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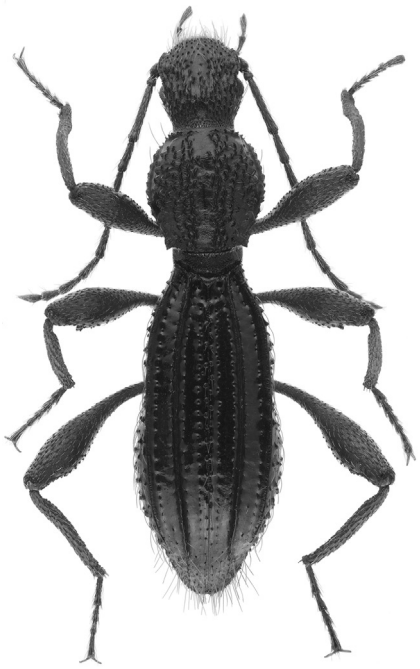

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Remarkable additions to the fauna of darkling beetles (Coleoptera: Tenebrionidae) of western Uzbekistan

© N.Kh. Bekchanov[1], M.V. Nabozhenko[2, 3], Kh.U. Bekchanov[4, 5]

[1]Khorezm Mamun Academy, Khiva, Markaz-1, Khorezm 220900 Uzbekistan. E-mail: bekchanovnorbek12@mail.ru
[2]Precaspian Institute of Biological Resources of the Daghestan Federal Research Centre of the Russian Academy of Sciences, M. Gadzhiev str., 45, Makhachkala, Republic of Dagestan 367000 Russia. E-mail: nalassus@mail.ru
[3]Dagestan State University, M. Gadzhiev str., 43a, Makhachkala, Republic of Dagestan 367000 Russia
[4]Urgench State University, Kh. Alimdjan str. 14, Urgench 220100 Uzbekistan. E-mail: bekchanov_x@mail.ru
[5]Urgench State Pedagogical Institute, Gurlan str. 1, Urgench 220100 Uzbekistan

Abstract. Results on study of darkling beetles after expeditions 2021–2023 in western Uzbekistan (Khorezm Region, the Republic of Karakalpakstan) are summarized. In total, 79 species of tenebrionid beetles were collected, from which four taxa are new for science: *Diaphanidus mamuni* Nabozhenko et N. Bekchanov, **sp. n.**, *Diaphanidus crassiantennatus* Nabozhenko et N. Bekchanov, **sp. n.**, *Zophosis scabriuscula karakalpakensis* Nabozhenko et N. Bekchanov, **subsp. n.**, and *Penthicinus amudariensis* Nabozhenko et N. Bekchanov, **sp. n.** Two species, *Diaclina testudinea* (Piller et Mitterpacher, 1783) and *Leichenum pictum* (Fabricius, 1801) are new for the fauna of Middle Asia. *Ammozoides hauseri* (Reitter, 1894), *Argyrophana caspia* Semenov, 1910 and *Blaps hiemalis* Semenov et Bogatchev, 1940 are recorded for the fauna of Uzbekistan for the first time. *Philhammus* sp. is the first representative of the genus in the country. Two species were found in western Uzbekistan for the first time: *Arthrodosis planosternum* Reitter, 1915 (it was known only from Kumkurgan in southeastern Uzbekistan) and *Dengitha crystallina* Semenov, 1896 (the species was known from Termez). The following species are new for the fauna of the Ustyurt Plateau: *Cyphogenia* (*Lechriomus*) *limbata* (Fischer von Waldheim, 1820), *Diesia sexdentata sexdentata* Fischer von Waldheim, 1820, *Alcinoeta helopioides spectabilis* (Kraatz, 1882), *Dengitha crystallina*, *Bradyus pygmaeus* (Fischer von Waldheim, 1821). The genus *Gnathosia* Fischer von Waldheim, 1821 is transferred from the tribe Tentyriini to Edrotini on the base of the structure of female genital ducts, head and habitus of both sexes. Data on the distribution of many species, incorrectly indicated in the latest edition of the Catalogue of Palaearctic Coleoptera and other sources, are clarified and supplemented. Brief information on the bionomics of collected beetles is given.

Key words: fauna, new taxa, Tenebrionidae, Khorezm Region, Karakalpakstan, Uzbekistan.

Существенные добавления к фауне жуков-чернотелок (Coleoptera: Tenebrionidae) Западного Узбекистана

© Н.Х. Бекчанов[1], М.В. Набоженко[2, 3], Х.У. Бекчанов[4, 5]

[1]Хорезмская Академия Мамуна, Хива, Марказ-1, Хорезм 220900 Узбекистан. E-mail: bekchanovnorbek12@mail.ru
[2]Прикаспийский институт биологических ресурсов – обособленное подразделение Дагестанского федерального исследовательского центра Российской академии наук, ул. М. Гаджиева, 45, Махачкала, Республика Дагестан 367000 Россия. E-mail: nalassus@mail.ru
[3]Дагестанский государственный университет, ул. М. Гаджиева, 43а, Махачкала, Республика Дагестан 367000 Россия
[4]Ургенчский государственный университет, ул. Х. Алимджана, 14, Ургенч 220100 Узбекистан. E-mail: bekchanov_x@mail.ru
[5]Ургенчский государственный педагогический институт, ул. Гурлан, 1, Ургенч 220100 Узбекистан

Резюме. Подведены итоги экспедиций 2021–2023 годов по изучению жуков-чернотелок (Coleoptera: Tenebrionidae) в Западном Узбекистане (Хорезмская область, Республика Каракалпакстан). Всего собрано 79 видов чернотелок, из которых 4 таксона – новые для науки: *Diaphanidus mamuni* Nabozhenko et N. Bekchanov, **sp. n.**, *Diaphanidus crassiantennatus* Nabozhenko et N. Bekchanov, **sp. n.**, *Zophosis scabriuscula karakalpakensis* Nabozhenko et N. Bekchanov, **subsp. n.** и *Penthicinus amudariensis* Nabozhenko et N. Bekchanov, **sp. n.** *Diaclina testudinea* (Piller et Mitterpacher, 1783) и *Leichenum pictum* (Fabricius, 1801) впервые указаны для фауны Средней Азии. *Ammozoides hauseri* (Reitter, 1894), *Argyrophana caspia* Semenov, 1910 и *Blaps hiemalis* Semenov et Bogatchev, 1940 – новые для фауны Узбекистана, а *Philhammus* sp. – первый представитель рода в стране. В Западном Узбекистане впервые обнаружено 2 вида: *Arthrodosis planosternum* Reitter, 1915 (был известен только из Кумкургана на юго-востоке Узбекистана) и *Dengitha crystallina* Semenov, 1896 (был ранее собран в Термезе). Новыми для фауны плато Устюрт являются следующие виды: *Cyphogenia* (*Lechriomus*) *limbata* (Fischer von Waldheim, 1820), *Diesia sexdentata sexdentata* Fischer von Waldheim, 1820, *Alcinoeta helopioides spectabilis* (Kraatz, 1882), *Dengitha crystallina*, *Bradyus pygmaeus* (Fischer von Waldheim, 1821). Род *Gnathosia* Fischer von Waldheim, 1821 перенесен из трибы Tentyriini в Edrotini на основании строения половых протоков самки, головы и формы тела обоих полов. Уточнены и дополнены данные по распространению многих видов, некорректно указанные в последнем издании каталога жесткокрылых Палеарктики и в других источниках. Представлены краткие сведения по биономике собранных видов.

Ключевые слова: фауна, новые таксоны, Tenebrionidae, Хорезмская область, Каракалпакстан, Узбекистан.

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Introduction

Darkling beetles of Uzbekistan are well studied at first sight. Multiple expeditions since the middle of 19th century contributed to the massive collection of beetles, most of which were described by Russian and Soviet scientists and accumulated in Russian and Uzbek depositories. Unfortunately, there are no generalizing taxonomic works and keys for the tenebrionid beetles of this vast and diverse country. Only the key to darkling beetles of neighboring Turkmenistan [Medvedev, Nepesova, 1985] can be partially used to identify Tenebrionidae at least for plains of western and southern Uzbekistan.

Egorov and Rakhimov [2015] published important faunistic additions to the fauna of southern and central Uzbekistan and listed most of the bibliographic sources containing information about Tenebrionidae of this country. Some additional recently published papers contain data on the genera *Podhomala* Solier, 1836 [Chigray, 2019], *Psammocryptus* Kraatz, 1865 [Nabozhenko et al., 2022a] and *Microdera* Eschscholtz, 1831 [Nabozhenko, Kalashian, 2022] from Uzbekistan. Chigray and Ivanov [2020] also published brief information about general distribution of many species of *Blaps* Fabricius, 1775 and added little fragments of the material from Uzbekistan.

In the 19th and early 20th centuries, information about darkling beetles of the Lower Amudarya region was very sporadic, and distinct localities for species were not indicated. Khiva (now Khorezm Region, Uzbekistan) was the only place more or less visited by naturalists. Old collections of darkling beetles from this locality are deposited at the Zoological Institute of the Russian Academy of Sciences (St Petersburg, Russia). Perhaps the first work that lists clear localities for tenebrionid beetles of the tribe Opatrini in the Lower Amudarya and the Aral Sea regions is the book of Reichardt [1936]. Some data on distribution of Tenebrionidae in the western Ustyurt and South Kazakhstan with adjacent territories were published by Skopin [1964, 1968]. He also added important faunistic and taxonomic data on Belopini, Blaptini, Tentyriini and Pimeliini of western Uzbekistan in different systematic revisions [Skopin, 1961a, b, 1966, 1970, 1973, 1974]. Important revisions on Asian Tentyriini and Erodiini were published by Kaszab [1959, 1966, 1979], but localities and distribution of Uzbek species were often erroneously attributed to Kazakhstan or Uzbekistan, or Uzbekistan was erroneously listed for some taxa. Interesting additions to the fauna and bionomics of tenebrionid beetles of the southern Ustyurt (within the borders of Turkmenistan) were published by Mitroshina [1986, 1988, 1990, 1994]. Egorov [2012] compiled the check-list of Platyscelidini of Uzbekistan. Medvedev [1973] described one species of *Apsheronellus* Bogatchev, 1967 from Khiva District.

The most comprehensive information about Tenebrionidae of south-western Kyzylkum was published by Davletshina and coauthors [Davletshina, 1967; Davletshina et al., 1979]. She presented data about species composition of darkling beetles, their geographic and landscape-ecological distribution. Her research was limited to the vicinity of the Kyzylkum experimental station in Kuldzhuktau mountains in Bukhara Region and the foothills of Nuratau Ridge in Samarkand Region. Many species of Tenebrionidae from these regions are distributed in the western Kyzylkum and can be found on sands of the right bank of Amudarya. Unfortunately, the material of Davletshina was not fully verified by taxonomists from the central institutes of the USSR (only some species were determined by famous entomologist A.V. Bogatchev), so we do not have confidence in the correctness of the species identification. For example, five specimens deposited in the Institute of Zoology (Tashkent, Uzbekistan) and identified by Davletshina as *Gnathosia pseudanemia* Reitter, 1915 (now in the genus *Neognathosia* Kaszab, 1959, Tentyriini) in fact belong to three species: *Microplatyscelis seriepunctata* (Reitter, 1890) (Platyscelidini), *Gnathosia schrenkii* (Gebler, 1844) and *Neognathosia pseudanemia*.

B.P. Pirnazarov made the greatest contribution to the study of darkling beetles in the Amudarya delta, Ustyurt Plateau, and western part of Kyzylkum desert. He collected material in Karakalpakstan from 1968 to 1975. His most important paper includes 51 species from this region [Pirnazarov, 1970], three additional new species were described based on his material and beetles collected by G.S. Medvedev [Medvedev, Pirnazarov, 1972; Medvedev, 1982; Medvedev, Nepesova, 1986]. Later, Pirnazarov [1972, 1975] indicated more than 120 tenebrionid species from Karakalpak parts of Kyzylkum desert, the Ustyurt Plateau and the Amudarya delta without details and species lists. In his PhD abstract Pirnazarov [1973] listed 126 species for Karakalpakstan and adjacent territories of Kazakhstan and Turkmenistan. Unlike Davletshina, Pirnazarov's materials were verified by Prof. G.S. Medvedev, the world's leading tenebrionid beetle specialist, and they are deposited now at the Zoological Institute of the Russian Academy of Sciences (St Petersburg, Russia). However, some species were erroneously identified by G.S. Medvedev (species and even genera of Erodiini, some species of *Microdera*).

In our paper we present new data on Tenebrionidae of the Lower Amudarya region and the eastern Ustyurt with information on geographic and landscape-ecological distribution. Two species are possibly new to science and will be analyzed in special taxonomic revisions.

Material and methods

Beetles were collected in August 2021, April and June 2022, and April – July 2023 in Khorezm Region (the city of Urgench, Xonqa, Khiva, Yangiariq and Hazorasp districts) and the Republic of Karakalpakstan (Turtkul, Ellikala, Beruni, Amudarya, Moynaq and Kungrad districts), Uzbekistan (Fig. 1). The studies covered a variety of landscapes: sands in Karakum, Kyzylkum deserts and the Ustyurt Plateau, tugai forests and river sands and meadows, stony and rocky wastelands of Sulton Uvays and Karatau mountains, halophytic landscapes with black saxaul, saline sands and solonchaks in the Amudarya delta and former coast of the Aral Sea, clay plain with sagebrush on the Ustyurt Plateau (Figs 2–23).

We used various methods: manual collection of insects at night and by day, sifters for sands and forest leafs,

window traps in tugai forests, shaking branches with a Japanese umbrella trap, light trap Naturaliste 150 with UV lamp Camelion 26W).

An additional material was studied from the Zoological Institute of the Russian Academy of Sciences (ZIN, St Petersburg, Russia) and Institute of Zoology of the Academy of Sciences of the Republic of Uzbekistan (IZUZ, Tashkent, Uzbekistan). The material is deposited in ZIN, IZUZ, partly in private collections of Norbek Bekchanov (PCNB, Xonqa, Khorezm Region, Uzbekistan) and Maxim Nabozhenko (PCMN, Rostov-on-Don, Russia).

Beetles were studied using binocular microscopes Micromed MC-4 Zoom Led and Micromed MC-5 Zoom Led. Female genital tubes were photographed using a digital camera ToupCam and the program Toup View ver. 4.7.14088.20190307. Beetle photographs were taken with a Canon EOS 5D Mark IV Body, Canon MP-E65MM F2.8 Macro lens and Canon Macro Twin Lite MT-26X-RT flash bulb, and stacking was done using Stack-shot 3X with enlarged macro rails s/n 3734; the photosystem is installed on a Kaiser Copy Stand RS 1 reproduction machine. Images were stacked in Helicon Focus 7.7.4 Pro.

Photographs on Figs 85, 88, 89, 100, 118 were taken by Ivan Chigray (ZIN). The photograph of *Blaps hiemalis* was borrowed from the website "Beetles (Coleoptera) and Coleopterologists" (https://www.zin.ru/animalia/coleoptera/rus/BLAPSHIEM.htm).

Photographs of landscapes and beetles in nature were taken by S.V. Nabozhenko (Southern Scientific Centre of the Russian Academy of Sciences, Rostov-on-Don, Russia) using iPhone SE 2020.

We use the order of subfamilies, tribes and subtribes according to Bouchard et al. [2021]. Genera and species within tribes/subtribes are given in alphabetical order. Bionomics is not given for species, which were found by dry specimens or if it is partly given by literature data.

Images of beetles and their structures are not scaled.

Subfamily Pimeliinae Latreille, 1802
Tribe Adesmiini Lacordaire, 1859

Adesmia (*Oteroscelis*) *gebleri* Gebler, 1844
(Figs 24, 25)

Material. 1♀, dry (PCMN), Karakalpakstan, Beruni District, Sulton Uvays Mts., 42°02′19″N / 60°39′26″E, 230 m, 15.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov, U.E. Duschanov); 2♀, dry (PCMN), Khorezm Region, Khiva District, Karakum desert, 41°18′10″N / 60°27′03″E, Tamarix habitat, 19.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov, U.E. Duschanov); 1♂, dry (PCMN), Khorezm Region, Khiva District, Karakum desert, 41°18′10″N / 60°27′03″E, Tamarix habitat, 19.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov, U.E. Duschanov); 1♂, dry (PCMN), Karakalpakstan, Kungrad District, NE Kungrad, 43°06′10″N / 59°01′39″E, 21.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov, U.E. Duschanov, D.A. Yavkachev); 1♀, dry (PCMN), Karakalpakstan, Kungrad District, between Elabad and Kungrad, Ustyurt Plateau, clay desert, 43°05′08″N / 58°32′25″E, 23.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov, U.E. Duschanov, D.A. Yavkachev); 2 ex., dry (PCMN), Karakalpakstan, Amudarya District, Karatau Mts., around Shaykh Jalil Bobo ziyoratgohi, 42°09′30″N / 60°15′03″E, 24.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov, U.E. Duschanov, D.A. Yavkachev); 1♀, dry (PCMN), Khorezm Region, Yangiariq District, S of Yangiariq, Karakum desert, 41°15′51.0″N / 60°31′36.8″E, 24.05.2023 (N.Kh. Bekchanov).

