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A revision of the genus *Atomyria* Jacobson, 1894 (Coleoptera: Chrysomelidae: Eumolpinae)

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Abstract. The genus *Atomyria* Jacobson, 1894 is revised. In the new conception it contains only species with antennomere II longer than III, claw tarsomere shorter than preceding two combined and appendiculate claws. A new species from Iran, *A. kermanshahica* Moseyko, **sp. n.**, is described. It differs from *Atomyria sarafschanica* (Solsky, 1881) by larger body size, completely confused elytral punctation and trapeziform excavation on frontoclypeus. *Atomyria mateui* Selman, 1969 and *A. persica* (Baly, 1878) are transferred to the genus *Chloropterus* Morawitz, 1860. The lectotype of *Bedelia persica* Baly, 1878 is designated. Keys to the genera of the tribe Typophorini in Central Asia and to species of the genus *Atomyria* are provided. *Atomyria sarafschanica* is confirmed as the type species of the genus *Atomyria* and recorded from Turkmenistan and Kyrgyzstan for the first time.

Key words: Coleoptera, Chrysomelidae, Eumolpinae, *Atomyria*, *Chloropterus*, new species.

Ревизия рода *Atomyria* Jacobson, 1894 (Coleoptera: Chrysomelidae: Eumolpinae)

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Резюме. Сделана ревизия рода *Atomyria* Jacobson, 1894. В новом понимании он включает только виды, у которых второй членик усиков длиннее третьего, коготковый членик лапки короче суммы длин двух предыдущих и коготки с зубцом у основания. Описан новый для науки вид из Ирана, *A. kermanshahica* Мосейко, **sp. n.** Он отличается от *Atomyria sarafschanica* (Solsky, 1881) более крупными размерами, полностью спутанной пунктировкой надкрылий и трапециевидной формой вырезки на наличнике. *Atomyria mateui* Selman, 1969 и *A. persica* (Baly, 1878) перенесены в род *Chloropterus* Morawitz, 1860. Обозначен лектотип *Bedelia persica* Baly, 1878. Составлены определительные таблицы среднеазиатских родов трибы Typophorini и видов рода *Atomyria*. *Atomyria sarafschanica* подтвержден в качестве типового вида рода *Atomyria* и впервые указан для Туркмении и Киргизии.

Ключевые слова: Coleoptera, Chrysomelidae, Eumolpinae, *Atomyria*, *Chloropterus*, новый вид.

Introduction

The genus *Atomyria* Jacobson, 1894 was described for *Nodostoma sarafschanica* Solsky, 1881, plus *Bedelia persica* Baly, 1878 was transferred there under question in the same work [Jacobson, 1894a]. It was placed by the author to the section Tomyritae Lefèvre, 1885 based on four formal characters: concave “propleura” (fore edge of lateral arms of prothorax), appendiculate claws, notched mid- and hind tibiae and hairy upper side [Lefèvre, 1885, Jacobson, 1894a]. Later, all non-Australian members of this group were formally moved by Moseyko and Sprecher-Uebersax [2010] to the tribes Adoxini and Typophorini (“Bromiini” and “Nodinini”, accordingly) and more later completely to the tribe Typophorini [Moseyko, 2012]. Within this tribe the genera *Atomyria*, *Chloropterus* Morawitz, 1861, *Bedelia* Lefèvre, 1875 and *Aphilenia* Weise, 1889 comprise the group of related genera, sometimes not clearly delimited because of using variable characters in their definition. The genus *Atomyria* was most unclearly defined and composed, because it was defined by using only one character, setose pronotum, to distinguish it from *Chloropterus*, which was already containing some species with slightly hairy pronotum. Some of *Atomyria* species really must be transferred to *Chloropterus*. At least, *Atomyria sarafschanica* has antennomere II longer than III,

which is not typical for *Chloropterus*. Selman [1969] designated *A. persica* as a type species of the genus, but it was an incorrect act, because this species was included in the genus by Jacobson with doubts and was not really known to the author (Article 67.2.5 of International Code of Zoological Nomenclature [1999]). Thus, *A. sarafschanica* is the type species of *Atomyria* by monotypy.

The purpose of this work is to check the species of *Atomyria*, describe a new species, found in Iran, and make new identification keys to the related genera and to the *Atomyria* species.

