the eastern part of the North Alai belong to *P. e.* ***tatjana*** **subspec. nov.**, this material was not included in the type series because we prefer to limit the type locality in such a complicated case. Butterflies from Gulcha River are smaller, while specimens from Ak-Bura are very big.
We suppose that large series from intermediate territories of Alai will show some intermediate characters confirming the subspecies (not species) status of this new taxon (and second cluster as a unity). Worth to note that the species was not known from this part of Alai at all, and we were able to collect only a few specimens during many expeditions.

The new subspecies divides the area of the nominate taxon into two parts - Alajan and Tianshanian. On the other hand, it shows some (small) influence of the latter, uniting two very different lines of characters. This situation proves two hypotheses:
- The transalaian fauna penetrated North Alai (using different ways in different complexes) spreading in northern direction (as well as in eastern direction); we discussed it in several articles published during the last decade. The big part of the lepidopterous fauna of NE Alai is identical to that of south-western slopes of the Fergansky range and differs from the fauna of the main part of Alai.
- The genetic exchange between the West Tian-Shan and Alai-Turkestan system was possibly using two different ways. The first way - Fergansky Mts. - is obvious and usually discussed in entomological articles. However, not so far in the past, the other way was possible - "western bridge", between Kuraminsky range and Turkestan (line Leninabad-Kokand). This variant is well explored and proved in botanic publications and usually ignored by entomologists, while it presents the true explanation of many strange phenomena which are observed in the relationships between three zoogeographical areas: Alai-Turkestan, West Tian-Shan and neighbouring part of main Tian-Shan system.

Not so far in the past the species was distributed around the entire Fergana Valley (the nominate taxon may live at the altitudes 1100 m, even now), but now it nearly or fully disappeared at the eastern part of Fergana. The Fergansky Range is inhabited by taxon that originally belongs to the southern highland cluster of the subspecies which demonstrates also some influence of the former genetic exchange with older autochthon residents.
The specimen figured in the Kyrgyzian book by Tshikolovets (2005: 49: 1) represents the new subspecies, collected at Baubash-Ata Mts., inside the marked distribution area. We need to outline that another specimen at the same plate (Tshikolovets, 2005: 49: 8) has a wrong label "Zaalai", being very different from other figured Transalajan butterflies but similar to that with the label "Osh". Most probably, it is a mere misprint. The figured specimens from "Osh" looks like a nominate specimen, but the true locality is unknown.

Etymology: The new subspecies is named after Tatjana Kondratenko (Kyrgyzstan, Oktjabrskoye), the wife of our good friend since 1995, Victor Ignatchenko, whose apiary is situated at Kugart River and was our base during 20 years of the field work. Tatjana is the Honored Teacher of the Kyrgyz Republic.

***Afarsia antoninae s a l u k i* subspec. nov.** (tab. I: 25 - 32).
HT ♂: Kyrgyzstan, Uzgensky Mts., Jassy r., Kara-Shoro loc., 2950 m a.s.l., 17.07.2016, S. Churkin leg.
PTs: 11 ♂♂, 1 ♀, same data as HT, S. Churkin & V. Pletnev leg.; 1 ♀, same loc., 6.07.2015, S. Saluk leg.

Notes: The darkened representatives of this genus are distributed in the Asian mountain area and comprise about 10 described taxa. A detailed study was never done and all statuses were always provisional. Skala &. Weidenhoffer (2002) published the first serious and valuable analysis, limited to the bluish species only. It was proved that the ♂ genitalia bear taxonomically important characters.
The situation with the taxa *Lycaena iris* Staudinger, 1886 and *Lycaena iris* Lang, 1884 is correctly explained by Korb (2015). The valid lectotype designation of the first taxon was made by Balint (1999: 37; the second taxon belongs to the bluish species complex). Thus, the TL is not North Alai as many entomologists have been supposed for long, but "Samarcand", i.e. West Ghissar. The photos of the types are not available till now. The valid name for this taxon is *Afarsia neoiris* (Tshikolovets, 1997): *Polyommatus neoiris* Tshikolovets, 1997 nom. nov. pro *Lycaena iris* Staudinger, 1886 non *Lycaena iris* Lang, 1884.

Changing of the TL resulted in some other taxonomic consequenses: most probably *A. neoiris eremita* Churkin & Zhdanko, 2001 is the synonym of the nominate taxon (TL is West Ghissar also), while *A. n. chernjaki* Churkin & Zhdanko, 2001 may correspond to the subspecies distributed at North Alai. This can be true only if the subspecies status for the Northalajan populations will be proved in future.

The external variability of the complex shows some strange phenomena (see below) that resulted in a number of obvious mistakes. As a result, the taxon *P. jurii* Tshikolovets, 1997 was described based only on minor differences in colouration while the investigation of genitalia was not performed since the genitalia were not studied at all at that time. The full review of known taxa is out of the limits of the paper. However, some results of our study seem to be important, and we publish it as a first step for future studies. We worked in detail only with the populations from Alai, West Tian-Shan and Transalai, other taxa were not studied or studied only briefly since their areas are not connected geographically with the new subspecies.
The following taxa were observed: *A. neoiris* (Tshikolovets, 1997), *A. rutilans* (Staudinger, 1886), *A. antoninae* (Lukhtanov, 1999). In addition, the taxon *dushanbe* Lukhtanov, 1999, which certainly belongs to *A. hanna* (Evans, 1932) is added.
The external variability demonstrates two clearly obvious tendencies:
1) It is impossible to confuse any populations of different species having even short series; the combination of the upperside characters have much more serious taxonomic value than that of the underside;
2) some rare specimens may show the characters similar to another species, but never in the full combination of the distinctions - however, such rare specimens may confuse the scientist and presents the additional difficulty to outline the species features.