Bionomics. We collected only dry specimens. *Adesmia gebleri* was listed by many authors as autumn species

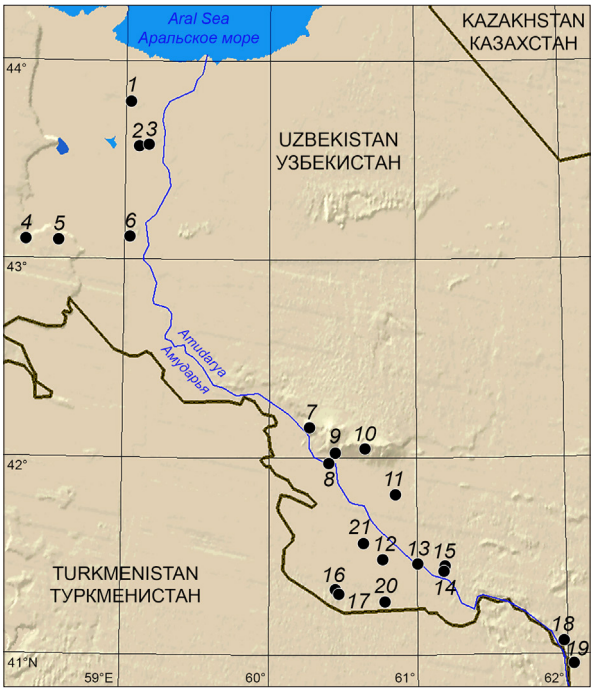


Fig. 1. Localities of beetle collection in western Uzbekistan.

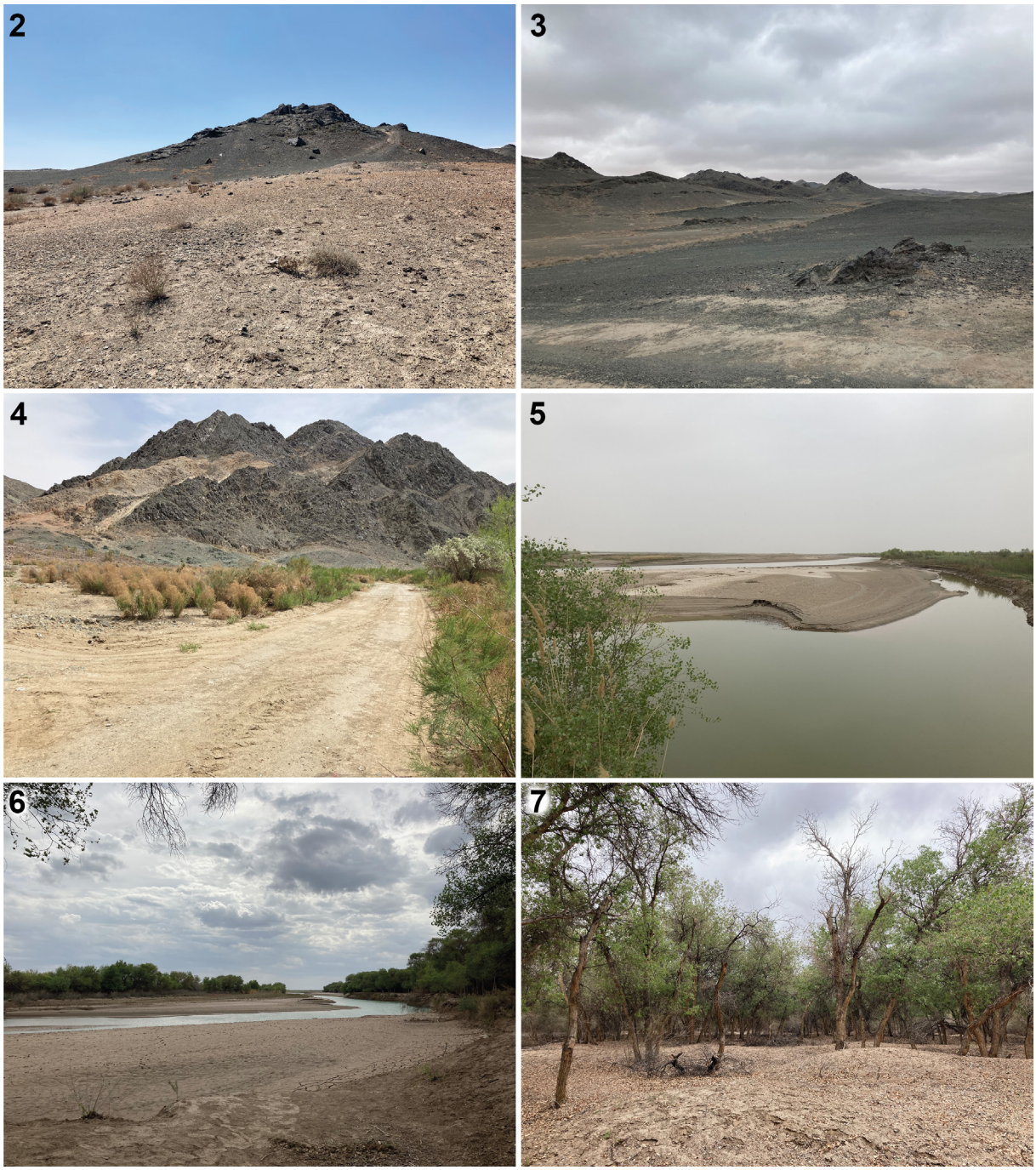
1 – Moynaq, *2* – Moynaq District, Kyzylzhar, *3* – Shege, *4* – Ustyurt, Elabad, *5* – Ustyurt, between Elabad and Kungrad, *6* –northeast of Kungrad, *7* – Shaykh Jalil Bobo ziyoratgohi, *8* – Lower Amudarya State Biosphere Reserve, *9* – turning from the road to the Lower Amudarya State Biosphere Reserve, *10* – Sulton Uvays Mts., *11* – Ellikala District, Kyzylkum desert, *12* – Xonqa, Sarapayan, *13* – Xonqa District, the Amudarya bank, *14* – northeast of Akaltyn, *15* – Miskin water distribution center, Kyzylkum desert, *16* – Khiva District, Karakum desert, sands with Haloxylon, *17* – the same, solonchak and sands with Tamarix, *18* – Hazorasp District, Kyzylkum desert, the first locality, *19* – the same area, the second locality, *20* – Yangiariq District, south of Yangiariq, Karakum desert, *21* – Urgench State University.

Рис. 1. Места сбора жуков в Западном Узбекистане.

1 – Муйнак, *2* – Муйнакский район, Кызылжар, *3* – Шеге, *4* – Устюрт, Элабад, *5* – Устюрт, между Элабадом и Кунградом, *6* – северо-восточнее Кунграда, *7* – святыня Шейх Джалил, *8* – Нижне-Амударьинский государственный биосферный резерват, *9* – поворот на Нижне-Амударьинский государственный биосферный резерват, *10* – горы Султан Уайс, *11* – Элликалинский район, Кызылкум, *12* – Ханка, Сарапаян, *13* – Ханкинский район, берег Амударьи, *14* – северо-восточнее Акалтына, *15* – Мискинский водораспределительный центр, Кызылкум, *16* – Хивинский район, Каракум, пески с саксаулом, *17* – то же, солончаки и пески с тамариксом, *18* – Хазараспский район, Кызылкум, первое местонахождение, *19* – тот же район, второе местонахождение, *20* – Янгиарыкский район, южнее Янгиарыка, Каракум, *21* – Ургенчский государственный университет.

[Pirnazarov, 1970; Kuznetsov, 1970, 1971; Nepesova, 1980; Kaplin, 2019 etc.]. Mitroshina [1988] indicated that this species also rarely occurs in spring in the southern Ustyurt. Dry beetles were found in western Uzbekistan on different types of landscapes from fixed sands to clays and stony biotopes.

Distribution. Kazakhstan from the Caspian Sea to the Ili River [Skopin, 1964], Uzbekistan, Turkmenistan, Tadjikistan [Pirnazarov, 1970], Afghanistan [Iwan et al., 2020]. Uzbekistan was omitted in the Catalogue of Palaearctic Coleoptera [Iwan et al., 2020] in the distribution of *A. gebleri*. Pirnazarov [1970] listed this species for Nukus, Khodzheyli, Chimbay, Takhtakopyr.

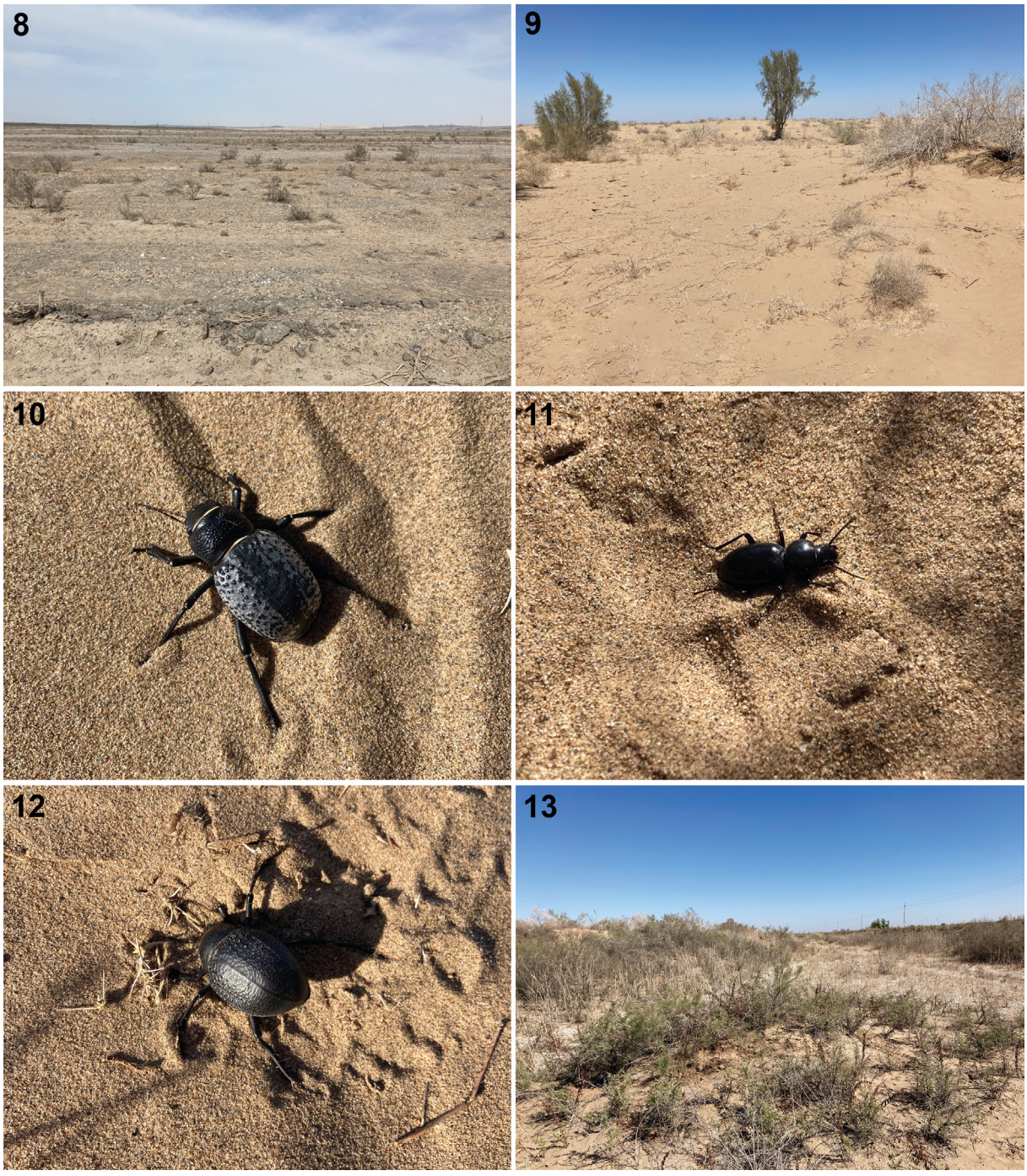


Figs 2–7. Habitats and localities (number in parentheses as on map) of darkling beetles in western Uzbekistan.

2–3 – Sulton Uvays Mts. (*10*); 4 – mountains and halophytic biotopes near Shaykh Jalil Bobo ziyoratgohi (*7*); 5 – Xonqa District, the Amudarya bank with tugai forests and halophytic meadows (*13*); 6–7 – the Lower Amudarya State Biosphere Reserve (*8*), the river bank and tugai forest.

Рис. 2–7. Биотопы и местонахождения (число в скобках как на карте) чернотелок в Западном Узбекистане.

2–3 – горы Султан Уайс (*10*); 4 – горы и галофитные биотопы возле святыни Шейх Джалил (*7*); 5 – Ханкинский район, берег Амударьи с тугаями и галофитными лугами (*13*); 6–7 – Нижне-Амударьинский государственный биосферный резерват (*8*), берег реки и туги.

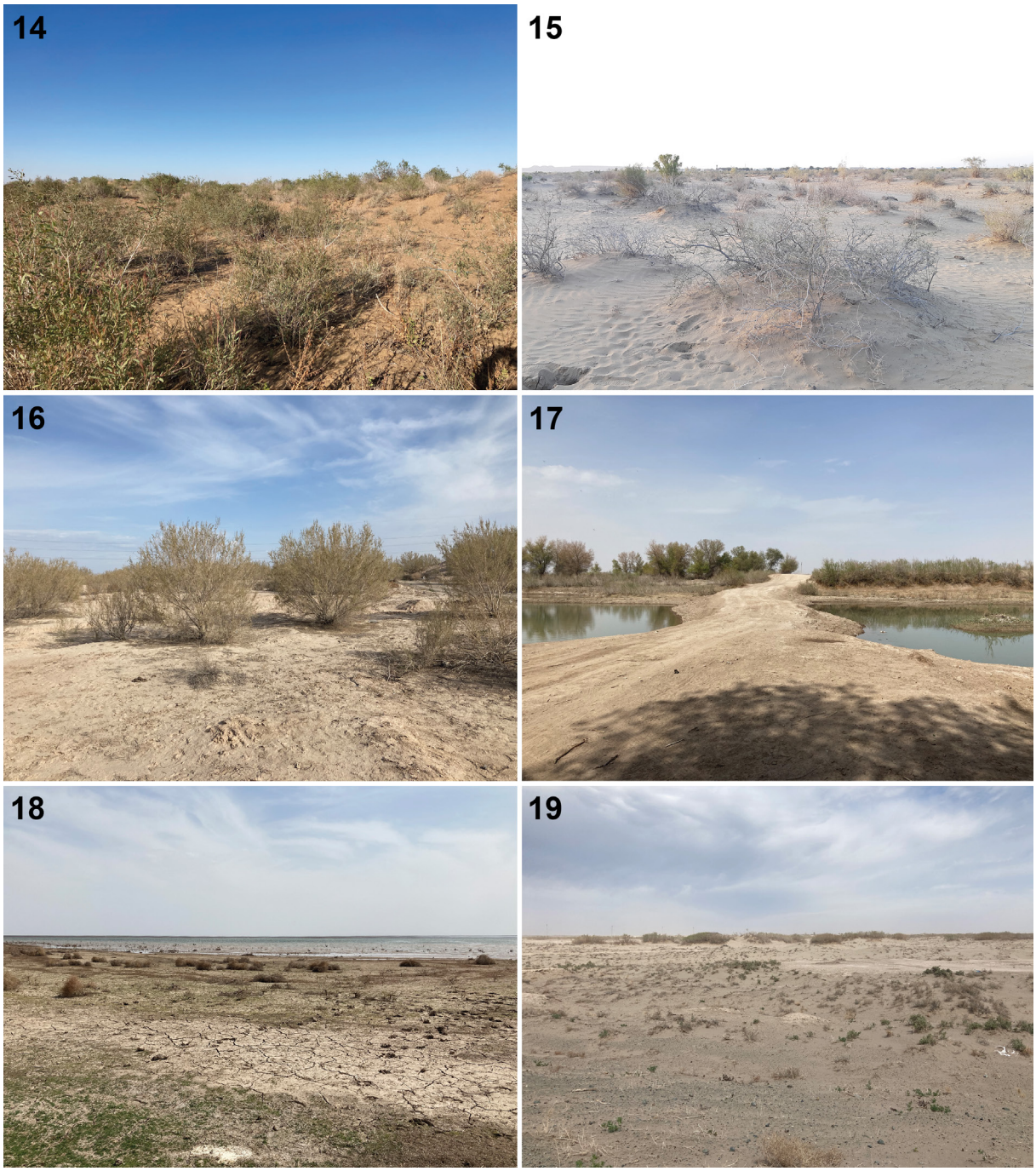


Figs 8–13. Habitats, localities (number in parentheses as on map) and darkling beetles in nature, western Uzbekistan.