The following acronyms are used for the designation of the collections studied:

NHM – Natural History Museum (London, UK, Michael Geiser);

USNM – Smithsonian Institute (Washington DC, USA, Alexander Konstantinov);

ZIN – Zoological Institute of the Russian Academy of Sciences (St Petersburg, Russia, Alexey Moseyko);

ZMMU – Zoological Museum of Moscow State University (Moscow, Russia, Alexey Gusakov).

Results

According to the Catalogue of Palaearctic Coleoptera [Moseyko, Sprecher-Uebersax, 2010], the genus *Atomyria*

contains three species: *A. sarafschanica* from Central Asia (Fig. 1), *A. persica* from Iran (Fig. 2) and *A. mateui* Selman, 1969, from south Algeria (Fig. 3). Medvedev [1957] proposed to transfer *A. persica* to the genus *Macrocoma* Chapuis, 1874; this opinion was not supported by any material. Selman [(1969)] designated *A. persica* as a type species (see Introduction) and described the new species, *A. mateui*, having simple claws. Lopatin [1977] wrote that the genus contains only one species, *A. sarafschanica*, and cited it as a type species for the first time. Head structure and “propleura” are very variable in both genera, *Chloropterus* and *Atomyria*. Eyes can be large and flattened, fabiform, distinctly notched on the inner side (*A. mateui*, *Ch. grandis* Weise, 1889, *Ch. ornatus* Lopatin, 1884, *Ch. politus* Berti and Rapilly, 1973 etc.), or smaller but flat and notched (*A. persica*, *Ch. versicolor* Morawitz, 1860), or more convex but notched (*Ch. unguiculatus* Lopatin, 1965) or small, convex and almost evenly oval (*A. sarafschanica*). Claws can be simple (most of Central Asian *Chloropterus*, *A. mateui*), or incised near the middle (*Ch. unguiculatus*), or incised near the base (*Ch. ornatus*, *Ch. politus*), or appendiculate (*A. sarafschanica*), or intermediate between appendiculate and incised near middle (*A. persica*). “Propleura” in *Chloropterus* are variable from evenly convex (*Ch. moldaviensis* Pic, 1909), to evenly concave (*Ch. politus*) with different transitional forms; in all species of *Atomyria* they are concave. So, all the characters available to distinguish these two genera are quite variable. Here I leave in *Atomyria* only the species with antennomere II longer than antennomere III, setose elytra, not notched eyes, and clearly appendiculate claws: inner lobe must be comparatively wide and triangular. By these characters, *A. mateui* and *A. persica* are excluded from the genus. In the collection of USNM I have found one specimen, male, from Iran (Fig. 4) which corresponds to the new definition of *Atomyria* in many aspects, being a larger insect with completely confused punctuation of elytra. Here it is described as a new species of *Atomyria*.

Atomyria sarafschanica (Solsky, 1881)
(Figs 1, 5, 6)

Nodostoma sarafschanica Solsky, 1881: 62.

Type material. 1♀, “4”, 1♀, “8”, 1♀, “11”, 1♀, “17”, 1♂, “73”, syntypes (ZIN), from the collection of Solsky; 1♀, “19”, 2♀, “295”, syntypes (ZIN), from the collection of Rybakov; 1♀, “Tashkent 8478-1”, 1♀, “Tashkent 8478-2”, 1♀, “Tashkent 8478-3”, syntypes (ZIN).

Additional material. Kazakhstan. Kyzylorda Region: 1♀ (ZIN), Baigakum [Baygekum] vill. near Djulek [Zhoklek], 44°18'N / 66°28'E, 20.06.1908 (S. Malyschew); 3♂, 9♀ (ZIN), Aydarly natural boundary, near Dzhulek [Zhoklek], 44°17'N / 66°21'E, 1.04–07.05.1919 (V. Kozhanchikov); 1♀ (ZIN), 35 km E of Kyzylorda, on *Populus pruinosa*, 10.07.1968. Turkestan Region: 1♀ (ZIN), Antonovka [Kershetas] vill., 42°29'N / 69°59'E, 9.05.1906 (E. Fischer); 1♂ (ZIN), M. Bulaki, 20 versts N of Turkestan City. 5.06.1910 (Tryzna); 1♂ (ZIN), Arys floodplain, near Shayan. 6.06.1967 (the label is contradictory because Shayan placed on Shayan River, not connected with Arys River). Jambyl Region: 2♀ (ZIN), “Aulie. J. Sahlb[erg]” (Aulie-Ata = Taraz, 42°53'N / 71°22'E); 3♂, 6♀ (ZIN), 7♂, 10♀ (ZMMU), Chimbent [Shymkent], 6–26.06.1936, (D.D. Romashov); 1♀ (ZIN), Bilikol Lake, 43°01'N / 70°40'E, meadows, 19.06.1967.