The genitalia have stable characters, any intermediate forms were not observed, the ♂♂ with some abnormal characters usually have normal ones for the species genitalia. At the same time, we did not find any evidence for cohabitating of two taxa - however, it seems possible at the southern part of the distribution area of the complex (in southern Ghissar and Khosratisho, where *Afarsia*-populations are common).

Afarsia neoiris (Tshikolovets, 1997): Upperside blackened with dark bronze shades, ♀♀ usually have bluish submarginal spots (the ♂♂ from West Ghissar usually have it also, while at North Alai even the ♀♀ without the bluish spots can be found). The underside is grey, the external (marginal) part of the antemarginal pattern is not reduced, usually this row of spots is wider than the internal row; d-spots often not fully blackened (not typical for North Alai); orange-reddish markings in the anal-cubital antemarginal spots at the HW underside are small, not bright and usually not clearly obvious.
The problem is that some (exceptional) specimens have a slightly whitish underside, sometimes the underside is strongly darkened, so that the antemarginal underside spots become obviously reduced or too blackened. However, the upperside is never truly reddish and has only bluish colour spots if colour spots are developed.
The distribution area covers Ghissar (in zoogeographical sense), the western half of the northern slopes of Alai (and, certainly, the western macroslopes of the ranges of South Ghissar). The status of the populations from the southern slopes of Ghissar Range and the West Pamirs needs clarification. It was not known from the eastern part of North Alai - moreover, *Afarsia* spp. as a whole is not known from this territory.

Afarsia rutilans (Staudinger, 1886): The upperside is dark-reddish, or reddish-bronze with some variability (sometimes the colour is darkened, sometimes truly reddish - moreover, older specimens become paler!); the upperside colour spots (if developed) are red or (sometimes) red with sometimes obvious thin bluish lines. Underside is light-grey or whitish, the external (marginal) part of the antemarginal pattern is reduced, this row of spots is often partly erased or consists of linear thin spots. It means that the widths of the spots of two rows of the antemarginal pattern looks more or less the same (or external row is less developed, even reduced), the internal row often blackened. D-spots usually fully blackened; orange-reddish markings at the anal-cubital antemarginal spots on the HW underside are well developed.
The variability is even more than in previous species. Sometimes (especially in severe climatic conditions, for example,

upper stream of Muksu River) the underside is very dark, sometimes clearly whitish, sometimes the internal antemarginal row at the underside is deep black, sometimes slightly dark greish. However, the comparison of the long series, originated from Aram-Kungei (West Transalai) and Ganishou (Peter the Great Range), shows neither the possibility to divide both populations into two species - *A. rutilans* (Staudinger, 1886) and *A. jurii* (Tshikolovets, 1997) nor to note the stable differences between them. We have one line of the variability with identical genitalia.
The distribution area covers Darvaz (Darwas) in zoogeographical sense and neighboring part of Alai Valley (i.e. southwestern slopes of Alai and northern slopes of Transalai). There are no points about the main part of the Alai or Central part of Transalai.

Afarsia antoninae (Lukhtanov, 1999): The upperside is similar to that of the previous species being often more intensive and bright; the upperside colour spots are bluish (the ♀♀ often have full row of bluish spots on the HW, while the ♂♂ have a row of dark linear spots which sometimes have visible bluish scales). The underside is similar to that of *A. rutilans* (Stgr.), the variability is even greater, exceptional specimens may recall *A. neoiris* (Tshikolovets, 1997).
Distributed at West Tian-Shan only.

Afarsia hanna dushanbe (Lukhtanov, 1999): The underside is fully dark without shining scales, visble bronze shades or something like this. The wings are often widened, so, that the general shape of the butterfly is square; however, smaller specimens often have a rectangular wing shape, i.e. typical for the complex. The underside is not so variable (we studied 150 specimens) with the special pattern [moderately similar to that of *A. neoiris* (Tshikolovets, 1997)] which is typical for the types of *A. hanna* (Evans, 1932).
The distribution area extends from Pakistanian semideserts/foothills to the South-Tadjikian Depression (such areas are known for some Satyridae as well). Inhabits low and medium altitudes, was never found at the highlands, in contrast to all other studied taxa.

