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**A new species of *Glaphyrus* Latreille, 1802 (subgenus *Eoglaphyrus* Semenov, 1926) (Coleoptera: Scarabaeoidea: Glaphyridae) from Afghanistan**

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**Key words:** Coleoptera, Scarabaeoidea, Glaphyridae, *Glaphyrus*, new species, Afghanistan.  
**Abstract:** *Glaphyrus (Eoglaphyrus) afghanisticus* Skrylnik & Pak, **sp. n.** is described from Central Afghanistan, having significant difference from single known species of this subgenus - *Glaphyrus (Eoglaphyrus) turkestanicus* Semenov, 1889.

**Acronyms of collections:**

IP - collection of I.G. Pljushtch, I.I. Schmalhausen Institute of Zoology of the National Academy of Sciences of Ukraine, Kyiv, Ukraine;

OP - collection of O.V. Pak, Donetsk, Ukraine;

YS - collection of Y.E. Skrylnik, G.M. Vysotsky Ukrainian Research Institute of Forestry & Forest Melioration, Kharkiv, Ukraine.

**Introduction**

A.P. Semenov (1889) described *Glaphyrus turkestanicus* Semenov, 1889 based on single female caught on 28.V.1888 in Zarafshan valley (*Promontoria montium Zerafschanensium inter Jaban et Gussar* - as in description). Later he (Semenov 1892) described a series of 10 specimens (all females), collected in 1878 by Valerian Russow in Zarafshan valley (*Pendshakent et Kshtut* - as in description) under another name *Glaphyrus sogdianus* Semenov, 1892. A. Champenois (1898) found a gynandromorph in the type series of *G. sogdianus*, which was included in females by A. Semenov, because hind femurs were not widened as in most *Glaphyrus* species. So, A. Champenois assumed synonymy with

*G. turkestanicus*. Later A. Champenois (1903) published a survey of the genus *Glaphyrus*, where he ascribed green elytra to *G. turkestanicus*, while elytra of uniformly reddish color with very light green glint belong to color variation *sogdianus* Semenov, 1892.

S.I. Medvedev (1960) gives full description of *G. turkestanicus*, and records its founds in Central Afghanistan (Koh-i-Baba Mts.).

Currently the genus *Glaphyrus* includes 3 subgenera: *Eoglaphyrus*, *Glaphyrus* и *Hemiglaphyrus*, a total of 39 taxa (30 species and 9 subspecies) (Nikodym, Keith, 2007; Sabatinelli, Miessen & Rittner, 2012; Nikodým & Bezděk, 2016; Shokhin, 2019). *Eoglaphyrus* had only one taxon until now. Here we describe the second species of this subgenus. During our expeditions to Afghanistan in 2009-2016 (jointly with Igor Pljushtch, entomologist from Kyiv, Ukraine) we collected a big series of *Glaphyrus* (*Eoglaphyrus*) sp., and these beetles have significant difference from *Glaphyrus* (*Eoglaphyrus*) *turkestanicus* Semenov, 1889. Below are description, illustrations and differential diagnosis of the new species.

*Glaphyrus* (*Eoglaphyrus*) *turkestanicus* Semenov, 1889

Fig. 1, 3, 5, 9-11, 15-17

*Glaphyrus sogdianus* Semenov, 1892: 477

**Type locality:** Turkestan - promontoria montium Zerafschensium inter Jaban et Gussar - according to the original description.

**Material:** 4♂♂, 1♀, S TAJIKISTAN, Khatlon reg., Shurabad env., h=2000 m, 14.07.2012, O. Legezin leg. - YS, OP; 3♂♂, 2♀♀, UZBEKISTAN, Zeravshan Mt. Range, Tachtakaracha Pass env., h=1800m, 1.07.2003, O. Legezin leg. - YS, OP.