Turkmenistan. Ahal Region: 1♀ (ZIN), Kolet-kaya Range, 35°45'N / 61°21'E, 2.04.1893; 1♀ (ZIN), Zulfagar Range, 35°38'N / 61°21'E, 28.05.1893. 1♂ (ZIN), Ashabad. Labap Region: 2♂ (ZIN), Ispas [Isbaz], 70 km NW Chardjou [Turkmenabat], 39°33'N / 62°54'E, 2.06.1965 (L. Arnoldi); 1♂, 1♀ (ZIN), Amu-Darya River, 100 km upstream of Chardjou [Turkmenabat], Narghiz Island, riparian forest, litter, 29.06.1989 (K.V. Makarov).

Uzbekistan. Tashkent Region: Tashkent: 2♀, 22.05.1871, 1♂, 1880, 2♂, 1♀, 25.03.1893; 1♀, 24.05.1906 (I. Karpova), 1♂ (N. Filippov), 1♂, 1♀, on grass, 1–8.06.1911 (I. Ivanov), 1♀, 08.1917 (N. Pulikovskaya), 1♂, 1♀, 30.05.1933 (Kreizberg) (ZIN); 1♂ (ZIN), Nikolskoe Vill. [Tashkent], 6–12.06.1906, (Sandgagen); 1♀ (ZIN), Tashkent env., Chirchik River bank, on grass, 2.06.1918 (I. Ivanov); 1♀ (ZIN), Khumsan Vill., near Ugam River, 41°45'N / 69°57'E, 7.08.1920 (I. Ivanov); 1♂, 1♀ (ZIN), Kuraminsky Range, Kyrk-Kyz [5 km E of Almalyk], 16.06.1958 (I. Lopatin); 1♂ (ZIN), Chatkalsky Nature Reserve, Nevich vill., 20.06.1974 (Kampantsev); 1♂, 1♀ (ZIN), 5 km E of Nevich vill., Bash-Kyzyl-Sai River, 17.06.1985; 1♂ (ZIN), Chinaz, 40°55'N / 68°45'E, 19.06.19(?)85. Namangan Region: 1 ex. (lost, identified by Jacobson), Min-Bulak [Mingbuloq], 40°50'N / 71°38'E, 23.05.1908 (B. Grigoriev); 1♀ (ZIN), Syr-Daria River, Sarykamish riparian forest, on Glycyrrhiza, 7.06.1939 (Chirkun), (locality of this riparian forest is under question). Samarkand Region: 1♂, 1♀ (ZIN), Tohta-Karachar, to the south of Samarkand, 19.07.1896 (Verigin).

Tadzhikistan. 1♂, 2♀ (ZIN), Sughd Region, Chodschent [Khujand]; 1♀ (ZIN), Ferghana Valley, Konibodom vill. env., 40°17'N / 70°25'E, 6.07.1918 (Arkhangelsky); 3♂, 2♀ (ZIN), Khatlon Region, Tigrovaya Balka Nature Reserve, on *Populus euphratica*, 24.05.1959 (I. Lopatin); 1♂ (ZIN), 24.06.1959 (Mikhailov).

Kyrgyzstan. 1♀ (ZIN), Osh Region, Uzgen District, Ak-Terek vill., 40°52'N / 73°40'E, 14.07.1937 (Kirichenko); 1♀ (ZIN), Alai Range, Daraut-Kurgan [Daroot Korgon], 39°33'N / 72°12'E, 20.05.195? (Korjinsky); 2♂ (ZIN), Batken Region, Turkestan Range, Kshemysh River near Nurlau River estuary, 39°46'N / 70°42'E, 2.07.1963 (I. Lopatin).

Note. Jacobson's records of *A. persica* for Central Asia are based on misidentifications and really belongs to *A. sarafschanica*.

Distribution. Kazakhstan, Turkmenistan, Uzbekistan, Tadzhikistan, Kyrgyzstan. This species is recorded from Turkmenistan and Kyrgyzstan for the first time.