Genitalia: Skala & Weidenhoffer (2002) found that the ♂ genitalia of the bluish taxa have several taxonomically valuable sclerites: juxta (furca), dorsal (dorso-distal) process of the valva, uncus (labides) and (partly) aedoeagus. We confirm it for the complex in study, with one important addition: the main species distinctions are provided by the structure of the aedoeagus. Other sclerites are important when dividing the complex into parts, while the aedoeagus is absolutely specific. The marked difference may present the feature of the two complexes of the genus (blush and dark coloured), but it is possible also that the scientists paid too much attention to the unusual structure of the dorsal process, while the absence of the attention to aedoeagus resulted in some difficulties with final statuses and distribution of numerous bluish taxa.
Korb (2015: fig. 1-2) also published photos of the genitalia. Unfortunately, all of them are not useful. Curiously, Korb namely wrote that the first author of the present paper used the wrong variant of the genitalia preparation and postulated that it is necessary to follow Stradomskyi. The latter scientist used the cover glasses to flatten the processes of the valva when he studied different *Polyommatus* spp. This method is logical and valuable, but only if we are working with small sclerites - and even in this case the deformation of the complicated structure might present the problem for the interpretation. Such method is senseless and dangerous when dealing with the entire genitalia, as it was marked several times (for example: Churkin & Tuzov, 2005). Being used for the wrong application, this method simply results in the destruction of sclerites and the deformation of all. The photos published by Korb showed some unclear differences of the juxta, while the shape of the labides and valve had nothing to do with the reality; the aedoeagus is always not obvious. It is a pity when some one does not only teaches how to do the work which he does not understand, but also has the possibility to dissect the types in the museums. We hope that types' genitalia were not fully destroyed by the end of preparation of the photos.

Besides, the genitalia of the genus present a difficult case: the typical lateral general view is practically useless in simple comparison (fig.1: 1, 2, 3). The structure of uncus (labides) is so complicated, that in a practical sense it is not so valuable; the same is true for the dorsal process of the valve. The species characters - even if present - are obscured because the shapes much depend on the angle of vision, or far stronger magnification is required.
At the same time it is easy to notice that many sclerites are different in different taxa and demonstrate the stability on series. Based on it, we cut several genitalia to make separate photos where all differences are visible. Using this plate, the taxonomist can easily make the identification of the genitalia without cutting more.
From the lateral side, *A. antoninae* (Lukhtanov) differs because the dorsal process of the valva looks like a hook (fig.1: 1), the series of widened light spines at the distal end of the process is not obvious. In all other species this process is rotated in a different level and looks wider, as a palm, the series of widened spines being obvious (fig.1: 3). The angle of vision is very important and even minor change of it results in a different shape of the process. The number and width of the spines is valuable, but seems not so useful in practical taxonomy. However, we did not find such pronounced distinctions of the spines as it was found for the blush species (Skala & Weidenhoffer, 2002).
The shape of the valva (fig. 2: E) is not very variable, but not truly specific. All species are characterized by a long proximal part, the distal part is sometimes more or less bunchy.
Vinculum and tegumen suprisingly present two very different variants (fig. 2: D): in *Afarsia antoninae* (Lukhtanov) it is rounded (circular), while in other species, especially *A. neoiris* (Tshikolovets) and *A. rutilans* (Stgr.), the form is elongated-oval, even slightly rectangular. Worth to note that the size of the vinculum is much smaller in the first species

while the size of the butterflies is almost the same.
Each uncus presents a curved long plate with a strongly deflected (i.e. dorsally) outer angle. This deflected angle looks like a hook from the lateral side. The complicated structure is difficult to use in comparison. From the ventral side, the general shape of the uncus divides the complex into two parts: all species have it harp-shaped, i.e. the labidial bridge is widened and circular while the labides look massive and long. In contrast, *A. antoninae* (Lukhtanov) has it horseshoe-shaped, the labides look short with tapered ends (in reality the outer angles of the labides are short but so strongly curved that is not visible from the ventral view).

The size and form of the juxta (furca) logically correlates with the size and form of vinculum/tegumen (fig. 2: C) and demonstrates (not strongly) specific level of the distinctions. *Afarsia rutilans* (Stgr.) has a long and thin juxta, *A. neoiris* (Tshikolovets) - a thick juxta which is slightly shorter but with distinctively widened basal third part. Juxta of *A. h. dushanbe* (Lukhtanov) is similar to the latter but much shorter, the juxta of *A. antoninae* (Lukhtanov) is very short but not as thin as in *A. rutilans* (Stgr.).
As noted, the aedoeagus bears the most serious distinctions. From the lateral view it presents thick short massive sclerite with short distal part (fig. 2: B). From the dorsal or ventral view, the proximal part is not so massive, often slightly narrowed at the middle, the dorsal part often inflated (fig. 2: A, number 2 and 5 show the everted vesica).
The distinctions of the aedoeagus are as follows:
- *Afarsia h. dushanbe* (Lukhtanov) - the proximal part is not inflated/thickened from the ventral/dorsal view, aedoeagus thin and straight with moderately long and thin distal part;
- *Afarsia rutilans* (Stgr.) - aedoeagus is long, massive with distinctively curved distal part, the length of this part is less than 35% of the proximal part, the distal part is strongly inflated; the proximal part has more or less the same width throughout the length;
- *Afarsia neoiris* (Tshikolovets) - aedoeagus is obviously shorter than in the previous species, gradually slightly widened towards the distal part, the distal part is short, only slightly inflated, has nearly rectangular shape; the length of the distal part is obviously much less than in *A. antoninae* (Lukhtanov) (as it is clearly shown at the fig. B: 3, while fig. A: 3 looks a little bit wrong because of the not fully horizontal position of the sclerite of the glass);
- *Afarsia antoninae* (Lukhtanov) - aedoeagus is much shorter than in *A. rutilans* (Stgr.), but strong and massive from all views; the distal part is strongly inflated [in contrast to *A. neoiris* (Tshikolovets) and *A. h. dushanbe* (Lukhtanov)], the length of this part is around 35% comparing with the proximal part, the proximal part from the lateral view is inflated at the base.