8 – turning from the road to Lower Amudarya State Biosphere Reserve (*9*), rubble-clay desert with Artemisia; 9 – Khiva District, Karakum desert, sands with Haloxylon (*16*); 10 – the same locality, *Trigonoscelis nodosa*; 11 – the same locality, *Microdera minax*; 12 – the same locality, *Pisterotarsa gigantea*; 13 – Khiva District, Karakum desert, solonchak and sands with Tamarix (*17*).

Рис. 8–13. Биотопы, местонахождения (число в скобках как на карте) и жуки-чернотелки в природе, Западный Узбекистан.

8 – поворот с трассы на Нижне-Амударьинский государственный биосферный резерват (*9*), щебнисто-глинистая пустыня с Artemisia; 9 – Хивинский район, Каракум, пески с саксаулом (*16*); 10 – там же, *Trigonoscelis nodosa*; 11 – там же, *Microdera minax*; 12 – там же, *Pisterotarsa gigantea*; 13 – Хивинский район, Каракум, солончак и пески с Tamarix (*17*).



Figs 14–19. Habitats and localities (number in parentheses as on map) of darkling beetles in western Uzbekistan.

14 – Turtkul District, northeast of Akaltyn, sandy ridges with young Populus (Turanga) (*14*); 15 – Hazorasp District, sands in Kyzylkum desert (*18*); 16 – northeast of Kungrad, black saxaul on sandy loam (*6*); 17 – Moynaq District, Kyzylzhar, channel in the Amudarya River delta, tugai (*2*); 18 – the same locality, solonchak with Artemisia, salty lake; 19 – Shege, eolic sandy ridges with Tamarix (*3*).

Рис. 14–19. Биотопы и местонахождения (число в скобках как на карте) чернотелок в Западном Узбекистане.

14 – Турткульский район, северо-восточнее Акалтына, песчаные гряды с молодыми турангами (*14*); 15 – Хазараспский район, пески в Кызылкуме (*18*); 16 – северо-восточнее Кунграда, черносаксаульник на супесях (*6*); 17 – Муйнакский район, Кызылжар, канал в дельте Амударьи с тугаями (*2*); 18 – там же, солончак с Artemisia, соленое озеро; 19 – Шеге, эоловые песчаные гряды с Tamarix (*3*).

Figs 20–23. Habitats, localities (number in parentheses as on map) and darkling beetles in nature, western Uzbekistan.

20 – Ustyurt, Elabad, sandy desert with Haloxylon (*4*); 21 – the same locality, *Trigonoscelis muricata*; 22 – Ustyurt, between Elabad and Kungrad, clay desert with Artemisia and Tamarix (*5*), night photography; 23 – the same locality, *Colposcelis* sp., night photography.

Рис. 20–23. Биотопы и местонахождения (число в скобках как на карте) и жуки-чернотелки в природе, Западный Узбекистан.

20 – Устюрт, Элабад, песчаная пустыня с саксаулом (*4*); 21 – там же, *Trigonoscelis muricata*; 22 – Устюрт, между Элабадом и Кунградом, глинистая пустыня с Artemisia и Tamarix (*5*), ночная съемка ; 23 – там же, *Colposcelis* sp., ночная съемка.

Adesmia (s. str.) *karelini karelini*
Fischer von Waldheim, 1835
(Figs 26, 27)

Material. 1♀, dry (PCMN), 1♂, dry (PCNB), Karakalpakstan, Kungrad District, near Elabad, Ustyurt Plateau, sands, 43°05′13″N / 58°19′55″E, 23.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov, U.E. Duschanov, D.A. Yavkachev).

Bionomics. *Adesmia karelini* was specified as spring species by Nepesova [1980], but Skopin [1964] characterizes the species as autumn. Mitroshina [1988] also collected *A. karelini* during three years only in autumn in the southern Ustyurt. We did not find alive specimens in April.

Distribution. Iwan et al. [2020] erroneously listed this species for Azerbaijan and China, and they provisionally mentioned Uzbekistan. In fact, this subspecies was known until recently from Mangyshlak Plateau in Kazakhstan [Skopin, 1964], western Turkmenistan, including the southern Ustyurt [Nepesova, 1980; Medvedev, Nepesova, 1985, 1989; Mitroshina, 1988], and northern Iran [Medvedev, Nepesova, 1989; Grimm, 2015]. Our specimens are the first confirmed record in Uzbekistan.

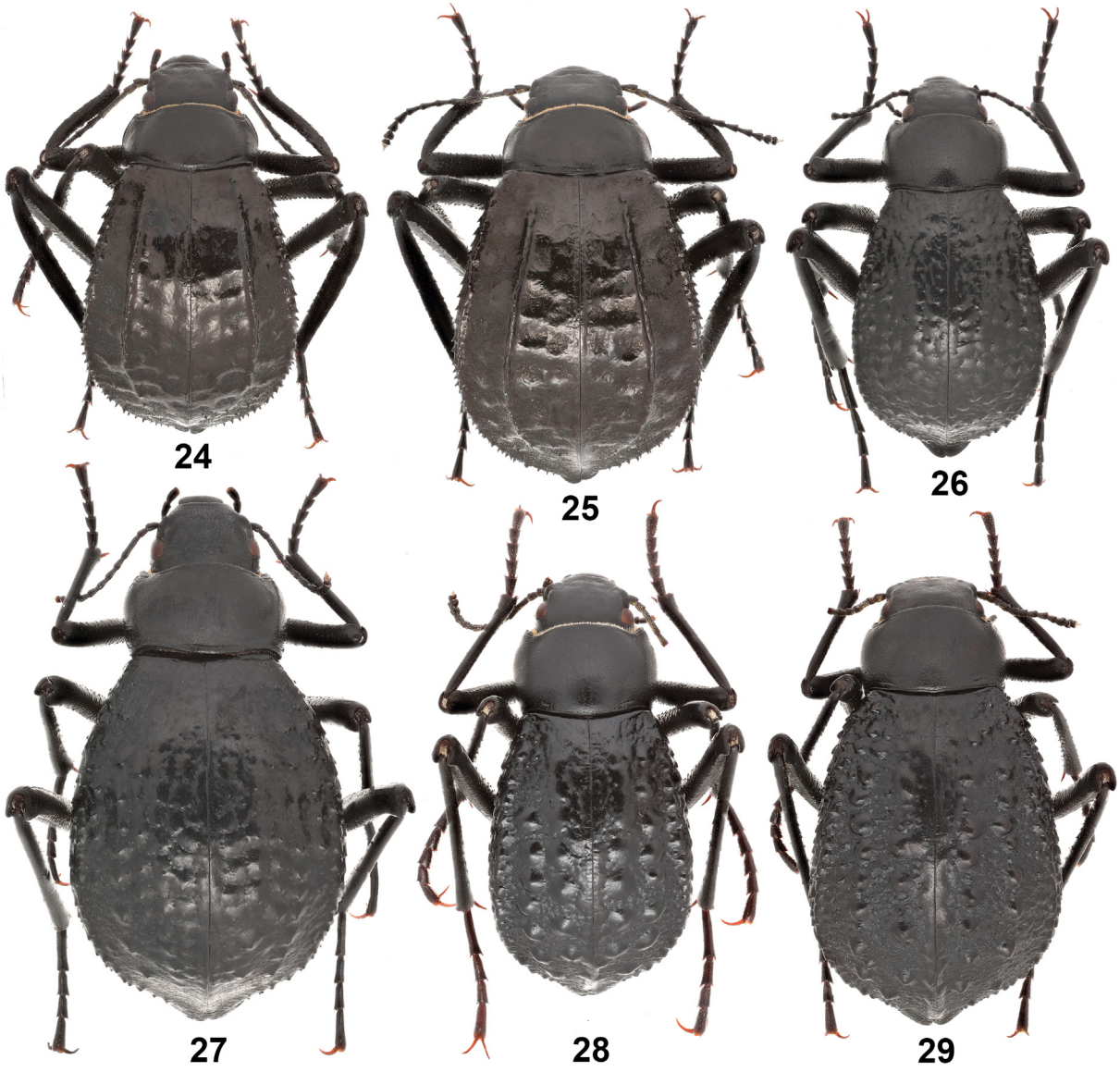
Adesmia (s. str.) *lehmanni* Ménétriés, 1849
(Figs 28, 29)

Material. 1♂, 1♀ (PCMN), 2 ex. (PCNB), Karakalpakstan, Kungrad District, NE of Kungrad, 43°06′10″N / 59°01′39″E, 21.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov, U.E. Duschanov, D.A. Yavkachev).

Distribution. The species occurs sporadically in Kazakhstan (Syrdarya valley and neighboring territories of northern Kyzylkum and the Hungry Steppe) [Skopin, 1968]. It was recorded by Pirnazarov [1970] for the Amudarya delta in Uzbekistan (Kuskhantau), and omitted from Uzbekistan in the Catalogue of Palaearctic Coleoptera [Iwan et al., 2020].

Tribe Akidini Billberg, 1820
Cyphogenia (s. str.) *gibba gibba*
(Fischer von Waldheim, 1820)
(Fig. 30)

Material. 6 ex. (ZIN, PCMN, PCNB), Karakalpakstan, N of Moynaq, sands, 43°47′53″N / 59°01′42″E, 23.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov, U.E. Duschanov, D.A. Yavkachev); 4 ex. (ZIN, PCMN, PCNB), Karakalpakstan, Kungrad District, between Elabad and Kungrad, Ustyurt Plateau, clay desert, 43°05′08″N / 58°32′25″E,



Figs 24–29. Tenebrionidae (Adesmiini) from western Uzbekistan, habitus.
24–25 – *Adesmia gebleri*: 24 – male, 25 – female; 26–27 – *A. karelini karelini*: 26 – male, 27 – female; 28–29 – *Adesmia lehmanni*: 28 – male, 29 – female.
Рис. 24–29. Жуки-чернотелки (Adesmiini) из Западного Узбекистана, габитус.
24–25 – *Adesmia gebleri*: 24 – самец, 25 – самка; 26–27 – *A. karelini karelini*: 26 – самец, 27 – самка; 28–29 – *Adesmia lehmanni*: 28 – самец, 29 – самка.

23.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov, U.E. Duschanov, D.A. Yavkachev).

Bionomics. Nocturnal species. It inhabits different landscapes with consolidated sands and sandy loams, clay and eolian sediments. The species occurs in deserts with Artemisia, Tamarix, Calligonum, Haloxylon ammodendron; it feeds on plants and animal detritus.

Distribution. Transcaucasia, southern Kazakhstan, Uzbekistan, Turkmenistan, Tajikistan, Afghanistan [Pirnazarov, 1970].

Cyphogenia (*Lechriomus*) *limbata* (Fischer von Waldheim, 1820) (Fig. 31)

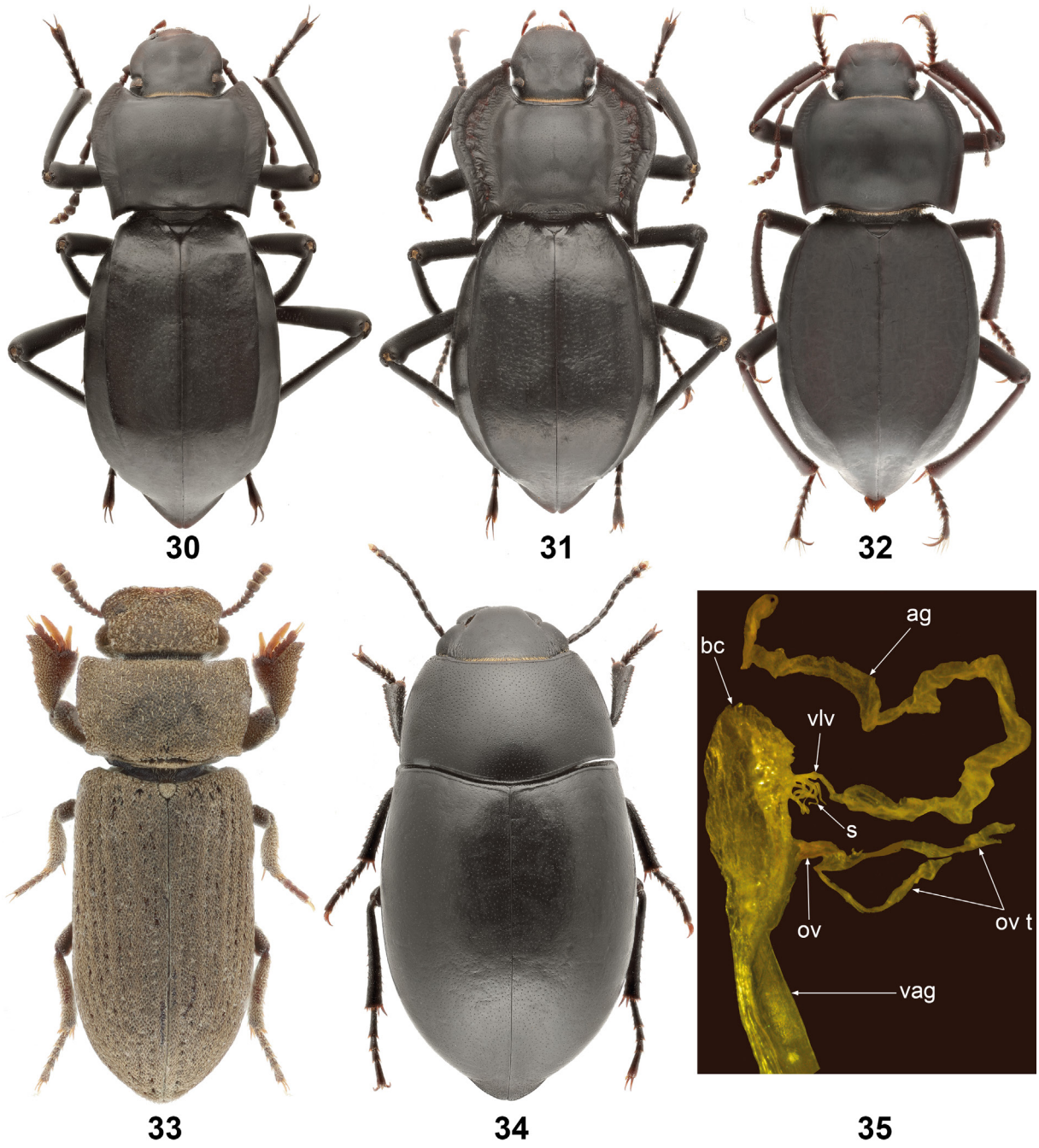
Material. 1 ex., dry (PCMN), Karakalpakstan, Kungrad District, near Elabad, Ustyurt Plateau, sands, 43°05′13″N / 58°19′55″E, 23.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov, U.E. Duschanov, D.A. Yavkachev).

Distribution. Southern Kazakhstan from Mangyshlak Plateau to the Ili River and Balkhash Lake, Karakum and Kyzylkum deserts [Skopin, 1964; Pirnazarov, 1970]. Pirnazarov [1970] listed this species for western Kyzylkum (Kulatau and Nukus). New record for the Ustyurt.

Sarothropus depressus (Zubkov, 1837) (Fig. 32)

Material. 4 ex., dry (PCMN), Khorezm Region, Khiva District, Karakum desert, 41°19′47″N / 60°27′08″E, Haloxylon habitat, 18.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov, U.E. Duschanov).

Distribution. Sands of Karakum and Kyzylkum deserts [Skopin, 1968; Medvedev, Nepesova, 1985]. This species was recorded for Khorezm (Meshekli) and Bukhara regions [Pirnazarov, 1970].



Figs 30–35. Tenebrionidae from western Uzbekistan, habitus and details of structure.

30 – *Cyphogenia gibba gibba*; 31 – *Cyphogenia limbata*; 32 – *Sarothropus depressus*; 33 – *Cnemeplatia atropos atropos*; 34–35 – *Gnathosia schrenkii*: 34 – male habitus, 35 – female genital ducts. Abbreviations: ag – accessory gland of spermatheca, bc – bursa copulatrix, ov – oviduct, ov t – pair of oviduct tubes, s – spermatheca, vag – vagina, vlv – one-way valve between acessory gland and spermatheca.