Chloropterus persicus (Baly, 1878) **comb. n.**
(Figs 2, 7)

Bedelia persica Baly, 1878: 259.

Atomyria persica auct.

Type material. 1 ex., lectotype (sex not checked) (NHM), designated here according to Articles 61.1 and 74.1 of ICZN [1999], “Persia”.

Notes. This species is known by one type specimen only. All other records and interpretations [Jacobson, 1894b, Warchalowski, 2010] are based on misidentifications. I transfer this species to the genus *Chloropterus* because it has distinctly notched eyes, antennomere II shorter than III and elytra with well developed puncture rows and small secondary punctuation. The form of claws of this species is similar to appendiculate, but inner lobes are quite longer and narrower than in true appendiculate claws. Habitually it quite resembles *Ch. ornatus*. I have checked variability of claws in *Ch. ornatus* and found that its incised claws has quite variable inner lobes. It possible that claws of *Ch. persicus* are a deviating form of this variability. Elytra in *Ch. ornatus* are slightly setose on sides, whereas in *Ch. persicus* they are with short thin setae on all surface.

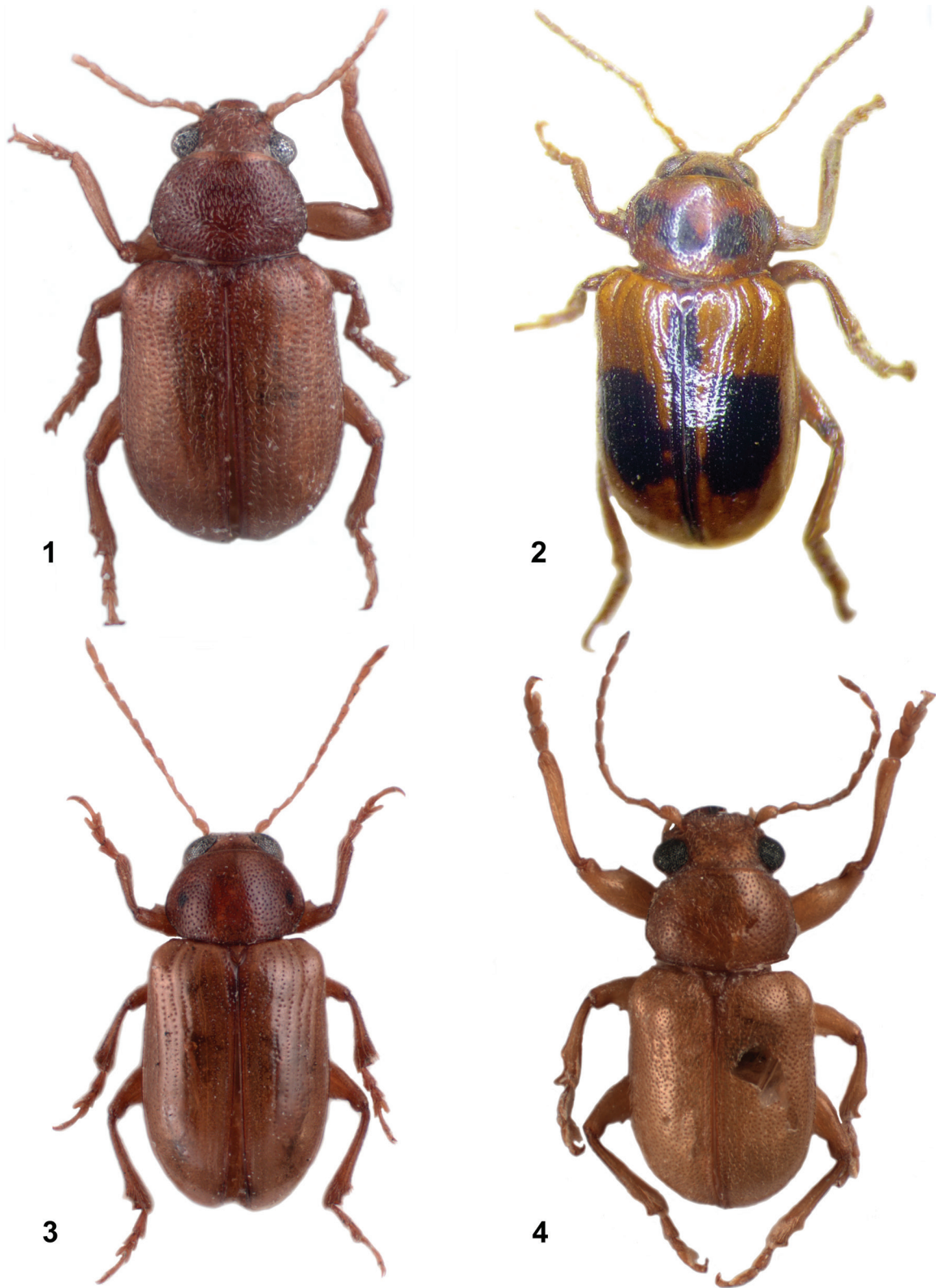
Distribution. Iran.