The characters of the aedoeagus are enough to make a good identification of the specimen, especially with the additional information from juxta and dorsal process.

Description and diagnosis: FW length 12 mm in the HT, 11-12.5 mm in the ♂♂ PTs (12 mm as a rule) and 12-12.5 mm in the ♀♀. The size is slightly less than in *A. rutilans* (Stgr.), but seems the same as in the normal populations of *A. neoiris* (Tshikolovets) or *A. antoninae* (Lukhtanov).
The colouration of the head, antennae and body have no serious distinctions.

♂: The upperside colouration is similar to *A. neoiris* (Tshikolovets) but with paler brownish-reddish bronze hue. Even slightly not fresh specimens have this shining much more obvious and looks like bi-coloured because the marginal parts are blackened (the latter feature is normal for all representatives of the complex). The discal spot at the FW is well developed and only slightly obvious at the HW. FW without expressed series of blackish or bluish spots [in opposite *A. antoninae* (Lukhtanov)]. The HW is simply dark, sometimes the series of thin bluish submarginal spots is expressed.
The underside is whitish with large blackish spots so that the whitish rings around the spots are inconspicuous.
The FW underside is typical for the complex pattern, antemarginal pattern with reduced/erased external row. The spots of the latter are thin, not so dense compared to the internal spots that are usually blackened and thick.
The HW underside has the same characters. The basal bluish suffusion is extended to the basal row of spots but not strong. The anal-cubital antemarginal spots with developed but not bright orange-yellowish spots. Other elements are typical for the complex.

The variability is moderately high, especially at the underside which sometimes darker and sometimes clearly white, the external spots of the HW antemarginal pattern sometimes are vague but widened and rounded grey. The underside of *A. antoninae* (Lukhtanov) is also not stable - more than that of other studied taxa: certainly due to the absence of the contacts with other species.
One ♂ has clearly grey underside with expressed whitish rings around the spots that results in the more expressed contrast between the blackened internal row of spots comparing with erased external row [i.e. while the ground colouration becomes more similar to *A. neoiris* (Tshikolovets), other distinction that unites new taxon with *A. antoninae* (Lukhtanov) and *A. rutilans* (Stgr.) becomes more visible] (tab.I: 28, 32).

Genitalia (fig. 1-2, fig. 2: A2, B2, C2, D2, E2): The size of the genitalia is small, obviously smaller even than in *A. antoninae* (Lukhtanov). We dissected only 3 males, but this character seems stable.
From the lateral side of view the "hook" is not so formed compared with that of *A. antoninae* (Lukhtanov), however, the width of the dorsal process is not as wide as in *A. neoiris* (Tshikolovets). Valva is short, with short proximal part and bunchy distal part [*A. antoninae* (Lukhtanov) have the proximal part is obviously longer, distal part is not so bunchy].
Vinculum/tegument system is similar to that of *A. antoninae* (Lukhtanov) being moderately circular, uncus also similar to the latter species. The juxta is very small, but thick with distinctively narrowed ends of the branches.
The aedoeagus is small, thick and massive even from the ventral/dorsal view [in the opposite to *A. h. dushanbe* (Lukhtanov)]. The distal part is strongly inflated [in the opposite to *A. neoiris* (Tshikolovets)] and similar to that of *A. rutilans* (Stgr.) while the size of the proximal part is much shorter. The structure of the aedoeagus is similar to that of *A. antoninae* (Lukhtanov) but the distal part looks longer and the aedoeagus is straight.

♀: The bronze hue is more expressed and paler, the butterflies looks unusually bi-coloured. HW upperside with the series of bluish spots in unclear reddish areolas [in the opposite to *A. neoiris* (Tshikolovets)]. Underside is more brownish than that of the ♂♂, the antemarginal pattern is wider so that the external spots look wider but vague (this sign of the sexual

dimorphism is present in the complex as a whole), the internal spots are obviously more blackened and expressed.

Diagnosis: The underside distinctions clearly suggest an *antoninae-rutilans* variant, while the upperside is dark bronze and similar to that of *A. neoiris* (Tshikolovets). However, bicoloured ♀♀ are absolutely not typical for the latter species, the developed bluish spots with reddish areolas similar to that of *A. antoninae* (Lukhtanov). Such a combination - together with full isolation of the distribution area - might indicate the species status of the new taxon. The characters of the genitalia clearly show the close relationship with *A. antoninae* (Lukhtanov), but the aedoeagus is not fully identical. If it can confirmed that the size of genitalia is always obviously smaller as well as some other small distinctions listed above, the status can be raised.

Biology: The new taxon was found at the top of a moderately dry peak, the butterflies flew at the small steep stony slope. The density of the population is not high. The food plant is unknown.

Distribution: Known only from the TL In spite of all efforts, *Afarsia* spp. were nowhere else found in the NE part of Alai or other ranges/places in the system of the Fergansky Range.