*Glaphyrus* (*Eoglaphyrus*) *afghanistanicus* Skrylnik & Pak, **sp. n.**

Fig. 2, 4, 6-8, 12-14, 18-25

**Description.** Male (Fig. 2, 4, 12). Habitus resembles that of *G. turkestanicus*. Body large, oblong. Clypeus clavate, keel clear and reaches transverse keel between eyes. Club small, 3<sup>rd</sup> antennal segment clavate. Erect setae on anterior angles of pronotum light in

color, but slightly darker than surrounding hairs (Fig. 13). Scutellum large (larger than in *G. turkestanicus*), strongly rounded triangular. Elytra covered with dense rufous pubescence. There is longitudinal bolster below scutellum. On internal margin of elytra, setae not reaching scutellum for 1/5 of all distance. Setae on epipleurae and on internal margin of elytra small and light. Apex of elytra closer to central axis of elytra. Propygidium and pygidium covered with dense rufous pubescence. Claws of hind tarsi short, weakly curved and seen as stumpy (Fig. 14). Hind coxae shortened with not abducted apex (Fig. 19).

Aedeagus dark, without visible bulb in central part, curve begins from center, parameres in central part with clear curve. Endophallus symmetrical, consists of two cells (Fig. 20). Basal cell less convex, gradually tapering towards the constriction, its apical part contains two weakly developed tubercles. Apical cell reduced basally.

Color copper red, legs black, fore tarsi brown, abdomen dark brown.

Holotype: length 19.4 mm, width 8.3 mm. Male paratypes: length 20.3-15.8 mm, width 8.3-7.1 mm.

Female (Fig. 6-8). Base of pronotum has a series of punctures, other space completely smooth, without punctation and pubescence. Apex of elytra closer to central axis of elytra. 5% of females bear traces of ribs on elytra (Fig. 7). Pronotum dark copper, sometimes with greenish tint. Elytra light brown, sometimes with copper or greenish tint, 3% of females were golden green in color, pronotum with weak copper tint (Fig. 8).

Allotype: length 17.5 mm, width 8.8 mm. Female paratypes: length 17.6-13.2 mm, width 8.8-6.5 mm.

**Differential diagnosis.** The new species is close to *Glaphyrus turkestanicus*, but clearly differs by several significant characters. All marked diagnostic differences are placed in Table 1 (based on male characters).

**Type material:** Holotype (Fig. 2, 4): 1♂, C AFGHANISTAN, Bamyan prov., 5,5 km NE Yakawlang, near Parjak vill., Band-e Amir riv. valley, h=2770 m, 34°45'26.18"N / 67°1'8.90"E, 15.VI.2016, I. Pljushtch leg. - YS.