Chloropterus mateui (Selman, 1969) **comb. n.**
(Figs 3, 8)

Atomyria mateui Selman, 1969: 201.

Type material. 1♂, paratype (NHM), Algeria, Beni-Abbès, N.W. Sahara, ex *Tamarix* sp. nr. *gallica*, 4.11.1963; 1♂, 1♀ paratypes (NHM), Algeria, Beni-Abbès, N.W. Sahara, on light, 9.05.1965.

Notes. This species was described as a member of the genus *Atomyria* without comparison with the genus *Chloropterus*. Study of the type specimens clearly showed that this species has simple claws, which can be pushed

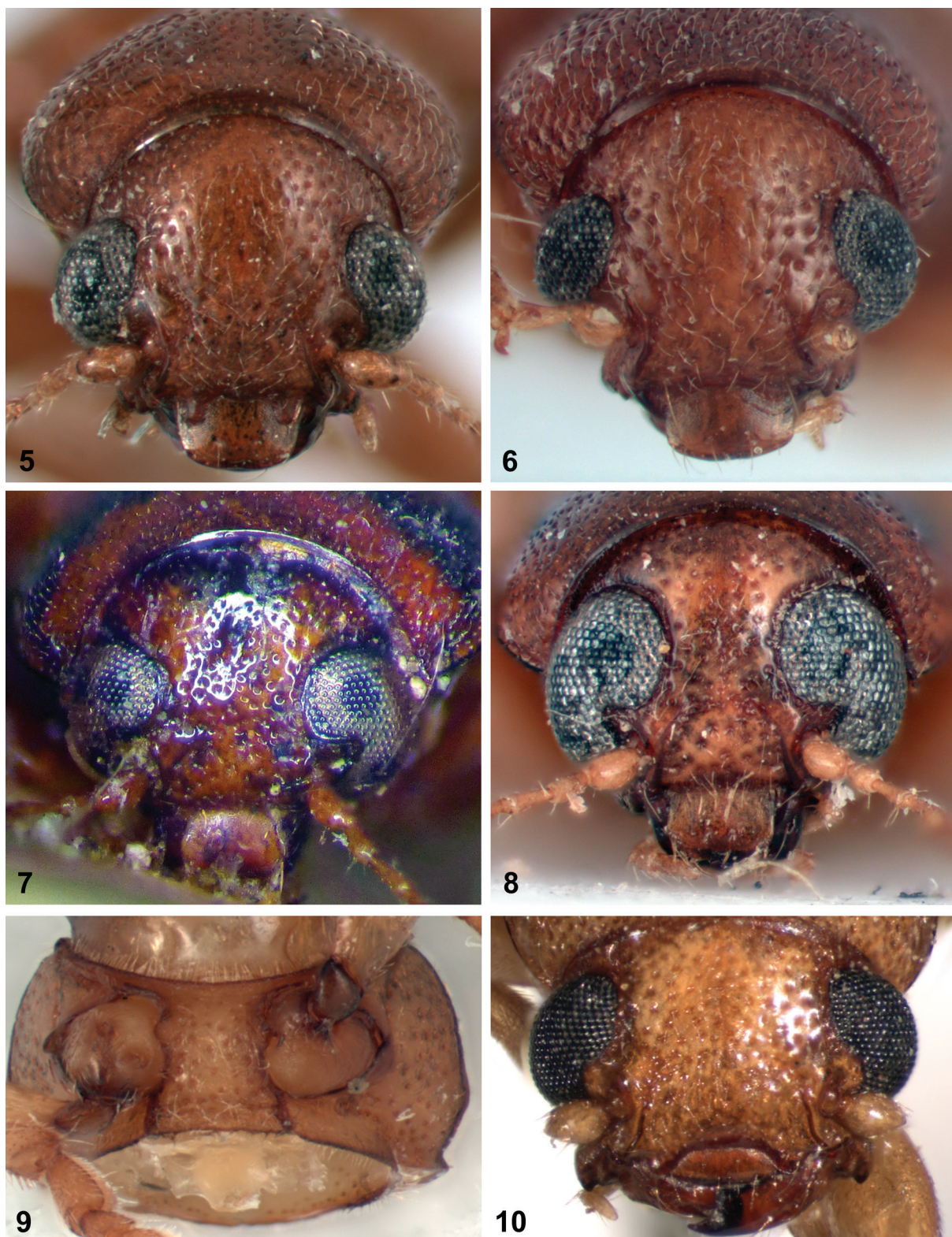


Figs 1–4. Species of the genera *Atomyria* Jacobson, 1894 and *Chloropterus* Morawitz, 1860, general view.

1 – *A. sarafschanica* (Solsky, 1881), female; 2 – *Ch. persicus* (Baly, 1878), lectotype; 3 – *Ch. mateui* (Selman, 1969), female, paratype; 4 – *A. kermanshahica* sp. n., male, holotype.

Рис. 1–4. ВИДЫ РОДОВ *Atomyria* Jacobson, 1894 и *Chloropterus* Morawitz, 1860, ОБЩИЙ ВИД.

1 – *A. sarafschanica* (Solsky, 1881), самка; 2 – *Ch. persicus* (Baly, 1878), лектотип; 3 – *Ch. mateui* (Selman, 1969), самка, паратип; 4 – *A. kermanshahica* sp. n., самец, голотип.



Figs 5–10. Species of the genera *Atomyria* Jacobson, 1894 and *Chloropterus* Morawitz, 1860.

5–6 – *A. sarafschanica* (Solsky, 1881); 7 – *Ch. persicus* (Baly, 1878), lectotype; 8 – *Ch. mateui* (Selman, 1969), male, paratype; 9–10 – *A. kermanshahica* sp. n., holotype. 5–8, 10 – head; 9 – prothorax, view from below.

Рис. 5–10. Виды родов *Atomyria* Jacobson, 1894 и *Chloropterus* Morawitz, 1860.

5–6 – *A. sarafschanica* (Solsky, 1881); 7 – *Ch. persicus* (Baly, 1878), лектотип; 8 – *Ch. mateui* (Selman, 1969), самец, паратип; 9–10 – *A. kermanshahica* sp. n., голотип. 5–8, 10 – голова; 9 – переднегрудь, вид снизу.