Etymology: The taxon is named after Sergei Saluk (Minsk), professional entomologist and permanent member of our expeditions who collected the first specimen in 2014.

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Addresses of the authors

Sergei V. Churkin
Jubileinyi pr., 14-168
Reutov, 143952, Moscow reg.
Russia
serghelios16@gmail.com

Vladimir A. Pletnev
All-Russian Institute of Plant Protection
Chemicals,
Ugreshskaya str. 31
Moscow, 115088, Russia

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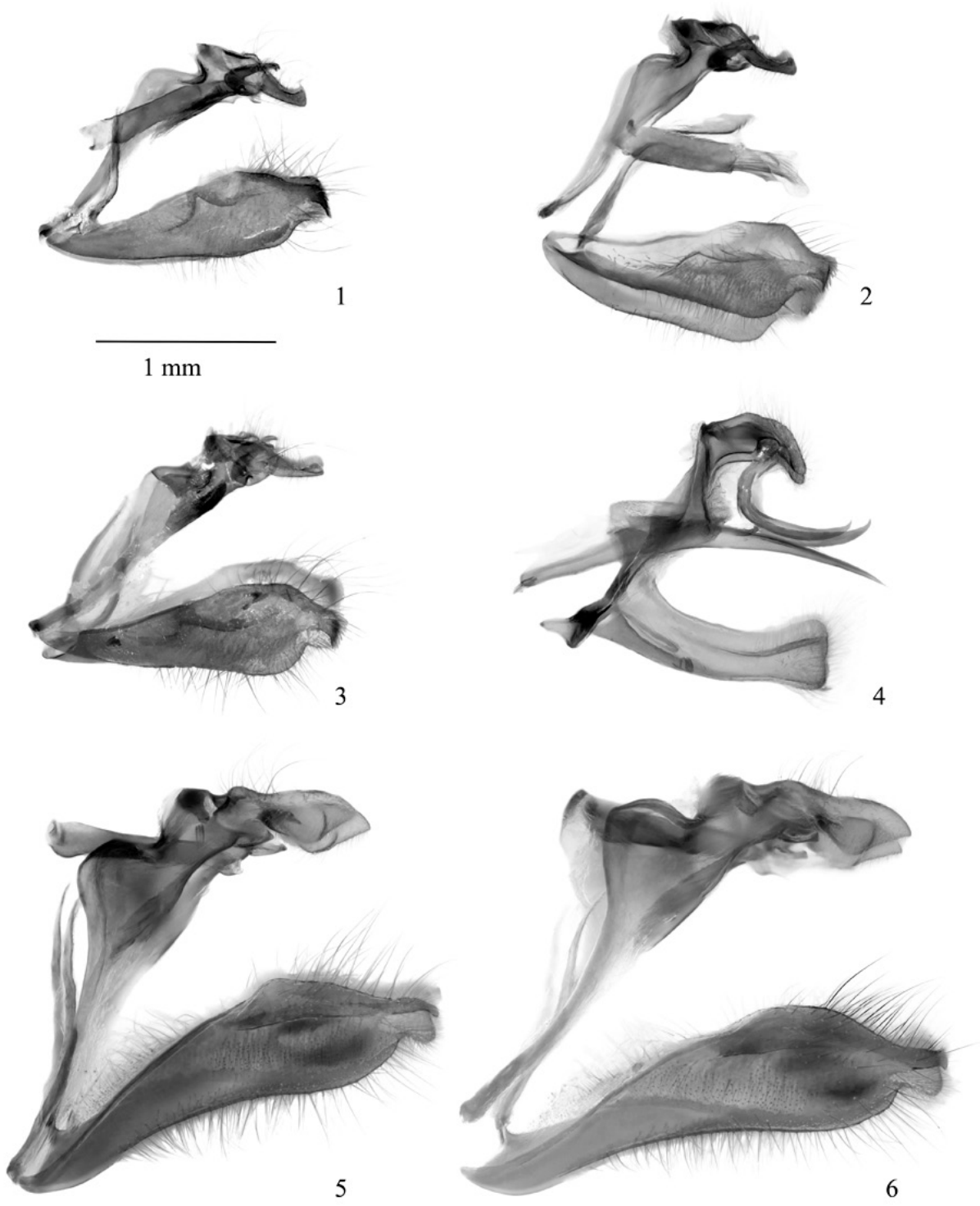


Fig.1: Genitalia, ♂, lateral view: (1) *Afarsia antoninae* (Lukhtanov, 1999) (West Tian-Shan, Sandalash Mts., Kurgan-Sai v., 2500 m, 8.07.1999, K. Kolesnichenko leg.); (2) *Afarsia antoninae* ***saluki*** **subspec. nov.**, PT (Kyrgyzstan, Uzgensky Mts., Jassy r., Kara-Shoro loc., 2950 m., 17.07.2016, S. Churkin leg.); (3) *Afarsia neoiris* (Tshikolovets, 1997) (Kyrgyzstan, Alai Mts., Kollektorsky Range, Dugoba r., 2800 m, 19.07.1995, S. Churkin); (4) *Athamanthia infera* ***olga*** **subspec. nov.**, PT (Tian-Shan, Arpa river vall., Chon-Karakoman r., 2700-2900 m, 24-25.07.2016, S. Churkin leg.); (5) *Polyommatus yarkundensis* ***indago*** **subspec. nov.**, PT (Inn.Tian-Shan, Arpa river vall., Arpa v., 2900 m a.s.l., 18.07.2012, S. Churkin leg.); (6) *Polyommatus effatus* Churkin & Zhdanko, 2008, PT (Kyrgyzstan, Tian-Shan, Baibiche-Too Mts., Orto-Syrt v., Kalkagar R., 2900 m, 15.07.2006, S. Churkin leg.).