Рис. 30–35. Жуки-чернотелки из Западного Узбекистана, габитус и детали строения.

30 – *Cyphogenia gibba gibba*; 31 – *Cyphogenia limbata*; 32 – *Sarothropus depressus*; 33 – *Cnemeplatia atropos atropos*; 34–35 – *Gnathosia schrenkii*: 34 – самец, габитус, 35 – половые протоки самки. Обозначения: ag – железа сперматеки, bc – копулятивная сумка, ov – яйцевод, ov t – пара каналов яйцевода, s – сперматека, vag – вагина, vlv – односторонний клапан между железой и сперматекой.

Tribe Cnemeplatiini Jacquelin du Val, 1861

Cnemeplatia atropos atropos A. Costa, 1847

(Fig. 33)

Material. 1 ex. (ZIN), Khorezm Region, Xonqa District, Amudarya bank, 41°27′04.7″N / 60°59′11.3″E, 13.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. Bekchanov); 1 ex. (ZIN), Khorezm Region, Khiva District, Karakum desert, 41°19′47″N / 60°27′08″E, Haloxylon habitat, 18.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov, U.E. Duschanov).

Bionomics. This subspecies was collected at light on sand hill near the Amudarya and sifted under Haloxylon persicum Bunge in Karakum desert.

Distribution. The nominotypical subspecies is widespread in Southern Europe, the Middle East, Transcaucasia, Middle Asia, Iran and Afghanistan [Iwan et al., 2020]. It is known also from Southern Russia (Volgograd Region [Abdurakhmanov, Nabozhenko, 2011]; omitted in the Catalogue of Palaearctic Coleoptera [Iwan et al., 2020]). The subspecies *C. atropos africana* Kaszab, 1938 is known from Iberian Peninsula and Maghreb [Iwan et al., 2020].

Philhammus (s. str.) sp.

Material. 1 ex. (ZIN), Khorezm Region, Xonqa District, Amudarya bank, 41°27′04.7″N / 60°59′11.3″E, 13.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. Bekchanov).

Notes. This species, collected at light, differs from the similar pre-Caspian *Ph. zaitzevi* Medvedev, 1979. A more detailed comparative analysis, illustrations and description will be presented in a separate taxonomic review. The first record of the genus in Uzbekistan.

Tribe Edrotini Lacordaire, 1859

Gnathosia schrenkii (Gebler, 1844)
(Figs 34, 35)

Material. 4♂, 2♀ (ZIN, PCNB), Urgench, Urgench State University, garden, 41°33′14.9″N / 60°36′19.3″E, 25.05.2023 (N.Kh. Bekchanov); 11♂, 6♀, 2 dry ex. (PCNB), the same locality, 5–10.07.2023 (N.Kh. Bekchanov).

Bionomics. The species was collected on clay soils in the university garden; diurnal activity.

Notes. Doyen [1993] transferred only one Palaearctic genus *Ascelosodis* L. Redtenbacher, 1868 to the tribe Edrotini (originally he transferred it to Eurymetopini, the junior synonym of Edrotini according to Bouchard et al. [2021]) based on the structure of female genital ducts. He also noted that "it seems likely that some other eastern Asian genera of Tentyriini may also be Eurymetopini" [Doyen, 1993: 500]. The genital ducts of Edrotini are characterized by the presence of spermatheca with multiple separated branches (small ducts) at the base, one-way valve between spermatheca, terminal long and wide accessory gland and bursa copulatrix (Fig. 35), while Tentyriini have not spermatheca, only bursa copulatrix and accessory gland [Chigray, Abakumov, 2019]. Doyen [1993] erroneously interpreted this bursa as spermatheca, but in fact, this structure presents only a protruding part of the vagina which has not any clear boundaries or sclerotization. The female genital ducts in *Gnathosia* Fischer von Waldheim, 1821 are very similar to those in *Ascelosodis*, which also has short multibranched spermatheca and one-way valve, but bursa copulatrix is not expressed [Doyen, 1993: fig. 188]. In addition, the oval body shape without constriction between pro- and pterothorax, as well as wrinkles on dorsal surface of the head near eyes, are also not characteristic features for wingless Tentyriini, but typical features for Edrotini (Fig. 34). Thus, we transfer the genus *Gnathosia* from the tribe Tentyriini to the tribe Edrotini.

Tribe Erodiini Billberg, 1820

Ammozoides hauseri (Reitter, 1894)
(Fig. 36)

Material. 1 ex. (ZIN), Khorezm Region, Yangiariq District, S of Yangiariq, Karakum desert, 41°15′51.0″N / 60°31′36.8″E, 24.05.2023 (N.Kh. Bekchanov).

Bionomics. The specimen was collected in non-fixed sands.

Distribution. Uzbekistan (new record for the country; Karakum desert), Turkmenistan (southeastern Karakum [Kaszab, 1979; Medvedev, Nepesova, 1985]).

Arthrodosis planosternum Reitter, 1915
(Fig. 37)

Material. 1 ex. (ZIN), Karakalpakstan, Beruni District, Sulton Uvays Mts., 42°02′19″N / 60°39′26″E, 230 m, 15.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov, U.E. Duschanov); 6 ex. (ZIN, PCMN, PCNB), Karakalpakstan, Amudarya District, Karatau Mts., around Shaykh Jalil Bobo ziyoratgohi, 42°09′30″N / 60°15′03″E, 24.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov, U.E. Duschanov, D.A. Yavkachev); 1 ex. (PCMN), Karakalpakstan, Beruni District, turning from the road to Lower Amudarya State Biosphere Reserve, 42°01′27″N / 60°26′34″E, 24–25.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov).

Bionomics. This species was found in clay-stony and clay deserts with Artemisia and Tamarix; nocturnal species.

Distribution. This species was known only from southeastern Uzbekistan (type locality: Kumkurgan) [Kaszab, 1959]. New for western Uzbekistan.

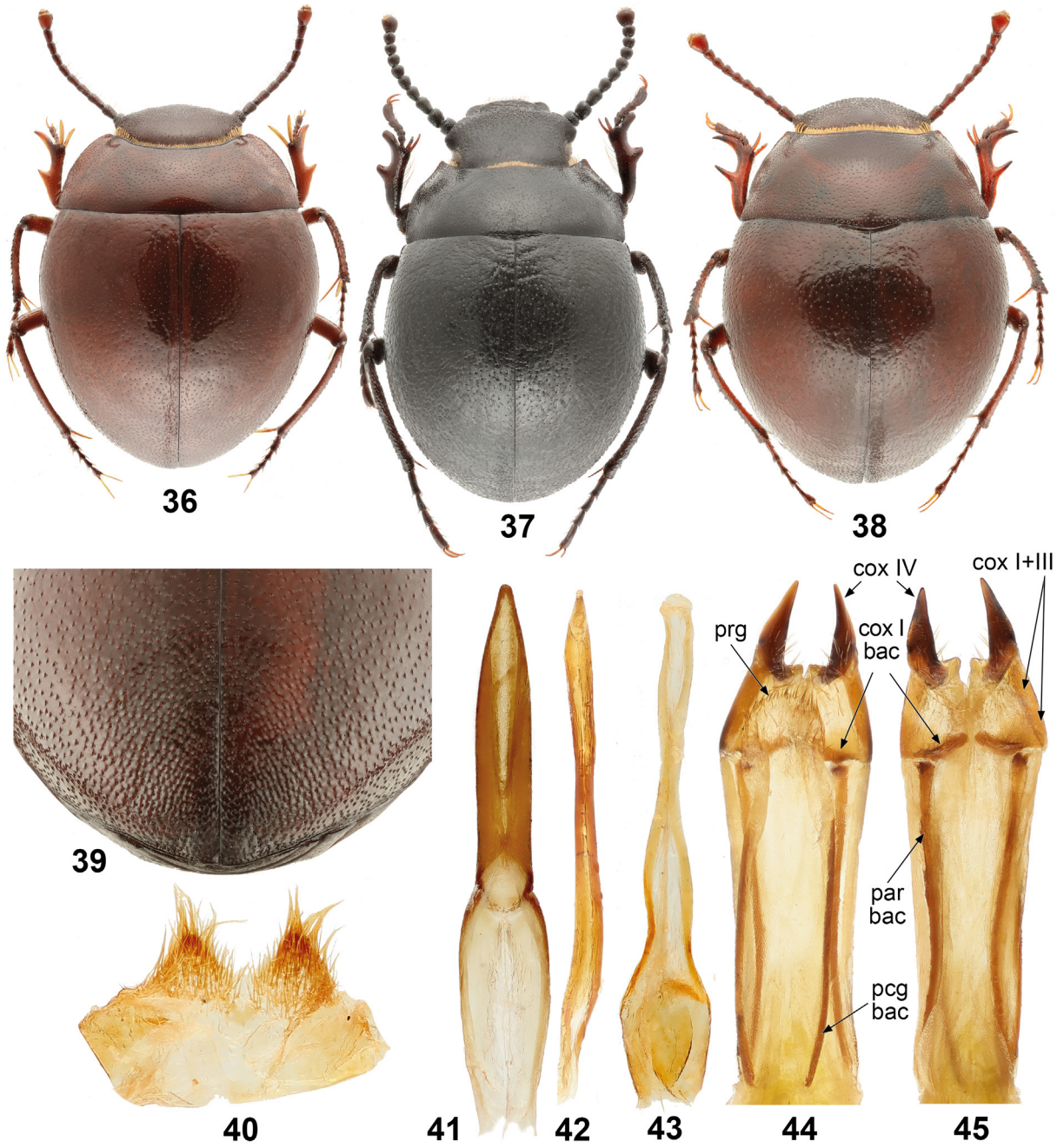
Diaphanidus mamuni
Nabozhenko et N. Bekchanov, **sp. n.**
(Figs 38–48)

Material. Holotype, ♂ (ZIN): Uzbekistan, Karakalpakstan, Turtkul District, NE of Akaltyn, 41°25′42″N / 61°10′47″E, turanga on sands, 20.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov). Paratypes: 6♂, 7♀ (ZIN, PCMN, PCNB), the same data as in the holotype.

Description. Body almost spherical, 1.34–1.37 times as long as wide, weakly shiny, from red-brown to dark-brown. Body length 6–8 mm, width 4.5–5.8 mm. Anterior margin of epistoma widely emarginated, lateral margin of head with deep rectangular excision between epistoma and gena. Lateral margin of genae angle-shaped apically and basally, but straight between these angles. Frons smooth, without puncturation or granulation near vertex, with very coarse and dense granulation on other surface. Antennae thin, reaching base of pronotum when directed backward, sparsely and finely punctured; antennomeres 1–6 or 1–9 with long sparse erected setae; antennomere 2 elongate, with almost the same shape as 3rd one; antennomere 9 longitudinal; antennomere 10 triangle, apical margin generally weakly rounded, with rounded middle and straight sides; lateral margins straight or inner lateral margin very weakly rounded (Figs 46–48).

Pronotum strongly transverse, widest at base, 2.23–2.5 times as wide as long. Lateral margins evenly weakly rounded, but sometimes almost straight, evenly converge from base to anterior margin. Anterior margin widely weakly emarginated, anterior angles not strongly projected, narrowly rounded at apex. Base weakly widely emarginated on sides and shortly rounded at middle. Posterior angles right, rarely weakly acute, narrowly rounded at apex. Anterior margin completely finely beaded, other margins unbeaded. Puncturation in the middle of disc sparse and fine (interpuncture distance 3–4 times as long as puncture diameter), on sides denser (interpuncture distance near 2 times as long as puncture diameter); punctures weakly rasp-like or simple (one specimen). Prothoracic hypomera not concave, glabrous. Prosternum with coarse and dense rugose puncturation, long sparse erected hairs near anterior margin and sparse recumbent pubescence on the rest surface. Prosternal process flat, with subparallel or expanding to apex lateral margins.

Elytra weakly transverse 1.07–1.1 times as wide as long, narrowed to apex. Carina between elytra and epipleura full. Disc with simple fine and sparse punctures (interpuncture distance



Figs 36–45. Tenebrionidae (Erodiini) from western Uzbekistan, habitus and details of structure.

36 – *Ammozoides hauseri*, habitus; 37 – *Arthrodosis planosternum*, habitus; 38–45 – *Diaphanidus mamuni* Nabozhenko et N. Bekchanov, **sp. n.**: 38 – habitus, 39 – apex of female elytra, 40 – male inner sternite VIII, 41 – tegmen, ventrally, 42 – median lobe of aedeagus (penis), 43 – spiculum gastrale, 44 – ovipositor, dorsally, 45 – same, ventrally. Abbreviations: cox I–IV – lobes of coxite, cox I bac – baculi of coxite lobe I, par bac – paraproct baculi, pcg – proctiger, pcg bac – proctiger baculi.

Figs 36–45. Жуки-чернотелки (Erodiini) из Западного Узбекистана, габитус и детали строения.

36 – *Ammozoides hauseri*, габитус; 37 – *Arthrodosis planosternum*, габитус; 38–45 – *Diaphanidus mamuni* Nabozhenko et N. Bekchanov, **sp. n.**: 38 – габитус, 39 – вершина надкрылий, 40 – внутренний стернит VIII самца, 41 – тегмен вентрально, 42 – медиальная доля эдеагуса (пенис), 43 – гастральная спикула, 44 – яйцеклад дорсально, 45 – то же, вентрально. Обозначения: cox I–IV – доли коксита, cox I bac – бакули I доли коксита, par bac – бакули парапрокта, pcg – проктигер, pcg bac – бакули проктигера.

5–6 times as long as puncture diameter) in middle, with sparse (but denser than in middle) rasp-like granulation on sides of the middle and with simple (not crescent) round denser granulation on lateral sides; apical part of elytra with very dense and coarse (granule diameter little longer than intergranule distance) granulation, granules not merged into wrinkles in both sexes (Fig. 39).

Mesoventrite widely weakly concave in male and flat in female, with coarse longitudinal wrinkles. Metavetrite together with first, second and partly third abdominal ventrites widely concave in male and flattened in female. Abdominal ventrites shiny, with sparse fine puncturation; ventrite 5 (sometimes 4 and 5) with dull transverse fine and dense rugosity.

Profemora with dense very long erected hairs on inner side, mesofemora with sparse subrecumbent hairs, and metafemora glabrous. Protibiae with two long teeth, with apical tooth reaching middle of protarsomere 5. Metatarsomere 1 slightly shorter than metatarsomeres 2 and 3 together, subequal to length of metatarsomere 4.

Male genitalia (Figs 40–43). Inner sternite VIII with acute apices (Fig. 40). Spiculum gastrale without common stem (Fig. 43). Apical piece of tegmen parallel, not widened at base, much narrower than basal piece; apex of apical piece narrowly rounded (Fig. 41). Median lobe of aedeagus thin, with ball-like apex or acute (Fig. 42).

Ovipositor (Figs 44, 45). Paraproct long, with slightly bent baculi. Proctiger also long, with clear long baculy and widely rounded apex. Coxites I–III merged. Baculi of coxite I transverse, widened at apex. Coxite IV transformed to strongly sclerotized, elongate and acute blades with long dense setae at base.

Diagnosis. The new species is similar to *D. crassiantennatus* **sp. n.** (Figs 53–61) from western Uzbekistan and *D. globosus* Skopin, 1961 (Figs 62–69) from southern Uzbekistan and southwestern Tajikistan by the structure of weakly rounded apical margin of the antennomere 10, but differs from both species in the brown or red-brown body (black in both compared species). In addition, the new species differs from both species by the structure of antennomeres, especially the shape of the longer apical antennomere with straight lateral margins (Figs 46–48). *Diaphanidus globosus* also has straight lateral margins of the ultimate antennomere, but its apical margin evenly rounded (Fig. 49), while in *D. mamuni* **sp. n.** it straight or slightly emarginated on sides and shortly rounded in middle (dorsal view) (Figs 46, 47). *Diaphanidus mamuni* **sp. n.** additionally differs from *D. crassiantennatus* **sp. n.** by evenly rounded lateral margins of the pronotum (Fig. 38) (straight or weakly emarginated at basal half in the latter species (Fig. 53)) and the structure of thin antennomeres (thickened ones in compared species (Fig. 50)). The new species differs from *D. granulatus* Bogatchev, 1950 (central Kyzylkum) by the absence of crescent granules on sides of the pronotum. Other species of the nominatypical subgenus are different in the structure of strongly elongate apical antennomere (Figs 51, 52) with strongly rounded apex (lateral sides of apical margin are almost vertical) and bare prohypomera (sparsely covered by long hairs at least in *D. narynensis* Medvedev et Kaltaev, 1979 and *D. semenowi* Reitter, 1900).