together. In the description claws were erroneously described as bifid. So, this species surely must be transferred to the genus *Chloropterus*. Within *Chloropterus* it is very close to *Ch. pallidus* Chobaut, 1898, which is also described from Algerian Sahara and has similar colouration, but examination of a type material is necessary for synonymization.

Distribution. Algeria.

Atomyria kermanshahica Moseyko, **sp. n.**
(Figs 4, 9–12)

Material. Holotype, ♂ (USNM): upper label "IRAN, Camp 26, Bisotun", lower label "Kermanshah Prov, 24-26.06.1964, John Neal".

Description. Body covered with very short whitish setae, not hiding surface. Colouration pale yellow, with elytral suture very slightly darker. Body elongate, 2 times as long as wide.

Head densely but not deeply punctate. Ocular grooves absent. Eyes not large, suboval, slightly notched. Ratio of maximum head width including eyes to minimum frons width 1.83. Frontoclypeus short, not delimited from frons, with wide trapeziform excavation on apical edge. Labrum placed in this excavation. Mandibles skew to the midline (not vertical), left mandible with large apical tooth. Antennae filiform, about half body length, antennomere II more than 2 times longer than III.

Pronotum 1.4 times as wide as long, with well developed edging and very weak angle in hind third. Disc of pronotum densely but not deeply, evenly punctate, like head and elytra. Interspaces between punctures are subequal to puncture diameter. Ventral surface of prothorax, including hypomera, also punctate, but quite less densely. Anterior margin of prosternum (including "propleura") concave, fore angles of pronotum also without convexities, fore setiferous pores placed on fore edge, slightly upper but very close to lateral edging. Notosternal sutures well visible, connected with fore edge of prothorax below lateral edging and not connected with it.