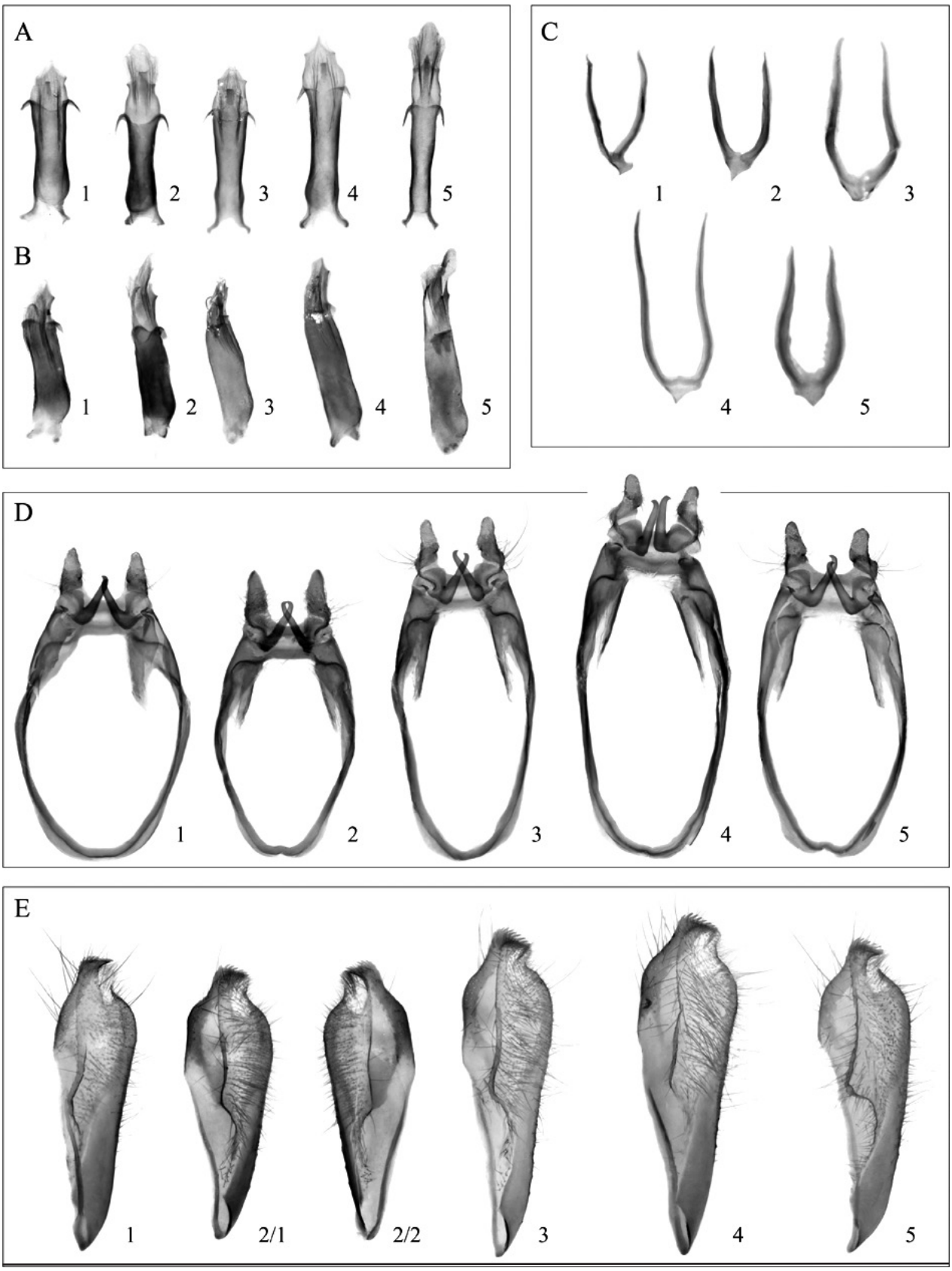
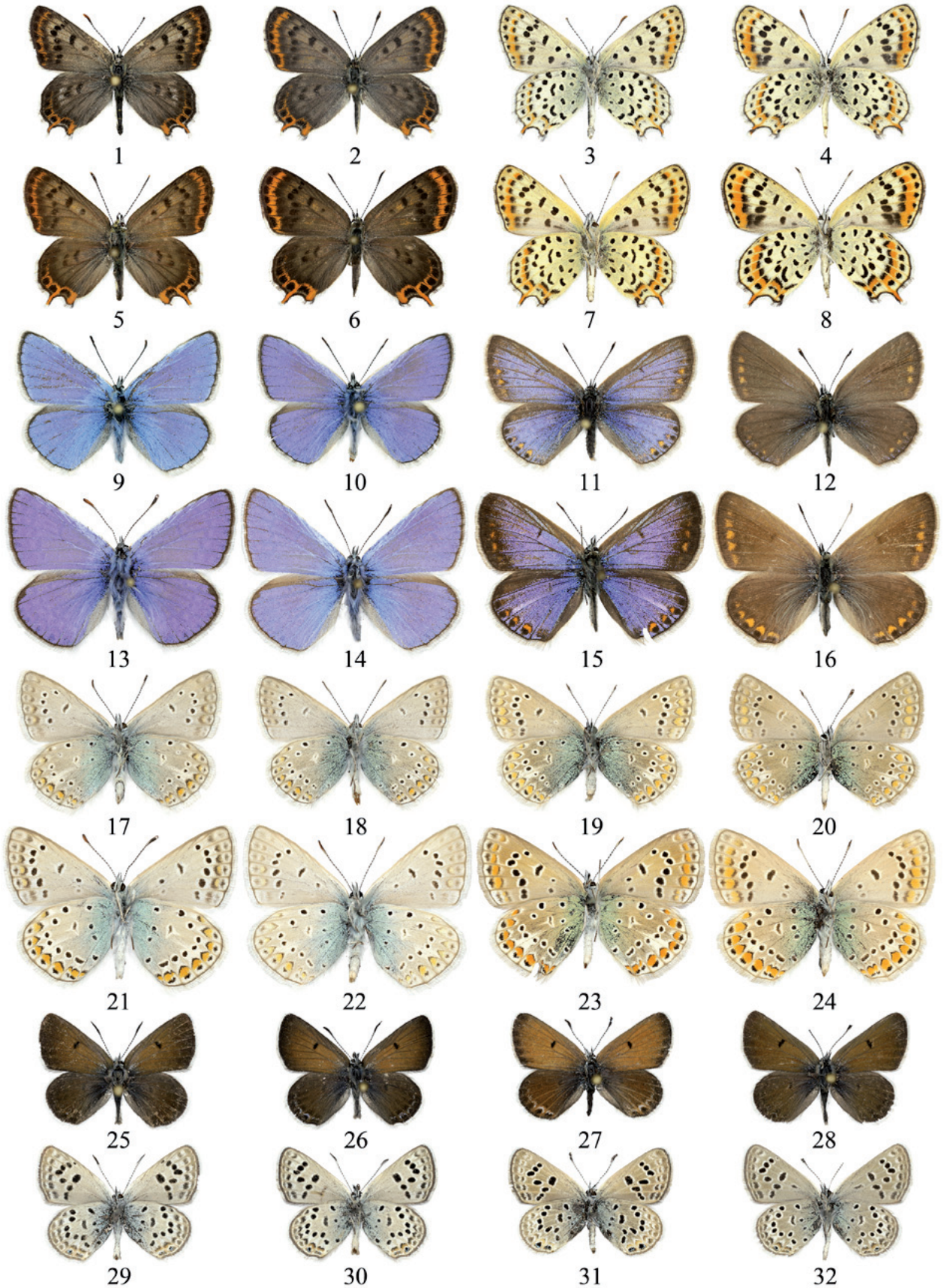
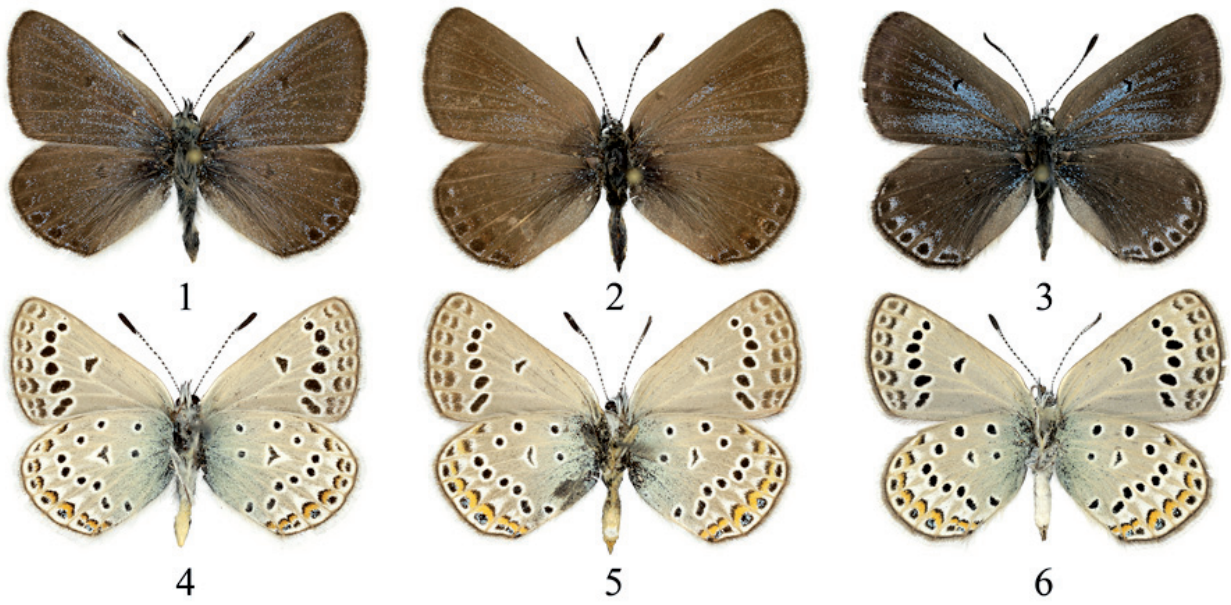