Two well illustrated keys [Skopin, 1961a; Kaszab, 1979] allow easily distinguish other species of Middle Asian *Diaphanidus* Reitter, 1900. In this case we must inform that the character of sexual dimorphism using by Skopin and Kaszab can not be used in the diagnostics of *Diaphanidus* Reitter, 1900. Skopin [1961a] noted that females of *D. globosus* have granules at elytral apex merged to concentric wrinkles. This character is very variable (Figs 39, 54, 55, 64, 65). We checked three populations of *D. globosus* and found that only majority of females from Termez (type locality) have such sculpture. Females from the Tajik population have smooth callus-like elytral apex without wrinkles (Fig. 64). Females from Qashqadaryo Province of Uzbekistan have distinct not merged granules at elytral apex (Fig. 65). Two median size females of *D. crassiantennatus* **sp. n.** have separate granules without wrinkles (Fig. 54), while one large female have granules merged in several concentric wrinkles along suture (Fig. 55). Females of *D. mamuni* **sp. n.** have simple separate dense granules (Fig. 39). At the same time, the most important character of the structure of antennae remains unchanged in all specimens of each mentioned species.

Bionomics. Nocturnal species. We collected many specimens near the Kyzylkum desert in the turanga bush woodland on loose sands (Fig. 14).

Etymology. The new species is named in honour of the great early medieval educator khwarazmshah Abul-Abbas Mamun ibn Mamun, who founded the first scientific center in ancient Khorezm (11th century).

Notes. Several specimens recorded by Pirnazarov [1970, 1973] as *Diaphanidus volganus* Semenov et Bogatchev, 1940 (junior synonym of *D. ferrugineus* (Fischer von Waldheim, 1821)) are misidentified and can belong to *Diaphanidus mamuni* **sp. n.**, *D. crassiantennatus* **sp. n.**, and *Arthrodosis planosternum* Reitter, 1915 (at least his specimen from Sulton Uvays Mts.). We didn't find this material in ZIN.

Diaphanidus crassiantennatus Nabozhenko et N. Bekchanov, **sp. n.**

(Figs 50, 53–61)

Material. Holotype, ♂ (ZIN): Uzbekistan, Karakalpakstan, Kungrad District, between Elabad and Kungrad, Ustyurt Plateau, clay desert, 43°05′08″N / 58°32′25″E, 23.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov, U.E. Duschanov, D.A. Yavkachev). Paratypes: 2♂, 3♀ (3 ex. in ZIN, 1 ex. in PCMN, 1 ex. in PCNB), the same data as in the holotype; 2♀ (ZIN): Uzbekistan, Karakalpakstan, N of Moynaq, sands, 43°47′53″N / 59°01′42″E, 1.06.2022 (N.Kh. Bekchanov).

Description. Body almost spherical, 1.32–1.35 times as long as wide, dull or very weakly shiny, black, legs dark-brown. Body length 5–10 mm, width 4.2–6.5 mm. Anterior margin of epistoma widely emarginated, lateral margin of head with deep rectangular excision between epistoma and gena. Lateral margin of genae angle-shaped apically and basally, but straight between these angles. Frons smooth, without puncturation or granulation near vertex, with very coarse and dense granulation on other surface. Antennae thick, reaching base of pronotum when directed backward, sparsely and coarsely punctured; antennomeres 1–6 with long sparse erected setae; antennomere 2 widened, barrel-shaped, much wider and shorter than antennomere 3, antennomere 9 transverse; antennomere 10 short, oviform, apical margin generally weakly rounded, lateral margins slightly rounded (Fig. 50).

Pronotum strongly transverse, widest at base, 3 times as wide as long. Lateral margins straight or even weakly emarginated in basal half, weakly converge from base to middle and after middle sharply and strongly converge to anterior margin. Anterior margin widely weakly emarginated, anterior angles not strongly projected, narrowly rounded at apex. Base almost straight. Posterior angles right, narrowly rounded at apex. Anterior margin finely beaded, other margins unbeaded. Puncturation in the middle of disc sparse and fine (interpuncture distance 3–4 times as long as puncture diameter), on lateral sides denser (interpuncture distance near 2 times as long as puncture diameter); punctures weakly rasp-like. Prothoracic hypomera not concave, glabrous.

Prosternum with coarse and dense rugose puncturation, long sparse erected hairs near anterior margin and sparse recumbent pubescence on the rest surface. Prosternal process flat, with subparallel or expanding to apex lateral margins.

Figs 46–52. *Diaphanidus* spp., antennae.

46–48 – *D. mamuni* Nabozhenko et N. Bekchanov, **sp. n.**: 46 – dorsally (without antennomere 1), 47 – dorso-laterally, 48 – ventrally; 49 – *D. globosus* (type locality, Termez, Uzbekistan), dorsally; 50 – *D. crassiantennatus* Nabozhenko et N. Bekchanov, **sp. n.**, dorsally; 51 – *D. ferrugineus* (Astrakhan Region, Russia), dorsally (without antennomere 1); 52 – *D. semenowi*, syntype (ZIN; type locality, Taraz, Kazakhstan), dorsally.

Рис. 46–52. *Diaphanidus* spp., антенны.

46–48 – *D. mamuni* Nabozhenko et N. Bekchanov, **sp. n.**: 46 – дорсально (без 1-го антенномера), 47 – дорсолатерально, 48 – вентрально; 49 – *D. globosus* (типовое местонахождение, Термез, Узбекистан), дорсально; 50 – *D. crassiantennatus* Nabozhenko et N. Bekchanov, **sp. n.**, дорсально; 51 – *D. ferrugineus* (Астраханская область, Россия), дорсально (без 1-го антенномера); 52 – *D. semenowi*, синтип (ZIN; типовое местонахождение, Тараз, Казахстан), дорсально.

Elytra weakly transverse, 1.05–1.06 times as wide as long, narrowed to apex. Carina between elytra and epipleura full. Disc with simple fine and sparse punctures (interpuncture distance 5–6 times as long as puncture diameter) in middle, with sparse (but denser than in middle) rasp-like granulation on sides of middle and with simple round denser granulation on lateral sides; apical part of elytra with very dense and coarse (granule diameter little longer than intergranule distance) granulation, granules not merged into wrinkles (only one large female with several unclear wrinkles).

Mesoventrite widely weakly concave in male and flat in female, with coarse longitudinal wrinkles. Metaventrite together with first, second and partly third abdominal ventrites widely concave in male and flattened in female. Abdominal ventrites shiny, with sparse fine puncturation; ventrites 4 and 5 shiny, with fine transverse rugosity.

Profemora with dense very long erected hairs on inner side, mesofemora with sparse subrecumbent hairs, and metafemora glabrous. Protibiae with two long teeth, with apical tooth reaching middle of protarsomere 5. Metatarsomere 1 shorter than metatarsomeres 2 and 3 together, subequal to length of metatarsomere 4.

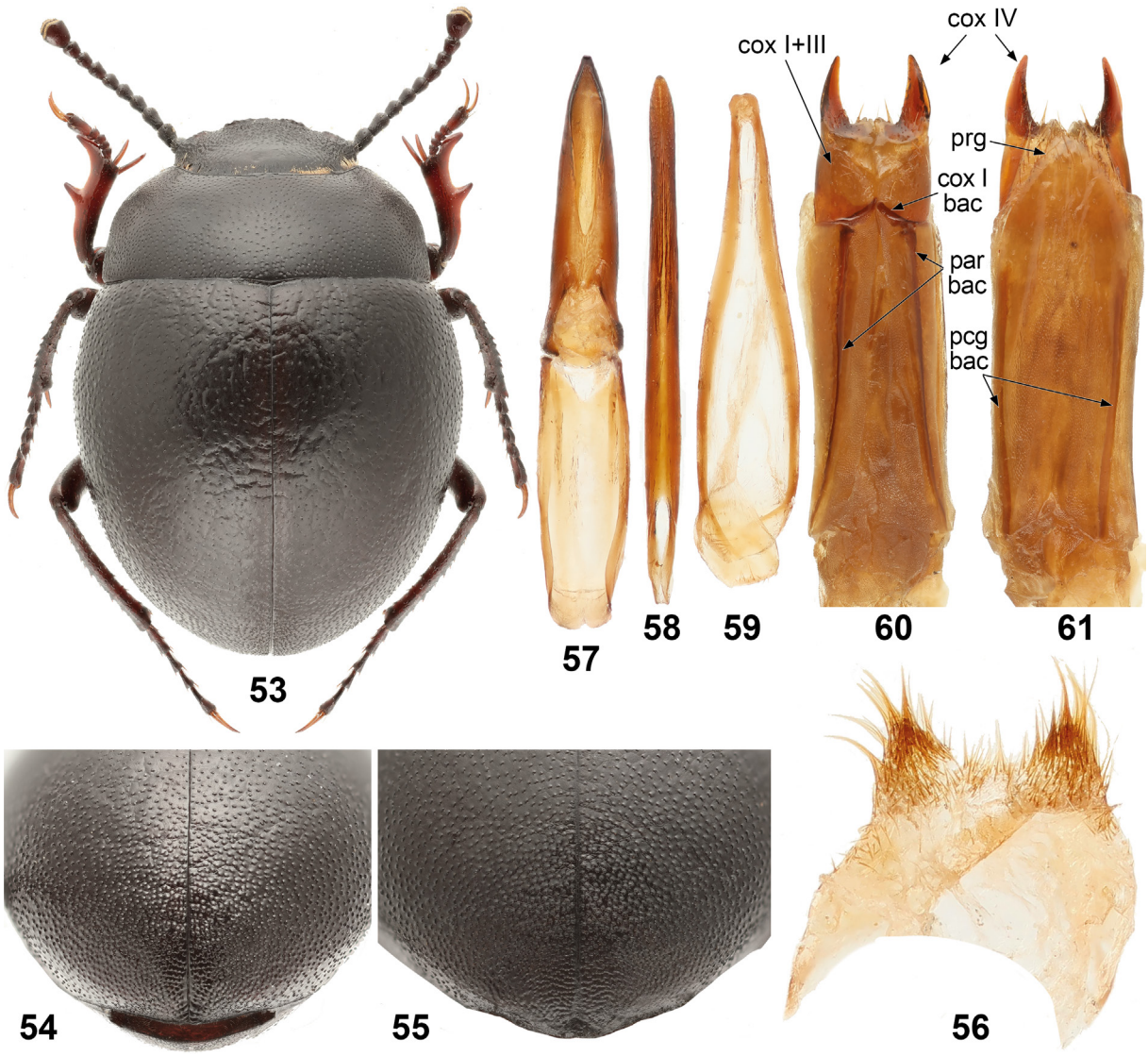
Male genitalia (Figs 56–59). Inner sternite VIII with acute apices (Fig. 56). Spiculum gastrale without common stem (Fig. 59). Apical piece of tegmen widened at base, with the same width as basal piece; apex of apical piece shortly truncate (Fig. 57). Median lobe of aedeagus moderately thickened, with ball-like apex narrowly rounded at apex (Fig. 58).

Ovipositor (Figs 60, 61). Paraproct long, with slightly bent baculi. Proctiger long, with clear long baculy and narrowly widened rounded apex. Coxites I–III merged. Baculi of coxite I transverse, widened at apex. Coxite IV transformed to strongly sclerotized, elongate and acute blades with sparse setae at base.

Diagnosis. The species is similar to *D. globosus* (Figs 49, 62–69) and *D. mamuni* **sp. n.** (Figs 38–48) by the structure of weakly rounded at apex antennomere 10 and differs from both species by thicker antennomeres with oviform apical antennomere (triangle and with straight lateral margins in both compared species), transverse antennomere 9 (longitudinal in both compared species) and strongly widened antennomere 2 (weakly widened in both compared species). See antennae of *D. globosus* (Fig. 49) and *D. mamuni* **sp. n.** (Figs 46–48). The structure of the male genitalia of *D. crassiantennatus* **sp. n.** is similar to those in *D. globosus* (Figs 66–69).

Bionomics. This nocturnal species inhabits clay desert (Ustyurt) (Fig. 22) or sandy loam (southern coast of the former Aral Sea).

Etymology. The name refers to the structure of antennae and is compiled from Latin words “crassus” (thick) and “antenna”.



Figs 53–61. *Diaphanidus crassiantennatus* Nabozhenko et N. Bekchanov, **sp. n.**, habitus and details of structure.

53 – habitus; 54 – apex of female elytra (small female, length 5 mm); 55 – the same (large female, length 10 mm); 56 – male inner sternite VIII; 57 – tegmen, ventrally; 58 – median lobe of aedeagus; 59 – spiculum gastrale; 60 – ovipositor ventrally; 61 – ovipositor dorsally. Abbreviations for ovipositor structures as in Figs 44 and 45.

Рис. 53–61. *Diaphanidus crassiantennatus* Nabozhenko et N. Bekchanov, **sp. n.**, габитус и детали строения.

53 – габитус; 54 – вершина надкрылий (маленькая самка, длина 5 мм); 55 – то же (большая самка, длина 10 мм); 56 – внутренний стернит VIII самца; 57 – тегмен вентрально; 58 – медиальная доля эдеагуса (пенис); 59 – гастральная спикула; 60 – яйцеклад вентрально; 61 – то же, дорсально. Обозначения для структур яйцеклада как на рисунках 44 и 45.

Tribe Lachnogyini Seidlitz, 1894

Lachnogya squamosa Ménétriés, 1849
(Fig. 70)

Material. 1 ex. (ZIN), Karakalpakstan, Beruni District, Lower Amudarya State Biosphere Reserve, 41°58′38″N / 60°24′12″E, 15–16.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov, U.E. Duschanov); 1 ex. (ZIN), Khorezm Region, Khiva District, Karakum desert, 41°18′10″N / 60°27′03″E, Tamarix habitat, 19.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov, U.E. Duschanov); 2 ex. (PCNB), Karakalpakstan, Kungrad District, near Elabad, Ustyurt Plateau, sands, 43°05′13″N / 58°19′55″E, 23.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov, U.E. Duschanov, D.A. Yavkachev).

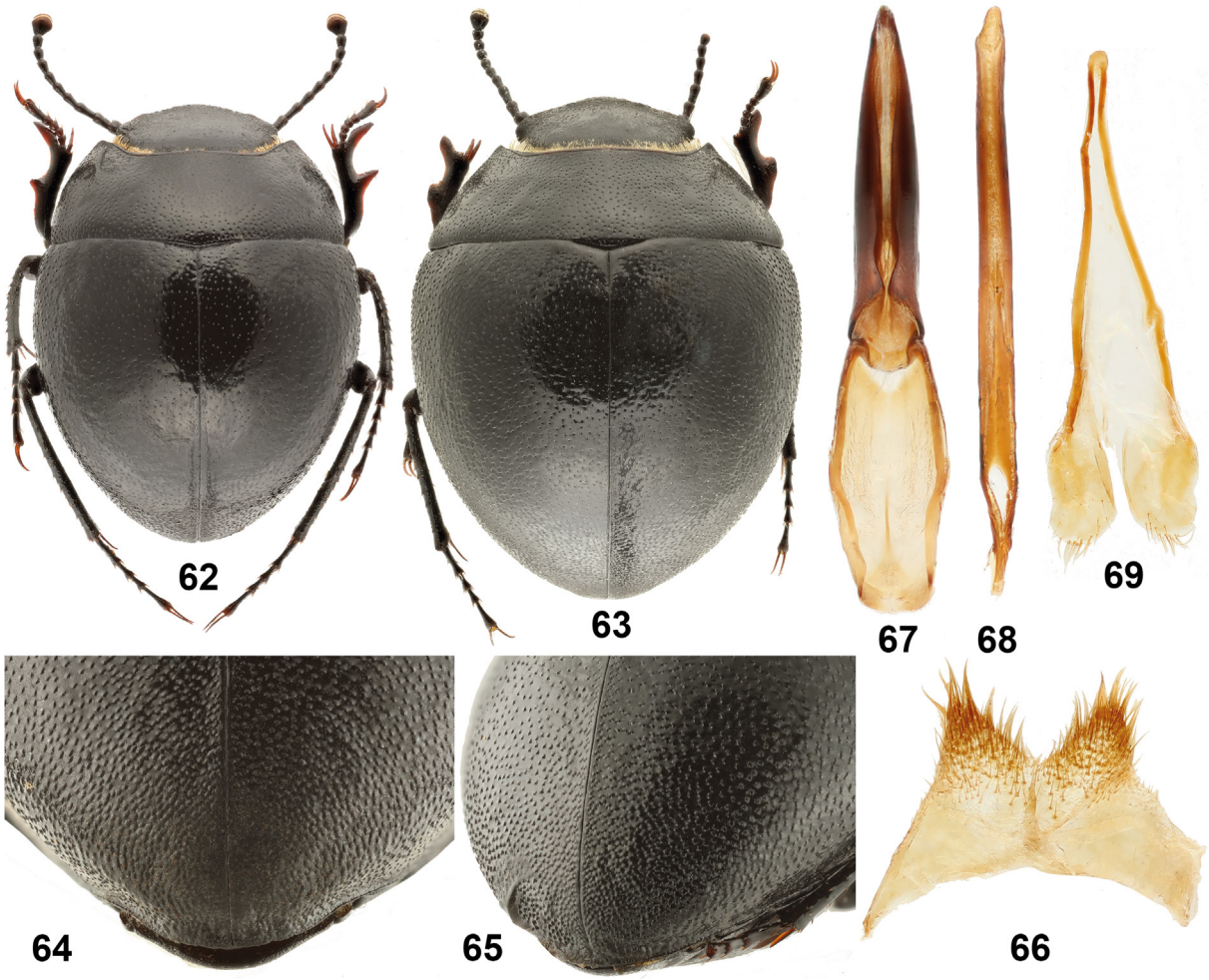
Bionomics. The species was collected on sands in plant detritus under Tamarix. Medvedev [2006] wrote that species of the tribe Lachnogyini use rodent burrows as shelters and habitats, but representatives of the genus *Lachnogya* Ménétriés, 1849 exhibit less bothrophilic features.