Allotype (Fig. 6): 1♀, C AFGHANISTAN, Bamyan prov., 5,5 km

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NE Yakawlang, near Parjak vill., Band-e Amir riv. valley, h=2770 m, 34°45'26.18"N / 67°1'8.90"E, 16.VI.2016, Yu. Skrylnik leg. - YS. Paratypes (238♂♂, 73♀♀): 2♀♀, C AFGHANISTAN, Kabul prov., Paghman distr., near Qargha vill., h=2000 m, 8.VI.2016, 34°32'49.64"N / 69°2'36.98"E, Yu. Skrylnik leg. - YS, OP; 1♂, C AFGHANISTAN, Kabul prov., Paghman distr., near Qargha vill., h=2000 m, 7.VI.2012, O. Pak leg. - OP; 9♂♂, 12♀♀, C AFGHANISTAN, Bamyan prov., 0,5 km SE Sabzak vill., h=2790m, 11.06.2016, I. Pljushtch leg. - IP, YS; 2♂♂, 5♀♀, C AFGHANISTAN, Bamyan prov., 0,7 km S Sabzak vill., Mianabande-Khushkdara Mt., h=2700 m, 34°51'46.94"N / 67°41'11.52"E, 11.VI.2016, Yu. Skrylnik leg. - YS; 1♀, C AFGHANISTAN, Bamyan prov., 9 km S Bamyan, Khushkak vill. env., 2800m, 9.VII.2009, O. Pak leg. - OP; 1♂, C AFGHANISTAN, Bamyan prov., 10 km S Bamyan town, Khushkak vill. env., h=2800 m, 12.06.2016, I. Pljushtch leg. - IP; 4♂♂, 4♀♀, C AFGHANISTAN, Bamyan prov., 8 km S Bamyan, Kokh-e-Baba Mts., Dara-e-Khushkak, h=2860 m, 34°44'51.19"N / 67°49'28.19"E, 12.VI.2016, Yu. Skrylnik leg. - YS; 2♂♂, 1♀, C AFGHANISTAN, Bamyan prov., 0,5 km SE Sabzak vill., h=2790 m, 13.06.2016, I. Pljushtch leg. - IP; 2♂♂, 1♀, C AFGHANISTAN, Bamyan prov., 3 km NW Sabzak vill., Achakuli-Shakhidan riv. valley, h=2830 m, 34°54'4.02"N / 67°38'11.62"E, 13.VI.2016, Yu. Skrylnik leg. - YS; 1♀, C AFGHANISTAN, Bamyan prov., 16km NW Bamyan, near Sabzak vill., 2600 m, 21.VI.2016, O. Pak leg. - OP; 30♂♂, 7♀♀, C AFGHANISTAN, Bamyan prov., Yakavlang distr., Parjak vill. circ., h=2600 m, 15.06.2016, I. Pljushtch leg. - IP, YS; 39♂♂, 4♀♀, C AFGHANISTAN, Bamyan prov., Yakavlang distr., Ghazi vill. circ., Band-e Amir riv. valley, h=2650 m, 34°45'57.84"N / 67°2'5.35"E, 15.06.2016, I. Pljushtch leg. - IP, YS; 41♂♂, 9♀♀ - same data, Yu. Skrylnik leg. - YS; 70♂♂, 12♀♀, C AFGHANISTAN, Bamyan prov., Yakavlang distr., Ghazi vill. circ., h=2700 m, 16.VI.2016, O. Pak leg. - OP; 23♂♂, 6♀♀, same data, Yu. Skrylnik leg. - YS; 14♂♂, 8♀♀, C AFGHANISTAN, Bamyan prov., 5,5 km NE Yakawlang, near Parjak vill., Band-e Amir riv. valley, h=2770 m, 34°45'26.18"N / 67°1'8.90"E, 16.VI.2016, Yu. Skrylnik leg. - YS; 1♀, C AFGHANISTAN,

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Bamyan prov., Waras distr., near Waras, Denawak Mt., h=2580 m, 34°14'11.75"N / 66°54'23.25"E, 23.VI.2016, Yu. Skrylnik leg. - YS.

Several paratypes will be deposited in collections of Zoological Institute (St. Petersburg, Russia), Zoological Museum of Moscow State University (Moscow, Russia), I.I. Schmalhausen Institute of Zoology (Kyiv, Ukraine), Museum of Nature, V.N. Karazin Kharkiv National University (Kharkiv, Ukraine).

**Distribution.** Central part of Afghanistan. Known range of the new species restricted to Koh-i-Baba mountain system. All records of *Glaphyrus turkestanicus* from Afghanistan (Koh-i-Baba) should be treated as belonging to *Glaphyrus afghanisticus* Skrylnik & Pak, **sp. n.**

**Bionomy** (Fig. 21-25). The new species inhabits high mountain dry semi-desert areas at about 2600-2800 meters above sea level. Imagoes are active in June-July. Dynamic flight of males was observed from 9:30 till 10:30. Beetles were attracted by flowering *Cousinia* sp. (Asteraceae). Females buried inside flowers.