Fig. 2: Genitalia of *Afarsia* spp., details (A - aedoeagus, ventral/dorsal view; B - aedoeagus, lateral view; C - juxta; D - vinculum, tegument, and uncus; E - valva): (1) *Afarsia antoninae* (Lukhtanov, 1999) (West Tian-Shan, Chatkal Mts., Chanach Pass, 3000 m, 12.07.2001, S. Churkin leg.); (2) (2/1, 2/2) *Afarsia antoninae* ***saluki*** **subspec. nov.**, PT (Kyrgyzstan, Uzgensky Mts., Jassy r., Kara-Shoro loc., 2950 m, 17.07.2016, S.Churkin leg.); (3) *Afarsia neoiris* (Tshikolovets, 1997) (Kyrgyzstan, Alai Mts., Kuruksai r., Garati Pass, 2200 m, 8.-13.07.2005); (4) *Afarsia rutilans* (Staudinger, 1886) (Kyrgyzstan,West Transalai, Aram-Kungei vall., 3000 m, 5.07.1994, L. Churkina leg.); (5) *Afarsia hanna dushanbe* (Lukhtanov, 1999) (S. Tadjikistan, Gardaniushti Mts., Karabulok loc., 1200 m, 15.06.2000, S. Churkin leg.). (A-3: the actual length is longer in reality, see in the text).