Distribution. South of the European part of Russia, Kazakhstan, Uzbekistan (east to the Fergana Valley), Turkmenistan, Tajikistan, Pakistan [Medvedev, 2006], Azerbaijan, Armenia [Abdurakhmanov, Nabozhenko, 2011].

Tribe Pimeliini Latreille, 1802

Argyrophana caspia Semenov, 1910
(Fig. 71)

Material. 1 ex. (ZIN), Khorezm Region, Yangiariq District, S of Yangiariq, Karakum desert, 41°15′51.0″N / 60°31′36.8″E, 24.05.2023 (N.Kh. Bekchanov).



Figs 62–69. *Diaphanidus globosus*, habitus and details of structure.

62 – male habitus (PCMN; Termez environs, Uzbekistan); 63 – female habitus (ZIN; Qubodiyon, Tajikistan); 64 – female elytral apex (Qubodiyon, Tajikistan); 65 – female elytral apex (Qashqadaryo Region, Uzbekistan); 66 – male inner sternite VIII; 67 – tegmen, ventrally; 68 – median lobe of aedeagus; 69 – spiculum gastrale.

Figs 62–69. *Diaphanidus globosus*, габитус и детали строения.

62 – самец, габитус (PCMN; окрестности Термеза, Узбекистан); 63 – самка, габитус (ZIN; Кабадиан, Таджикистан); 64 – вершина надкрылий самки (Кабадиан, Таджикистан); 65 – то же (Кашкадарьинская область, Узбекистан); 66 – внутренний стернит VIII самца; 67 – тегмен, вентрально; 68 – медиальная доля эдеагуса; 69 – гастральная спикула.

Bionomics. The species was collected in sand desert at night under a large Haloxylon.

Distribution. The species was known only from western and northern Turkmenistan [Medvedev, Nepesova, 1985]. New record for Uzbekistan.

Diesia sexdentata sexdentata Fischer von Waldheim, 1820 (Fig. 72)

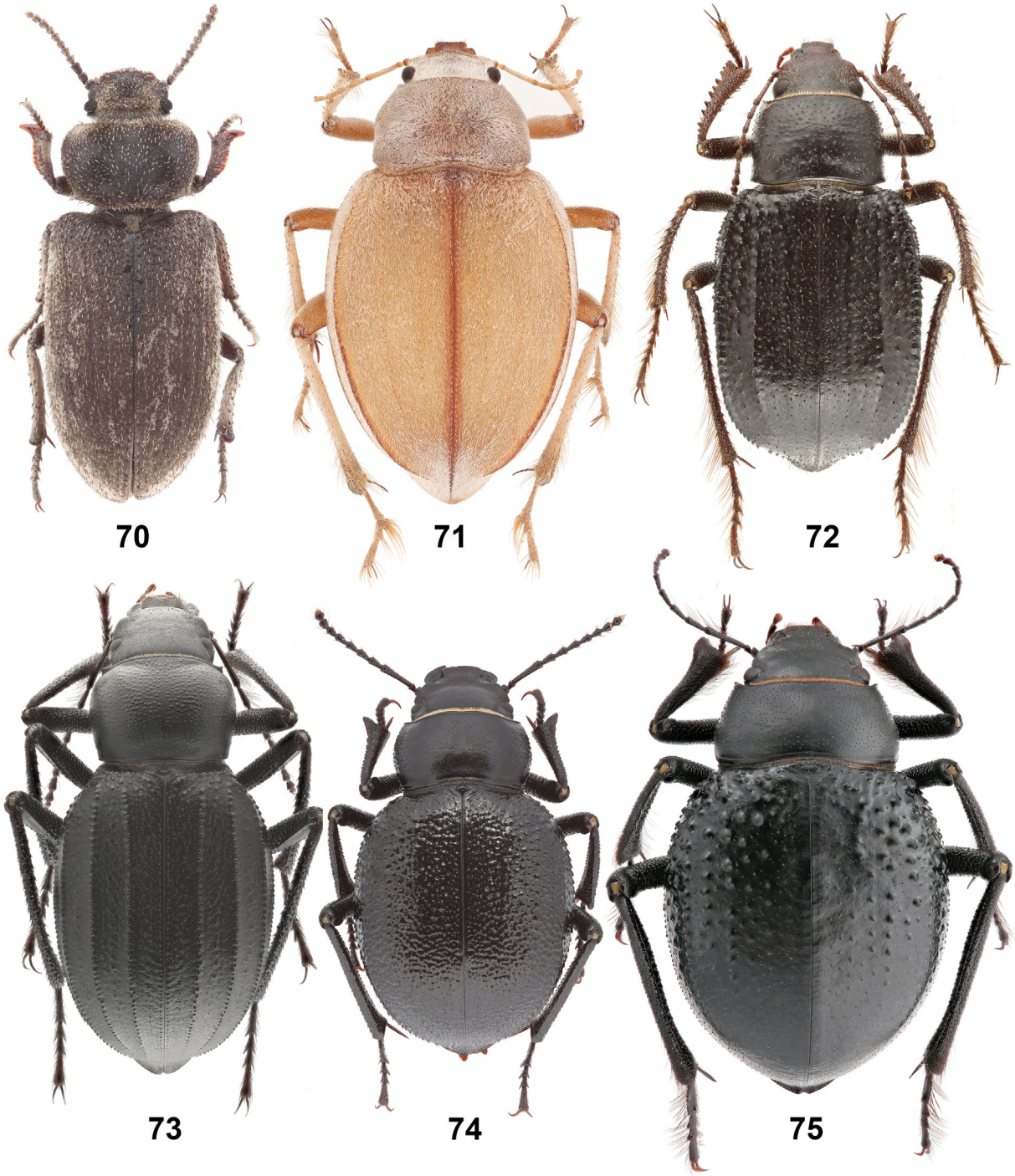
Material. 7 ex. (ZIN, PCMN, PCNB), Karakalpakstan, N of Moynaq, sands, 43°47′53″N / 59°01′42″E, 23.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov, U.E. Duschanov, D.A. Yavkachev); 24 ex. (ZIN, PCMN, PCNB), Karakalpakstan, Kungrad District, near Elabad, Ustyurt Plateau, sands, 43°05′13″N / 58°19′55″E, 23.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov, U.E. Duschanov, D.A. Yavkachev).

Bionomics. This nocturnal species inhabits fixed and non-fixed sands. At night, it climbs different bushes, feeding on dry branches (observations on the Ustyurt Plateau) and Calligonum (observation near Moynaq). Pirnazarov [1970] observed *D. sexdentata* at dusk and at night on semi-fixed sands. Kaplin [2019] mentioned that this species is active in the morning or in the daytime (in spring).

Distribution. Karakum and Kyzylkum deserts, lower reaches of the Sarysu River in Kazakhstan [Medvedev, Nepesova, 1985]. Pirnazarov [1970] listed this species for Nukus and Kuskhantau in western Uzbekistan. The first record for the Ustyurt Plateau.

Ocnera pilicollis (Faldermann, 1836) (Fig. 73)

Material. 6 ex. (ZIN, PCMN, PCNB), Karakalpakstan, N of Moynaq, sands, 43°47′53″N / 59°01′42″E, 23.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov, U.E. Duschanov, D.A. Yavkachev); 1 ex. (ZIN), Karakalpakstan, Amudarya District, Karatau Mts., around Shaykh Jalil Bobo ziyoratgohi, 42°09′30″N / 60°15′03″E, 24.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov, U.E. Duschanov, D.A. Yavkachev); 2 ex. (ZIN, PCMN), Karakalpakstan, Beruni District, turning from the road to Lower Amudarya State Biosphere Reserve, 42°01′27″N / 60°26′34″E, 24–25.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov).



Figs 70–75. Tenebrionidae of western Uzbekistan, habitus.
Рис. 70–75. Жуки-чернотелки Западного Узбекистана, габитус.
70 – *Lachnogya squamosa*; 71 – *Argyrophana caspia*; 72 – *Diesia sexdentata sexdentata*; 73 – *Ocnera pilicollis*; 74 – *Pimelia cephalotes cephalotes*; 75 – *Pisterotarsa gigantea gigantea*.

Bionomics. The species inhabits desert landscapes with consolidated sands, clay deserts, rarely stony biotopes. Nocturnal, imagoes and larvae occurs under stones and other large shelters and in rodent burrows, especially from the subfamily Gerbillinae [Skopin, 1964]. Davletshina [1967] observed the feeding of this species on Artemisia, Salsola and different ephemerals.

Distribution. Middle Asia: western and southern Kazakhstan north to the Ustyurt and Mangyshlak, south of Betpak-Dala desert, foothills of Dzhungarian Alatau, Uzbekistan, Turkmenistan, Tajikistan, northern Afghanistan [Davletshina, 1967; Pirnazarov, 1970; Medvedev, Nepesova, 1985], Kyrgyzstan and Iran [Iwan et al., 2020].

Pimelia (*Chaetotoma*) *cephalotes cephalotes* (Pallas, 1781)
(Fig. 74)

Material. 2 ex., dry (PCMN, PCNB), Karakalpakstan, Amudarya District, Karatau Mts., around Shaykh Jalil Bobo ziyoratgohi, 42°09′30″N / 60°15′03″E, 24.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov, U.E. Duschanov, D.A. Yavkachev).

Distribution. Southern Russia (Caspian depression; many sources), Kazakhstan from the Caspian Sea to Tarbagatay [Skopin, 1961b, 1964, 1968; Medvedev, Nepesova, 1985], Turkmenistan [Medvedev, Nepesova, 1985, 1989], Tajikistan [Skopin, 1961b], Iran [Medvedev, Nepesova, 1985, 1989], western Uzbekistan: Nukus, lower reaches of the Amudarya (the country is omitted in the Catalogue of Palaearctic Coleoptera [Iwan et al., 2020]) [Pirnazarov, 1970; Medvedev, Nepesova, 1989]. The subspecies *P. cephalotes bactriana* Bogatchev, 1964 is distributed in Kattakum desert, southern Uzbekistan [Iwan et al., 2020].

Pisterotarsa gigantea gigantea
(Fischer von Waldheim, 1820)
(Figs 12, 75)

Material. 10 ex. (ZIN, PCMN, PCNB), Khorezm Region, Khiva District, Karakum desert, 41°19′47″N / 60°27′08″E, Haloxylon, 18.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov, U.E. Duschanov); 5 ex. (PCNM), Karakalpakstan, Turtkul District, Kyzylkum desert, Miskin water distribution center, 41°26′56″N / 61°11′57″E, 20.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov); 3 ex. (PCMN, PCNB), Karakalpakstan, Kungrad District, near Elabad, Ustyurt Plateau, sands, 43°05′13″N / 58°19′55″E, 23.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov, U.E. Duschanov, D.A. Yavkachev).

Bionomics. Very numerous darkling beetle on fixed and semi-fixed sands in Kyzylkum, Karakum deserts and the Ustyurt. It was found at dusk (starting at 6:00 pm in April) and at night, feeding on dry seeds and leaves of Salsola, Haloxylon and Calligonum. Beetles burrow into the sand during the day. Kaplin [1995] published a detailed information on bionomics of this species in Turkmenistan.

Distribution. Karakum, Kyzylkum (Kazakhstan, Uzbekistan, Turkmenistan) and Muyunkum (Kazakhstan) deserts [Medvedev, Nepesova, 1985], Ustyurt ([Mitroshina, 1986, 1988]; present data). The subspecies *P. gigantea zoubkoffi* Reitter, 1915 is distributed in southeastern Turkmenistan and southern Uzbekistan [Medvedev, Nepesova, 1985; Iwan et al., 2020].

Platyesia karelini (Fischer von Waldheim, 1844)
(Fig. 76)

Material. 1 ex. (ZIN), Khorezm Region, Khiva District, Karakum desert, 41°19′47″N / 60°27′08″E, Haloxylon habitat, 18.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov, U.E. Duschanov); 4 ex. (one is dry) (ZIN, PCNB), Karakalpakstan, Kungrad District, near Elabad, Ustyurt Plateau, sands, 43°05′13″N / 58°19′55″E, 23.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov, U.E. Duschanov, D.A. Yavkachev); 2 ex. (PCNB), Khorezm Region, Hazorasp (Tuprokkala) District, Kyzylkum desert, 41°04′29.5″N / 61°58′12.2″E, 3.06.2023 (N.Kh. Bekchanov, O.N. Jumaniyozov).

Bionomics. The species was collected on sparsely fixed sands with Calligonum at night (from 8:00 pm in April).

Distribution. Mangyshlak (Kazakhstan) [Skopin, 1964], southern Ustyurt (Turkmenistan) [Mitroshina, 1986, 1988], Karakum and Kyzylkum deserts (Uzbekistan, Turkmenistan) [Medvedev, Nepesova, 1985], Kattakum desert in Uzbekistan (data of the second author), Tajikistan [Iwan et al., 2020].

Sternoplax (*Parasternoplax*) *affinis australis* Skopin, 1973
(Fig. 77)

Material. 11 ex. (ZIN, IZUZ, PCMN, PCNB), Karakalpakstan, Amudarya District, Karatau Mts., around Shaykh Jalil Bobo ziyoratgohi, 42°09′30″N / 60°15′03″E, 24.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov, U.E. Duschanov, D.A. Yavkachev).

Bionomics. Nocturnal species which inhabits halophytic biotopes with Tamarix on clay soil, burrows and hides in eolian sediments under bushes during the day. Davletshina [1967] collected *S. affinis australis* under Xylosalsola and Salsola. Skopin [1968] registered the nominotypical subspecies under Kalidium and Haloxylon and mentioned that imagoes crawling on branches at night and heavily damage saxaul.

Distribution. Uzbekistan: northern [Skopin, 1973] and southwestern Kyzylkum [Davletshina, 1967], southeast of the Aral Sea region, Turkmenistan [Skopin, 1973], Iran and Afghanistan [Kaszab, 1960]. The nominotypical subspecies is known only in southern Kazakhstan [Skopin, 1968]. It's interesting that Medvedev and Nepesova [1985] did not mentioned *S. affinis* in their key to Tenebrionidae of Turkmenistan.

Trachyderma (*Atrachyderma*) *triangulare triangulare*
(Faust, 1875)
(Fig. 78)

Material. 4 ex. (ZIN, PCMN, PCNB), Khorezm Region, Khiva District, Karakum desert, 41°19′47″N / 60°27′08″E, Haloxylon habitat, 18.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov, U.E. Duschanov); 7 ex. (PCMN, PCNB), Khorezm Region, Khiva District, Karakum desert, 41°18′10″N / 60°27′03″E, Tamarix habitat, 19.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov, U.E. Duschanov).

Bionomics. Nocturnal psammophilic species which was collected from 8:00 pm under large Haloxylon and Calligonum in plant detritus. Davletshina [1967] and Kaplin [2019] characterized the nominotypical subspecies as phytophagous. Medvedev [1958] observed the subspecies *T. triangulare australe* Medvedev, 1964 feeding on Astragalus and Artemisia.

Distribution. Southern Kazakhstan, Kyzylkum and Karakum deserts (Usbekistan and Turkmenistan), northern Afghanistan [Medvedev, Nepesova, 1985]. The subspecies *T. triangulare australe* is known from Badkhyz, southern Turkmenistan [Medvedev, Nepesova, 1985].