Elytra 1.4 times as long as wide, 1.23 times as wide as pronotum, widest near humeral calli. Humeral calli well developed, lateral edging of elytra not visible from above in fore part of elytra. Elytral punctation almost completely confused (only shortened sutural lines recognizable).

All femora with small, but well visible tooth below. Fore femora slightly wider than middle and hind ones. Mid and hind tibiae distinctly notched before the apex. Claw tarsomeres not very long, protrude from lobes of tarsomere III for about half length. Claws appendiculate.

Abdomen without distinctive formations, covered with thin and short hairs. Aedeagus with slightly asymmetrical apical tip, deflexed downwards.

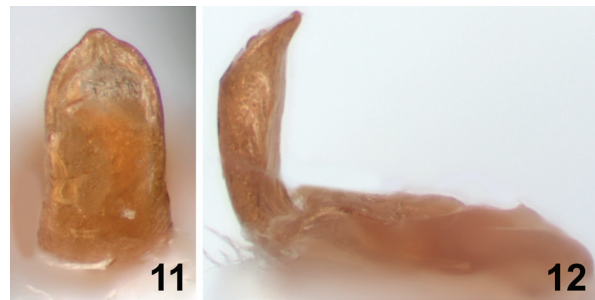
Body length 4.7 mm, width 2.3 mm.

Diagnosis. Elytra covered by short hairs, elytral punctation confused. Body colouration without pattern. Head with short frontoclypeus. Eyes small, almost not notched. See also a key to *Atomyria* species.

Etymology. The species is named after Kermanshah Province in Iran, where the type specimen was collected.

**A key to the identification of the genera
of the tribe Typophorini in Central Asia
and adjacent regions**

1(2). Claws bifid, with inner lobe subequal to outer one. Head with well developed ocular grooves. Claw segment of tarsi not very long. "Propleura" evenly convex. Antennomere II slightly longer than III. Femora with very small tooth below *Bedelia* Lefèvre, 1875



Figs 11–12. *A. kermanshahica* sp. n., aedeagus.

11 – dorsal view; 12 – lateral view.

Рис. 11–12. *A. kermanshahica* sp. n., эдеагус.

11 – вид сверху; 12 – вид сбоку.

- 2(1). Claws not bifid: simple, appendiculate or incised near the base or near the middle. Head without wide ocular grooves, maximum with narrow groove parallel to eye margin or short pit. Antennomeres II and III of various length. Femora with or without tooth.
- 3(4). Antennomere II longer than III. Claws appendiculate. Claw tarsomere shorter than preceding two ones combined *Atomyria* Jacobson, 1894
- 4(3). Antennomere II shorter than III. Claws variable. Claw tarsomere at least equal, but usually longer than two preceding ones combined.
- 5(6). Tarsomeres I and II with naked middle line below. Femora completely lacked of ventral tooth. All the body covered with setae. Claws simple or incised near middle *Aphilenia* Weise, 1889
- 6(5). Tarsomeres I and II with even setose coverage below. Femora with tooth below. Elytra usually glabrous, rarely with short setae, distinctly shorter than on pronotum. Claws variable *Chloropterus* Morawitz, 1860

**A key to the identification of species
of the genus *Atomyria* Jacobson, 1894**

- 1(2). Body smaller, length 2.5–4 mm. Puncture rows recognizable on all surface of elytra. Frontoclypeus of male with deep subrectangular excavation with convex inner edge; in female excavation not deep, with even concave edge *A. sarafschanica* (Solsky, 1881)
- 2(1). Body larger, length 4.7 mm. Elytral punctures confused. Frontoclypeus of male with trapeziform excavation *A. kermanshahica* sp. n.

Conclusion

The genus *Atomyria* contains two valid species, including the new one. Therefore, the naturalness of this genus is under question and is a subject to future investigations. The fact that *A. kermanshahica* sp. n. and *Ch. persicus* presented by one specimen each is the evidence of very poor stage of knowledge of Iranian fauna. At the same time, *A. sarafschanica* surely must be found in both Iran and Afghanistan, but no reliable material available. Also, nothing is known about bionomics of Iranian species. If *A. kermanshahica* sp. n. is associated with riparian forests, as *A. sarafschanica*, it would be an argument for the naturalness of this genus.

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