Tab. I (130% of natural size): (1, 3) *Athamanthia infera* ***olga*** **subspec. nov.**, HT ♂ (Inn.Tian-Shan, Arpa river vall., Kichi-Karakoman r., 2650 m, 26.07.2016, S. Churkin leg.); (2, 4) *A. i.* ***olga*** **subspec. nov.**, PT ♀ (same data); (5, 7) *A. i. pseudoinfera* Churkin, 2006, PT ♂ [Inn.Tian-Shan, Fergansky Mts. (eastern edges), Urum-Bash R., 1600 m, 29-30.06.2005, S. Churkin leg.]; (6, 8) *A. i. pseudoinfera* Churkin, 2006, PT ♀ (same data); (9, 17) *Polyommatus yarkundensis* ***indago*** **subspec. nov.**, HT ♂ (Inn.Tian-Shan, Arpa river vall., Arpa v., 2900 m, 18.07.2012, S. Churkin leg.); (10, 18) *P. y.* ***indago*** **subspec. nov.**, PT ♂ (violet form, same data); (11, 19) *P. y.* ***indago*** **subspec. nov.**, PT ♀ (blue form, same data); (12, 20) *P. y.* ***indago*** **subspec. nov.**, PT ♀ (brown form, same data); (13, 21) *Polyommatus icarus* ***effatus*** **subspec. nov.**, PT ♂ (Kyrgyzstan, Tian-Shan, Baibiche-Too Mts., Beuroily loc., 2950 m, 11.07.2006, S. Churkin leg.); (14, 22) *P. icarus* ***effatus*** **subspec. nov.**, PT ♂ (slightly bluish form, Kyrgyzstan, Tian-Shan, Baibiche-Too Mts., Orto-Syrt v., Kalkagar R., 2900-3000 m, 15.07.2006, S. Churkin leg.); (15, 23) *P. icarus* ***effatus*** **subspec. nov.**, PT ♀ (violet form, same data as 14); (16, 24) *P. icarus* ***effatus*** **subspec. nov.**, PT ♀ (brown form, same data as 14); (25, 29) *Afarsia antoninae* ***saluki*** **subspec. nov.**, HT ♂ (Kyrgyzstan, Uzgensky Mts., Jassy r., Kara-Shoro loc., 2950 m, 17.07.2016, S.Churkin leg.); (26, 30, 28, 32) *A. a.* ***saluki*** **subspec. nov.**, PT ♂ (31 - unusual form; same data); (27, 31) *A. a.* ***saluki*** **subspec. nov.**, PT ♀ (same data). (1, 2, 5, 6, 9 - 16, 25 - 28) upperside; (3, 4, 7, 8, 17 - 24, 29 - 32) underside.



Tab. II (130% of natural size): (1, 4) *Plebejus eversmanni* ***tatjana*** **subspec. nov.**, HT ♂ (Kyrgyzstan, Fergansky Mts., 15 km E Kalmak-Krchin v., Kugart R., 2500 - 2600 m, 3-4.07.2006, S. Churkin leg.); (2, 5) *Plebejus eversmanni* ***tatjana*** **subspec. nov.**, PT ♀ (typical form, same data as 1); (3, 6) *Plebejus eversmanni* ***tatjana*** **subspec. nov.**, PT ♀ (bluish form, same loc., 20.-21.06.2013, 2500-2700 m, S. Churkin leg.). (1, 2, 3) upperside; (4, 5, 6) underside.