Trigonoscelis (s. str.) *gemmulata gemmulata*
Ménétriés, 1849
(Fig. 79)

Material. 1 ex., dry (PCMN), Karakalpakstan, Turtkul District, Kyzylkum desert, Miskin water distribution center, 41°26′56″N / 61°11′57″E, 20.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov).

Notes. Pirnazarov [1970] listed "*T. punctipleuris*" from Khodzheyli (Karakalpakstan). Now this taxon is a subspecies *Trigonoscelis gemmulata punctipleuris* Reitter, 1893. We did not find this specimen(s) in ZIN collection and associate this record with an erroneous identification or interpretation, because this clear subspecies with

punctured ventral side of elytra occurs only in southeastern Turkmenistan [Skopin, 1973].

Distribution. Kazakhstan, Uzbekistan: Kyzylkum, Hungry Steppe [Skopin, 1973].

Trigonoscelis (s. str.) *muricata muricata* (Pallas, 1781)
(Figs 21, 80)

Material. 2 ex. (one is dry) (ZIN), Karakalpakstan, Kungrad District, near Elabad, Ustyurt Plateau, sands, 43°05′13″N / 58°19′55″E, 23.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov, U.E. Duschanov, D.A. Yavkachev).

Bionomics. One alive specimen was found by day in sand near Haloxylon. The species inhabits almost all types of sands, excluding open non-fixed dunes. Larvae occur in soil under bushes, often under Artemisia [Skopin, 1964].

Distribution. Southeast of the European part of Russia (Astrakhan Region), Kazakhstan from Mangyshlak and the northwestern Ustyurt to the north of the Aral Sea region [Skopin, 1964], western Turkmenistan [Medvedev, Nepesova, 1985], Uzbekistan (Karakalpakstan; omitted in the Catalogue of Palaearctic Coleoptera [Iwan et al., 2020]) [Pirnazarov, 1973].

Trigonoscelis (s. str.) *nodosa* (Fischer-Waldheim, 1821)
(Figs 10, 81)

Material. 29 ex. (ZIN, PCMN, PCNB, IZUZ), Khorezm Region, Khiva District, Karakum desert, 41°19′47″N / 60°27′08″E, Haloxylon habitat, 18.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov, U.E. Duschanov).

Notes. Multiple taxa interpreted by Skopin [1973] as subspecies of *T. nodosa* are dubious. Characters of at least three subspecies (*T. nodosa grandis* Kraatz, 1965, *T. nodosa gigas* Reitter, 1893 and *T. nodosa pustulifera* Skopin, 1973) indicated in keys of Skopin [1973] and Medvedev and Nepesova [1985] were found in one population in the Uzbek part of Karakum. We collected specimens with rare and dense flattened elytral granules, rare and dense acute granules, specimens with or without sparse white incrustation. Some of these different "subspecies" copulated. Here we use *Trigonoscelis nodosa* sensu lato because mentioned above subspecies require molecular-genetic analysis to establish a status of these taxa.

Bionomics. Very numerous species. During the day it hides in the depth of sand (usually without vegetation); active at dusk, from 5:00 to 7:30 pm. Adults feed on dry leaves (litter) of Haloxylon, sometimes Calligonum. Often eat dead insects.

Distribution. Sand deserts in Kazakhstan, Uzbekistan, Turkmenistan, Afghanistan, and northwestern China [Skopin, 1973]. The subspecies *T. nodosa grandis* was recorded by Skopin [1973] for lower reaches of the Amudarya.

Trigonoscelis (s. str.) *seriata* Ménétriés, 1849
(Fig. 82)

Material. 19 ex. (PCNB), Karakalpakstan, Beruni District, Lower Amudarya State Biosphere Reserve, 41°58′38″N / 60°24′12″E, 27–28.08.2021 (N.Kh. Bekchanov); 15 ex. (ZIN, PCMN, PCNB, IZUZ), the same locality, 15–16.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov, U.E. Duschanov).

Bionomics. This species occurs exclusively in tugai forests. Adults burrow during the day in loose sandy loam under forest litter; active at night from 7:00 pm; feed on dry plant seeds, as well as fallen dry Tamarix inflorescences.

Distribution. Tugai forests in the Amudarya valley (with tributaries) in Uzbekistan, Turkmenistan, Tajikistan [Skopin, 1973], and with a high probability Afghanistan.

Trigonoscelis (s. str.) *sublaevicollis* Reitter, 1893
(Fig. 83)

Material. 3 ex. (PCNB), Karakalpakstan, N of Moynaq, sands, 43°47′53″N / 59°01′42″E, 1.06.2022 (N.Kh. Bekchanov); 8 ex. (ZIN, PCMN, PCNB), the same locality, 23.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov, U.E. Duschanov, D.A. Yavkachev); 1 ex., dry (PCMN), Karakalpakstan, Moynaq District, Shege, 43°34′24″N / 59°09′12″E, 22.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov, U.E. Duschanov, D.A. Yavkachev).

Bionomics. Nocturnal species inhabiting mixed consolidated and fixed hillock sands with Calligonum and Tamarix. Adults active from about 9:00 pm (in April).

Distribution. Turkmenistan, Uzbekistan: central, eastern and northeastern Karakum, western Kyzylkum [Skopin, 1973], (?) Iran [Iwan et al., 2020]. Pirnazarov [1970] recorded this species for western coast of the Aral Sea, Nukus, Takhtakupyr, Chimbay, Kegeyli.

Tribe Stenosini Schaum, 1859

Dichillus (*Dichillinus*) *reitteri* Semenov, 1890
(Fig. 84)

Material. 1 ex., dry (PCMN), Khorezm Region, Khiva District, Karakum desert, 41°18′10″N / 60°27′03″E, under Tamarix, 19.04.2023 (M.V. Nabozhenko).

Distribution. Uzbekistan (Karakum, Kyzylkum, Amudarya valley: Nukus, Kipchak, Khiva), Turkmenistan (Karakum) [Medvedev, 1975].

Tribe Tentyriini Eschscholtz, 1831

Flying epitragine-like species

Cyphostethe (s. str.) *seidlitzi* Reitter, 1916
(Fig. 85)

Material. 5 ex. (PCNB), Khorezm Region, Hazorasp (Tuprokkala) District, Kyzylkum desert, 40°57′14.6″N / 62°01′31.8″E, 3.06.2023 (N.Kh. Bekchanov, O.N. Jumaniyozov, U.E. Duschanov).

Bionomics. The specimen was collected at light in sand desert with Haloxylon persicum and Calligonum.

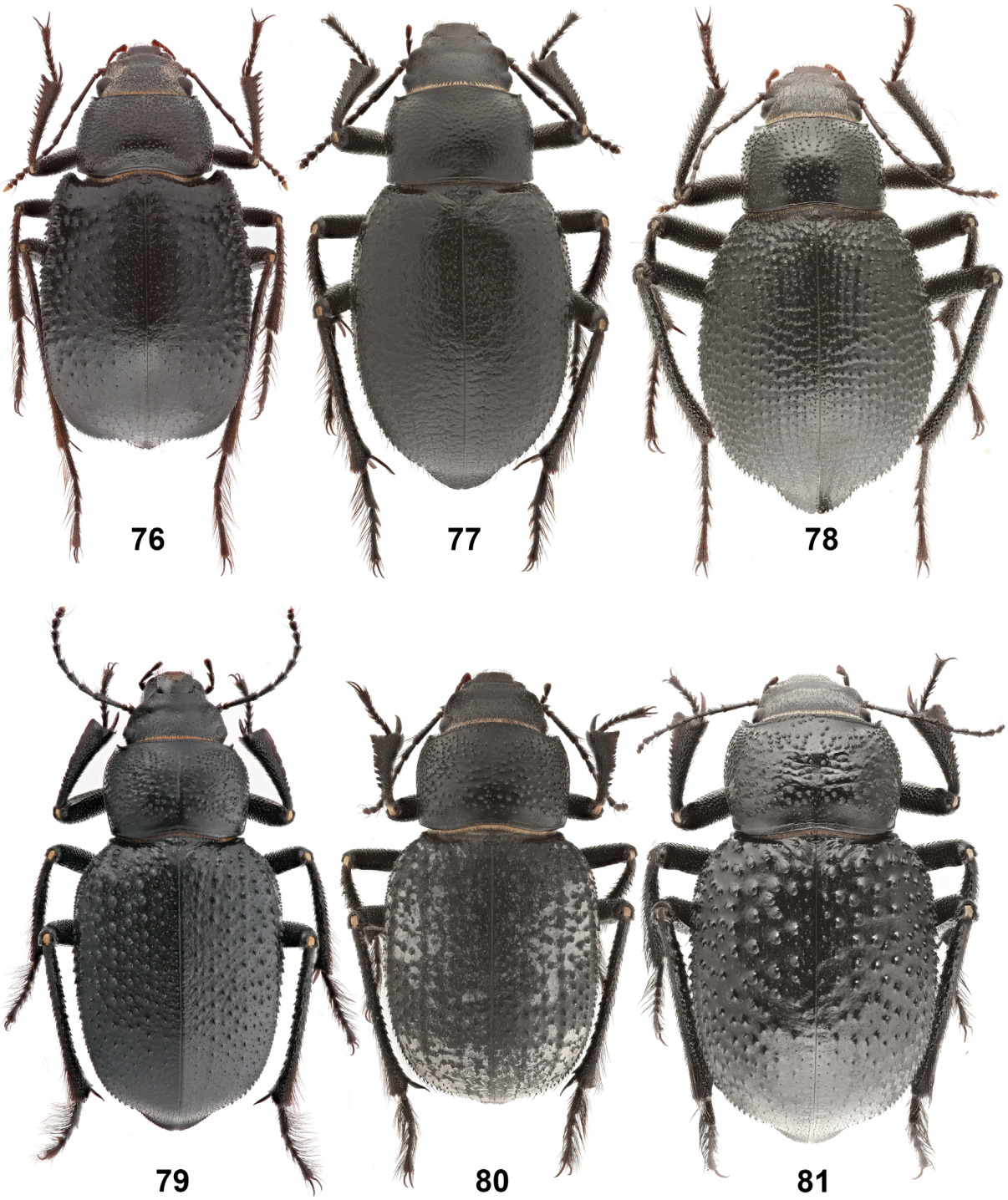
Distribution. Kazakhstan, Uzbekistan, Turkmenistan, Tajikistan [Iwan et al., 2020].

Leptosphena rubripes (Reitter, 1889)
(Fig. 86)

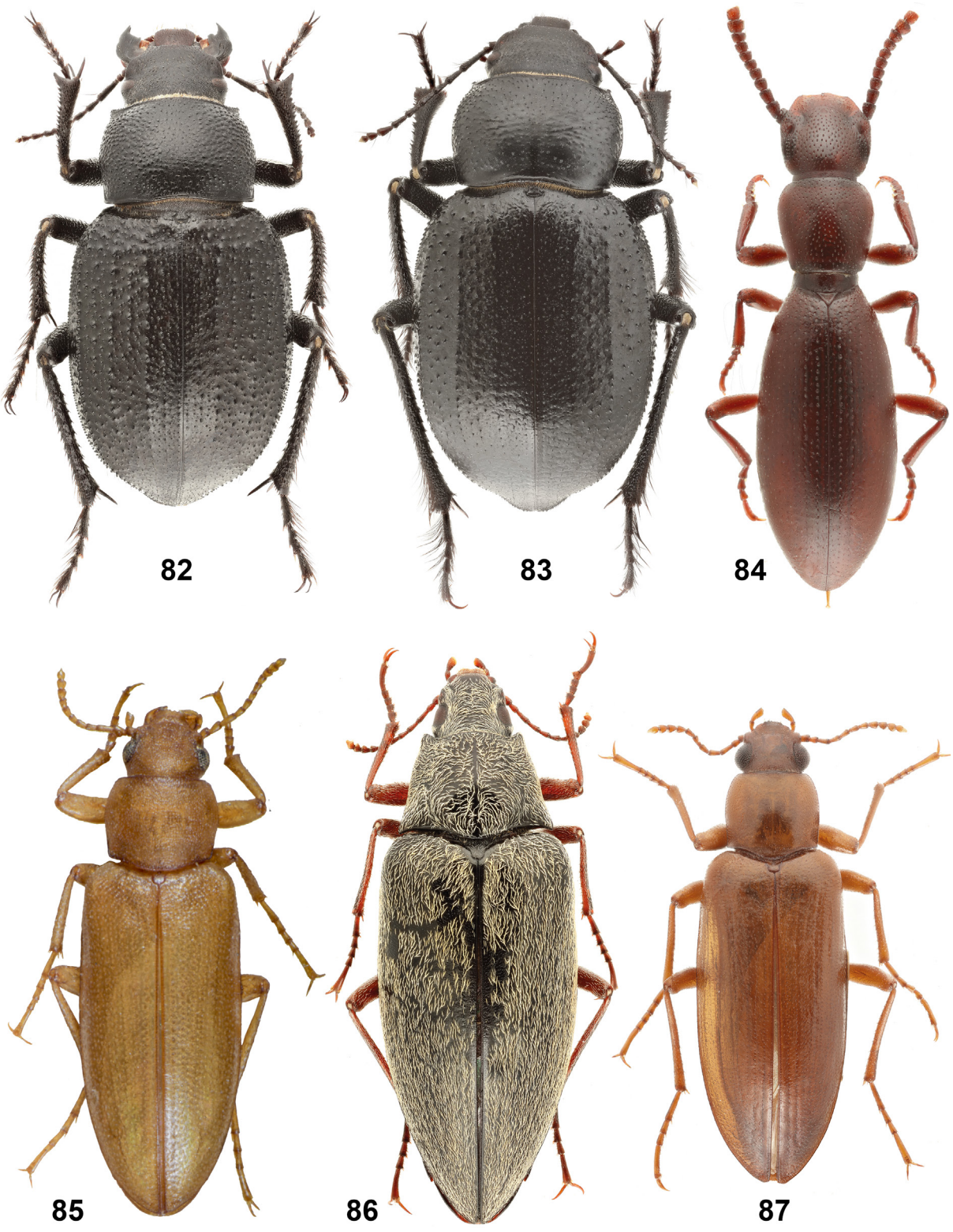
Material. 2 ex. (ZIN), Khorezm Region, Yangiariq District, S of Yangiariq, Karakum desert, 41°15′51.0″N / 60°31′36.8″E, 24.05.2023 (N.Kh. Bekchanov).

Bionomics. The specimen was collected at light in sand desert with Haloxylon persicum and Calligonum.

Distribution. The species was known from deserts of Turkmenistan [Medvedev, Nepesova, 1985]. Pirnazarov [1973] and Davletshina et al. [1979] listed this species from Kyzylkum desert, Uzbekistan.



Figs 76–81. Tenebrionidae (Pimeliini) of western Uzbekistan, habitus.
Рис. 76–81. Жуки-чернотелки (Pimeliini) Западного Узбекистана, габитус.
76 – *Platyesia karelini*; 77 – *Sternoplax affinis australis*; 78 – *Trachyderma triangulare triangulare*; 79 – *Trigonoscelis gemmulata gemmulata*; 80 – *Trigonoscelis muricata muricata*; 81 – *Trigonoscelis nodosa*.



Figs 82–87. Tenebrionidae of western Uzbekistan, habitus.
Рис. 82–87. Жуки-чернотелки Западного Узбекистана, габитус.
82 – *Trigonoscelis seriata*; 83 – *Trigonoscelis sublaevicollis*; 84 – *Dichillus reitteri*; 85 – *Cyphostethe seidlitzi*; 86 – *Leptosphena rubripes*; 87 – *Sphenaria elongata*.

Sphenaria elongata Ménétriés, 1849
(Fig. 87)

Material. 1 ex. (ZIN), Khorezm Region, Yangiariq District, S of Yangiariq, Karakum desert, 41°15′51.0″N / 60°31′36.8″E, 24.05.2023 (N.Kh. Bekchanov).

Bionomics. The specimen was collected at light in sand desert with Haloxylon persicum and Calligonum.

Distribution. Kazakhstan (North Aral region), Uzbekistan (at least Karakum on our data) [Pirnazarov, 1973], Turkmenistan [Medvedev, Nepesova, 1985], Iran [Iwan et al., 2020].

Sphenaria lubricula Reitter, 1916
(Fig. 88)

Material. 1 ex. (PCNB), Khorezm Region, Hazorasp (Tuprokkala) District, Kyzylkum desert, 40°57′14.6″N / 62°01′31.8″E, 3.06.2023 (N.Kh. Bekchanov, O.N. Jumaniyozov, U.E. Duschanov).

Bionomics. The specimen was collected at light in sand desert with Haloxylon persicum and Calligonum.

