**Taxonomic studies on the *Callophrys suaveola* STAUDINGER, 1881 - species group: a new species from Central Afghanistan**

*(Lepidoptera, Lycaenidae)*

by

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Summary: A new species, *Callophrys afghana* spec. nov. from Central Afghanistan (Bamian Province) is described and illustrated. The most allied species is *C. titanus* ZIDANKO, 1998, differences were found in genitalia of ♂♂ and ♀♀. The discovery of the new species in this region is very important in the zoogeographical point of view.

**Callophrys a f g h a n a spec. nov.** (figs. 5-8)

Holotype ◆ Central Afghanistan, Bamian Province, 10 km S Bamian, Hashkak vill., 2600-2800 m, 29.-30.V.2010, O. PAK & E. IVANOVA leg. Paratypes (5♂♂, 1 ♀♀); 3♂♂, 1 ♀♀; the same data, all O. PAK & E. IVANOVA leg.; 2♂♂, the same location, 20.V.2010, I. PLUSHTICH leg. The holotype is deposited in the collection of the Zoological Museum of Moscow State University (ZMMU); the paratypes are in the collections of the authors.

**Description.** ♂ (figs. 5, 6): Antennae black, white-ringed at bases of segments, club dark, its base below white, terminal segments (apiculus) brown. Eyes brown with small white hairs, surrounded by white strip ahead and white and green scales behind. Frons green with white hairs, top of head with green scales and greenish hairs. Palpt: 2nd segment black with green scales and white and black hairs on the outside and white hairs on the inside; 3rd segment black with white hairs on the top. Thorax: upperside black with grey hairs, underside green with white hairs. Abdomen: upperside brown, underside grey with grey hairs. Upperside (fig. 5). Forewing: ground colour brown, varying from pale to dark brown; basal area overlaid by large brown scales; costal edge with yellowish scales; veins and outer margin marked by dark brown scales; inner margin and base of space 1a covered by brown hairs. Androconial spot large, varying in colour from grey to black. Fringe dirty-white, with brown and dark-brown scales at the base. Hindwing: slightly waved between veins 1b - 5; ground colour the same as on forewing; spaces 7 - 8 and half of space 6 covered by grey scales; cell covered by grey scales at the base; spaces 1a and 1b covered by pale grey scales; basal and discal area covered by greyish-brown hairs; veins and outer margin marked by dark brown scales; fringe the same as on forewing, chequered with dark scales along veins. Anal lobe not developed; anal angle with small brush of long dark scales. Outer margin (termen) beginning from V2 and inner margin (dorsum) are covered by long white hairs.

Underside (fig. 6). Forewing: ground colour pale green with grey scales, except of spaces 1a and 1b which are grey; basal area of wing with emerald-green scales and rare greenish hairs. Spaces 1a and 1b grey, distal part of space 1b with green scales. Costa with yellowish scales. Postdiscal row of white spots reduced in the holotype specimen, present as small groups of white scales in some of the paratypes. Hindwing: ground colour the same as on forewing but emerald-green scales cover basal area and part of discal area of wing; almost the whole wing covered by greyish-green hairs, more intensely in basal area. Postdisical row of white spots present in spaces 2 - 8 in the holotype, in the paratypes more or less reduced. Forewing length 14 mm in the holotype and the paratypes.

♂ genitalia (fig. 1): Uncus deeply divided by tegumen, as broad as 0,7 of width of vinculum in ventral view, with well-developed inward lobes; falces (subunci) slender, oblique, crossing at sharp angles. Clasps long, basally wide at 3/4 of the length, distally narrowed. Saccus long, triangular (one specimen with spoon-like top of saccus), as long as 1/3 of the general length of genitalia. Aedeagus slender, 1,6 times longer than the general length of genitalia, cornuti strongly serrate.

♀ genitalia (fig. 7): The single ♀ is similar to the ♂♂ in general characters but smaller (13 mm), margin of forewing rounded (♂: margin of forewing straight). Underside (fig. 4): spotting pattern reduced (small groups of white scales present in space 1 and space 7).

♀ genitalia (fig. 8): papillae anaes conic, small, hairy; apophyses posteriores, straight, flat, 1,5 much longer than the length of papillae anaes. Antrum plate-like, with strongly reduced lateral lobes, central lobe with small hollow. Ductus bursae strong, extending basally, 1,5 times much longer than the length of antrum from top of central lobe to base. Corpus bursae membraneous with granulous surface, bears two signa, each with two unequal spines.

**Differential diagnosis and discussion.** The new species belongs to the *C. suaveola* STAUDINGER, 1881-species group and shares the wing pattern and the structure of genitalia characterizing this group:

- absence of the anal lobe on hindwing;
- pale green underside with more or less reduced row of postdiscal white spots;
- whitish fringes and hairs on wings;
- yellowish costa of forewing;
- slender ♂ genitalia with thin saccus and long clasps, uncus deeply divided by tegumen;
- ♀ genitalia with almost or completely reduced lateral lobes of antrum and strong ductus bursae.

**Callophrys afghana spec. nov.**, is most closely related to *C. titanus* ZIDANKO, 1998 (figs. 1-4). Status of *C. titanus* ZIDANKO from Ghissaro-Darvaz and Pamiro-Alai still is unclear. TEN HAGEN & MILLER (2010) synonymized this species with *C. suaveola* STGR. on a base of absence of differences in sequences of COI gene of two species. But examination of specimens of *C. titanus* ZIDANKO from different parts of its areal shows that there are a lot of valuable constant differences in the structure of genitalia, shape and colouration of wings in *C. titanus* ZIDANKO. Another reason to consider it as a distinct species.
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References


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Fig. 1: *Callophrys afghana spec. nov.* ♂ genitalia (A - ventral view, B - lateral view, C - aedeagus, lateral view, D - cornuti, ventral view).

Fig. 2: *Callophrys afghana spec. nov.* ♀ genitalia (A - antrum, ductus bursae and corpus bursae with signa, dorsal view, B - id., lateral view, C - papilla analis and apophysis posteriorum).

Fig. 3: *Callophrys titanus* ZDANKO, 1998, ♂ genitalia (A - ventral view, B - lateral view, C - aedeagus, lateral view, D - cornuti, ventral view).

Fig. 4: *Callophrys titanus* ZDANKO, 1998, ♀ genitalia (A - antrum, ductus bursae and corpus bursae with signa, dorsal view, B - id., lateral view, C - papilla analis and apophysis posteriorum).
Fig. 5-8: *Callophrys afgana* spec. nov., Central Afghanistan, Bamian Province, 10 km S Bamian, Hushkak vill., 2600-2800 m, 29.-30.V.2010, O. Pak & E. Ivanova leg. (5,6) holotype ♂, ZMMU, (7, 8) paratype ♀, coll. Anatoly V. Krupitsky.

Fig. 9-12: *Callophrys titanus* Zhdaiko, 1998, Tadjikistan, Peter the Great Range, Dzhirgetal dist., vic. of Mingbulak vill., 1500 m, 20.-24.V.2011, A. Zubov leg. (9, 10) ♂, (11, 12) ♀, coll. Anatoly V. Krupitsky.

Fig. 13, 14: Habitat of *Callophrys afgana* spec. nov., Central Afghanistan, Bamian Province, 10 km S Bamian, Hushkak vill., 2800 m.