**Etymology.** The specific epithet refers to the type locality of the new species.

**Table 1.** Diagnostic differences between males of *Glaphyrus turkestanicus* Semenov, 1889 and *Glaphyrus afghanisticus* Skrylnik & Pak, **sp. n.**

Character	<i>G. turkestanicus</i>	<i>G. afghanisticus</i>
3 <sup>rd</sup> antennal segment	barrel-shaped	clavate
Shape of clypeus	barrel-shaped	square
Longitudinal keel on clypeus	unclear, not reaching transverse keel between eyes	clear, reaching transverse keel between eyes
Collar of pronotum (dorsal view between head and pronotum)	narrow	wide
Erect setae on anterior angles of pronotum	dark, sharply contrast to light surrounding hairs	light, only slightly darker than surrounding hairs

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(ventral view)	(Fig. 10, 15)	(Fig. 13, 18)
Apex of elytra	closer to internal margin	closer to their central axis
Setae on epipleurae and on internal margin of elytra	dark brown, almost black, large	light brown, small
Setae on internal margin of elytra	extending to half of internal margin of elytra	not reaching scutellum for 1/5 of all distance
Pubescence on elytra	yellow	rufous (orange yellow)
Claws of hind tarsus	evenly thinner, long (Fig. 11)	stumpy at base, short (Fig. 14)
Aedeagus	light, with bulb in central part, curve begins above center, parameres in central part with very weak curve	dark, without visible bulb in central part, curve begins from center, parameres in central part with distinct curve
Basal cell of endophallus	more convex, with well-developed bulges apically (Fig. 17)	less convex, gradually tapering towards the constriction, its apical part contains two weakly developed tubercles (Fig. 20)
Apical cell of endophallus	elongate and widened basally (Fig. 17)	reduced basally (Fig. 20)
Scutellum	small, weakly rounded triangular	large, strongly rounded triangular
Shine of elytra	near matt	visible grease
Longitudinal bolster on elytra below scutellum	absent	present

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**Figures 1-2.** Male habitus, dorsal view: 1. *G. turkestanicus* Semenov, 1889; 2. Holotype *G. afghanisticus*, **sp. n.**



**Figures 3-4.** Male habitus, ventral view: 3. *G. turkestanicus* Semenov, 1889; 4. Holotype *G. afghanisticus*, **sp. n.**





**Figures 5-8.** Female habitus, dorsal view: 5. *G. turkestanicus* Semenov, 1889; 6. Allotype *G. afghanisticus*, **sp. n.**; 7, 8. Paratype *G. afghanisticus*, **sp. n.**



**Figures 9-11.** *Glaphyrus turkestanicus* Semenov, 1889 - 9. Semilateral view (male); 10. Erect setae on anterior angles of pronotum (ventral view, red arrow pointed on setae); 11. Claws of hind tarsus.



**Figures 12-14.** *Glaphyrus afghanisticus* **sp. n.** - 12. Semilateral view (male); 13. Erect setae on anterior angles of pronotum (ventral view, red arrow pointed on setae); 14. Claws of hind tarsus.



**Figures 15-17.** *Glaphyrus turkestanicus* Semenov, 1889 - 15. Ventral view (red arrow pointed on dark setae); 16. Hind coxae; 17. Aedeagus with turned out endophallus.



**Figures 18-20.** *Glaphyrus afghanisticus* sp. n. - 18. Ventral view (red arrow pointed on light setae); 19. Hind coxae; 20. Aedeagus with turned out endophallus.



**Figures 21.** Habitat of the *Glaphyrus (Eoglaphyrus) afghanisticus* sp. n. - C AFGHANISTAN, prov. Bamyān, 0,7km S Sabzak vill., Mianabande-Khushkdara Mt., h=2700 m, 34°51'46.94"N / 67°41'11.52"E, 11.VI.2016.



Figures 22-23. *Glaphyrus (Eoglaphyrus) afghanisticus*, **sp. n.** - 22. *Cousinia* sp. (Asteraceae); 23. Feeding and mating beetles on *Cousinia* sp.



Figures 24-25. *Glaphyrus (Eoglaphyrus) afghanisticus* **sp. n.** - 24. Habitat: AFGHANISTAN, Bamyan prov., 5,5 km NE Yakawlang, near Parjak vill., Band-e Amir riv. valley, h=2770 m, 34°45'26.18"N/67°1'8.90"E, 16.VI.2016; 25. Couple mating on *Cousinia* sp. (Asteraceae).

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