Distribituion. Southern Kazakhstan, Uzbekistan, Turkmenistan [Medvedev, Nepesova, 1985].

Trichosphaena sahlbergi Reitter, 1916
(Fig. 89)

Material. 7 ex. (PCNB), Khorezm Region, Hazorasp (Tuprokkala) District, Kyzylkum desert, 41°04′29.5″N / 61°58′12.2″E, 3.06.2023 (N.Kh. Bekchanov, O.N. Jumaniyozov).

Bionomics. The specimen was collected at light in sand desert with Haloxylon persicum and Calligonum.

Distribution. Uzbekistan [Davletshina et al., 1979; Medvedev, Nepesova, 1985], eastern Turkmenistan [Medvedev, Nepesova, 1985].

Wingless species

Species of the genera *Colposcelis* Dejean, 1834 and *Dengitha* Reitter, 1887 will be illustraited in detail in separate taxonomic revisions.

Alcinoeta helopioides spectabilis (Kraatz, 1882)
(Fig. 90)

Material. 1♂, 2♀ (ZIN, PCMN), 4 ex. (PCNB), Khorezm Region, Khiva District, Karakum desert, 41°19′47″N / 60°27′08″E, Haloxylon habitat, 18.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov, U.E. Duschanov); 1♂ (ZIN), Karakalpakstan, Kungrad District, near Elabad, Ustyurt Plateau, sands, 43°05′13″N / 58°19′55″E, 23.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov, U.E. Duschanov, D.A. Yavkachev); 1♀, dry (ZIN), Khorezm Region, Yangiariq District, S of Yangiariq, Karakum desert, 41°15′51.0″N / 60°31′36.8″E, 24.05.2023 (N.Kh. Bekchanov).

Bionomics. Adults were found from 8:00 pm (in April) under large bushes and trees of Haloxylon in leaf litter.

Distribution. Uzbekistan (Karakalpakstan: Moynaq) [Medvedev, 1990], Turkmenistan, east to Tejen and middle reaches of the Amudarya [Medvedev, Nepesova, 1985; Medvedev, 1990]. New to the fauna of the Ustyurt Plateau.

Colposcelis (*Turcmenicola*) *jachontovi* (Bogatchev, 1952)

Material. 1 ex., dry (PCMN), Karakalpakstan, Amudarya District, Karatau Mts., around Shaykh Jalil Bobo ziyoratgohi, 42°09′30″N / 60°15′03″E, 24.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov, U.E. Duschanov, D.A. Yavkachev); 3 ex. (ZIN, PCMN, PCNB), Karakalpakstan, Beruni District, turning from the road to Lower Amudarya State Biosphere Reserve, 42°01′27″N / 60°26′34″E, 24–25.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov).

Bionomics. Adults were found in lifeless areas without vegetation in the clay desert with Artemisia and Tamarix at 10:00 pm (Fig. 8). Dry specimens from Shaykh Jalil Bobo ziyoratgohi were collected under Artemisia on very dry stony habitats (Fig. 4). Skopin [1968] indicated that the species inhabits very tight takyr-like soils with Anabasis salsa (C.A. Mey.) Eichw.

Distribution. Kazakhstan, Uzbekistan (Kyzylkum), Turkmenistan (Dashoguz) [Skopin, 1968]. The species was listed for western Uzbekistan (Karatau Mts.) by Skopin [1968] and later for Karakalpakstan by Pirnazarov [1973]. Records for the western and southern Ustyurt [Skopin, 1964; Mitroshina, 1988] belong probably to the next species.

Colposcelis (*Turcmenicola*) sp.
(Fig. 23)

Material. 12 ex. (ZIN, IZUZ, PCMN, PCNB), Karakalpakstan, Kungrad District, between Elabad and Kungrad, Ustyurt Plateau, clay desert, 43°05′08″N / 58°32′25″E, 23.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov, U.E. Duschanov, D.A. Yavkachev).

Note. These specimens different from *Colposcelis jachontovi* and possibly belong to a new species, which will be analyzed in a separate taxonomic revision.

Dengitha crystallina Semenov, 1896

Material. 1 ex. (ZIN), Khiva, Karakum, 1.04.1927 (V. Gussakovskiy); 1 ex. (ZIN), Khiva, 24.07.1927 (L. Zimin); 1 ex., dry (ZIN), Khorezm Region, Khiva District, Karakum desert, 41°19′47″N / 60°27′08″E, Haloxylon habitat, 18.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov, U.E. Duschanov); 1 ex., dry (ZIN), Karakalpakstan, Kungrad District, near Elabad, Ustyurt Plateau, sands, 43°05′13″N / 58°19′55″E, 23.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov, U.E. Duschanov, D.A. Yavkachev); 3 ex. (PCNB), Khorezm Region, Hazorasp (Tuprokkala) District, Kyzylkum desert, 41°04′29.5″N / 61°58′12.2″E, 3.06.2023 (N.Kh. Bekchanov, O.N. Jumaniyozov).

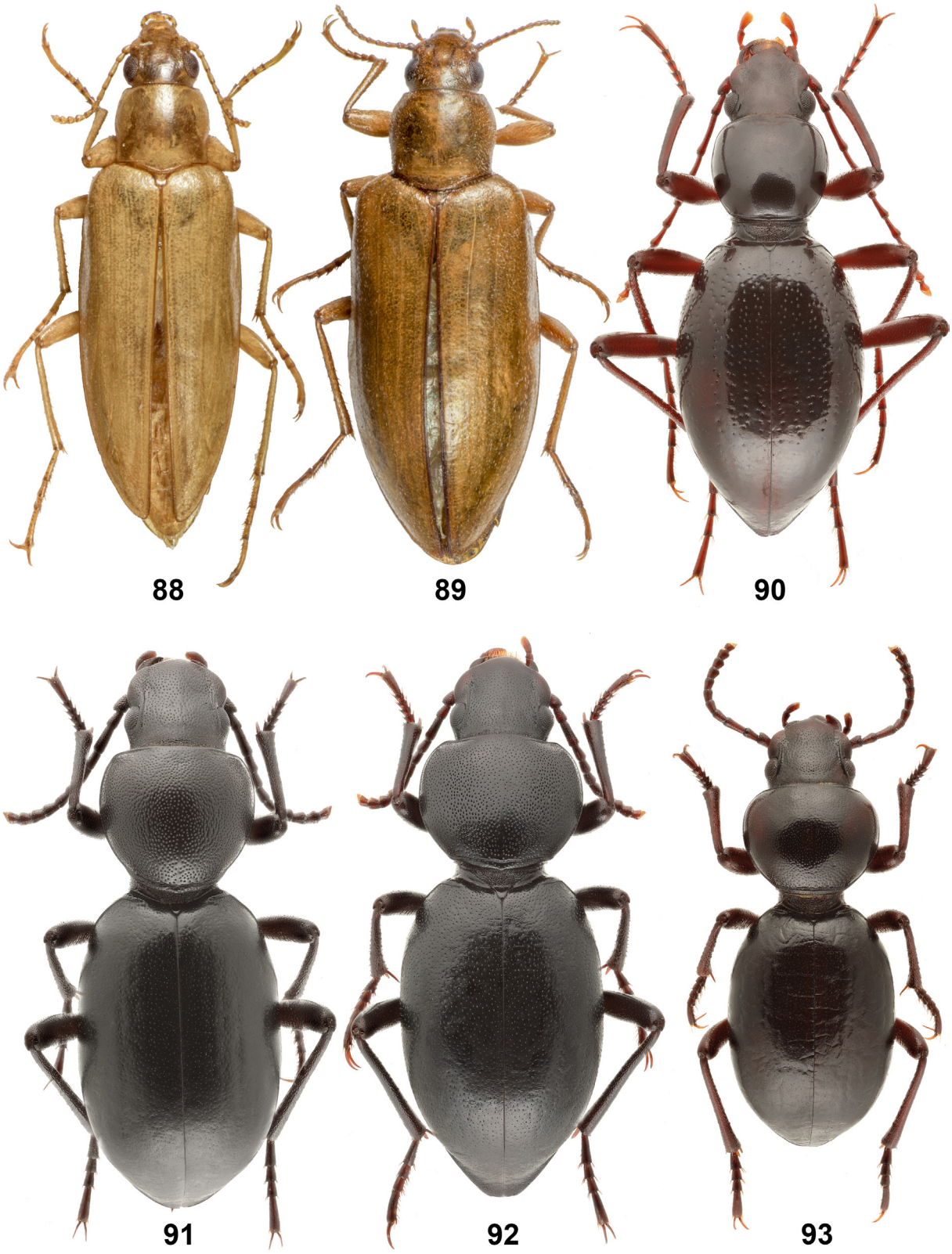
Bionomics. Dry specimens were found under Haloxylon bushes on sand. Alive specimens were collected at night, at light; they ran into the light and moved very fast.

Distribution. Uzbekistan (it was known from Termez [Medvedev, Nepesova, 1985]; new record for the western part of the country), Turkmenistan [Medvedev, Nepesova, 1985].

Microdera (s. str.) *convexa convexa* (Tauscher, 1812)
(Fig. 91)

Material. 2 ex. (ZIN), Karakalpakstan, N of Moynaq, sands, 43°47′53″N / 59°01′42″E, 1.06.2022 (N.Kh. Bekchanov); 10 ex. (ZIN, PCMN, PCNB), the same locality, 43°47′53″N / 59°01′42″E, 23.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov, U.E. Duschanov, D.A. Yavkachev); 22 ex. (ZIN, PCMN, PCNB), Karakalpakstan, Kungrad District, between Elabad and Kungrad, Ustyurt Plateau, clay desert, 43°05′08″N / 58°32′25″E, 23.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov, U.E. Duschanov, D.A. Yavkachev); 1 ex. (PCMN), Karakalpakstan, Beruni District, turning from the road to Lower Amudarya State Biosphere Reserve, 42°01′27″N / 60°26′34″E, 24–25.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov).

Notes. Skopin [1968] showed a wide variability of this species with measurements and all variants of transitional



Figs 88–93. Tenebrionidae (Tentyriini) of western Uzbekistan, habitus.
Figs 88–93. Жуки-чернотелки (Tentyriini) Западного Узбекистана, габитус.
88 – *Sphenaria lubricula*; 89 – *Trichosphaena sahlbergi*; 90 – *Alcinoeta helopioides spectabilis*; 91 – *Microdera convexa convexa*; 92 – *Microdera minax*; 93 – *Microdera shasenema*.

forms from Mangyshlak to the Ili valley. Our specimens belong to the variety *M. convexa* var. *fortesulpta* Skopin, 1968 having scabrous metatibia without distinct punctures, thickened lateral border at elytral base and coarse puncturation of prohypomera.

Bionomics. Nocturnal species, characteristic for consolidated sands and clay desert with Artemisia and Tamarix. Adults were observed from 10:30 pm under Tamarix in three localities.

Distribution. South of the European part of Russia (Caspian depression), eastern Azerbaijan, Kazakhstan from the Volga River to Balkhash Lake [Nabozhenko, Kalashian, 2022]. Pirnazarov [1970] listed possibly this species under the name *M. globulicollis* Ménétriés, 1849 for Khodzheyli, Nukus, Kuskhantau, Sulton Uvays Mts. and correctly [Pirnazarov, 1973] as *M. convexa* for the Ustyurt (Karakalpakstan).

Microdera (s. str.) *minax* Reitter, 1897
(Figs 11, 92)

Material. 1 ex., dry (PCMN), Karakalpakstan, Ellikala District, Kyzylkum desert, 41°48′08.8″N / 60°51′22.0″E, 15.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov, U.E. Duschanov); 30 ex. (ZIN, PCMN, PCNB), Khorezm Region, Khiva District, Karakum desert, 41°19′47″N / 60°27′08″E, Haloxylon habitat, 18.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov, U.E. Duschanov); 10 ex. (PCMN, PCNB), Khorezm Region, Khiva District, Karakum desert, 41°18′10″N / 60°27′03″E, Tamarix habitat, 19.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov, U.E. Duschanov); 14 ex. (ZIN, PCMN, PCNB), Karakalpakstan, Turtkul District, Kyzylkum desert, Miskin water distribution center, 41°26′56″N / 61°11′57″E, 20.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov); 1 ex. (ZIN), Karakalpakstan, Moynaq District, Shege, 43°34′24″N / 59°09′12″E, 22.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov, U.E. Duschanov, D.A. Yavkachev); 2 ex. (ZIN), Khorezm Region, Yangiariq District, S of Yangiariq, Karakum desert, 41°15′51.0″N / 60°31′36.8″E, 24.05.2023 (N.Kh. Bekchanov).

Bionomics. Numerous species inhabiting fixed sands in Karakum and Kyzylkum deserts. Adults were observed under Calligonum and Haloxylon, rarely under Tamarix on sands from 7:30 pm (in April); they feed on plant detritus and ephemeral plants.

Distribution. Uzbekistan, Turkmenistan: Karakum and Kyzylkum deserts [Medvedev, Nepesova, 1985].

Microdera (s. str.) *shasenema*
G.S. Medvedev et Nepesova, 1985
(Fig. 93)

Material. 1 ex. (ZIN), Karakalpakstan, N of Moynaq, sands, 43°47′53″N / 59°01′42″E, 1.06.2022 (N.Kh. Bekchanov).

Bionomics. Nocturnal species occuring sympatrically with *M. convexa* in Moynaq, but it inhabits loose sands.

Distribution. Western and northern Turkmenistan from the Caspian Sea to the Amudarya delta in Uzbekistan [Medvedev, Nepesova, 1985].

Psammocryptus bogatchevi
Nabozhenko, I. Chigray et Bekchanov, 2022

Material. 4 ex. (ZIN, PCMN), Karakalpakstan, Beruni District, Lower Amudarya State Biosphere Reserve, 41°58′38″N / 60°24′12″E, 15–16.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov, U.E. Duschanov); 24 ex. (ZIN, PCMN, PCNB), Karakalpakstan, Kungrad District, NE of Kungrad, 43°06′10″N / 59°01′39″E, 21.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov, U.E. Duschanov, D.A. Yavkachev); 10 ex. (ZIN, PCMN, PCNB), Karakalpakstan, Amudarya District, Karatau Mts., around Shaykh Jalil Bobo ziyoratgohi, 42°09′30″N / 60°15′03″E, 24.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov, U.E. Duschanov, D.A. Yavkachev).

Notes. The species was well illustraited in the recent revision in open access [Nabozhenko et al., 2022a].

Bionomics. See data in Nabozhenko et al. [2022a].

Distribution. Amudarya and Syrdarya basins [Nabozhenko et al., 2022a].

Tribe Zophosini Solier, 1834

Zophosis (*Oculosis*) *punctata punctata* Brullé, 1832
(Fig. 94)

Material. 2 ex. (ZIN, PCMN), Karakalpakstan, Beruni District, Lower Amudarya State Biosphere Reserve, 41°58′38″N / 60°24′12″E, 15–16.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov, U.E. Duschanov); 8 ex. (PCMN, PCNB), Karakalpakstan, Amudarya District, Karatau Mts., around Shaykh Jalil Bobo ziyoratgohi, 42°09′30″N / 60°15′03″E, 24.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov, U.E. Duschanov, D.A. Yavkachev).

Bionomics. Diurnal species which inhabits stony and rubble biotopes, phytophagous, saprophagous.

Distribution. Western and Central Palaearctic from Iberian Peninsula to Western China [Iwan et al., 2020].

Zophosis (*Septentriophosis*) *scabriuscula karakalpakensis* Nabozhenko et N. Bekchanov, **subsp. n.**
(Figs 95, 96)

Material. Holotype, ♂ (ZIN): Uzbekistan, Karakalpakstan, Beruni District, Sulton Uvays Mts., 42°02′19″N / 60°39′26″E, 230 m, 15.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov, U.E. Duschanov). Paratypes: 2 ex. (PCMN), the same data as in the holotype; 2 ex. (ZIN, PCNB), Uzbekistan, Karakalpakstan, Amudarya District, Karatau Mts., around Shaykh Jalil Bobo ziyoratgohi, 42°09′30″N / 60°15′03″E, 24.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov, U.E. Duschanov, D.A. Yavkachev).

Description. Body wide, flattened, black, pronotum with poorly greenish and bronze metallic tint. Body length 8.7–9 mm, width 5–5.2 mm. Anterior margin of epistoma widely emarginated. Fronto-epistomal suture presented as smooth thin line, rectangular or emarginated at middle, reaching level of anterior or posterior margin of eyes. Puncturation of head oderately coarse and dense (interpuncture distance and puncture diameter subequal), punctures round. Antennae moderately long, reaching almost pronotal base.

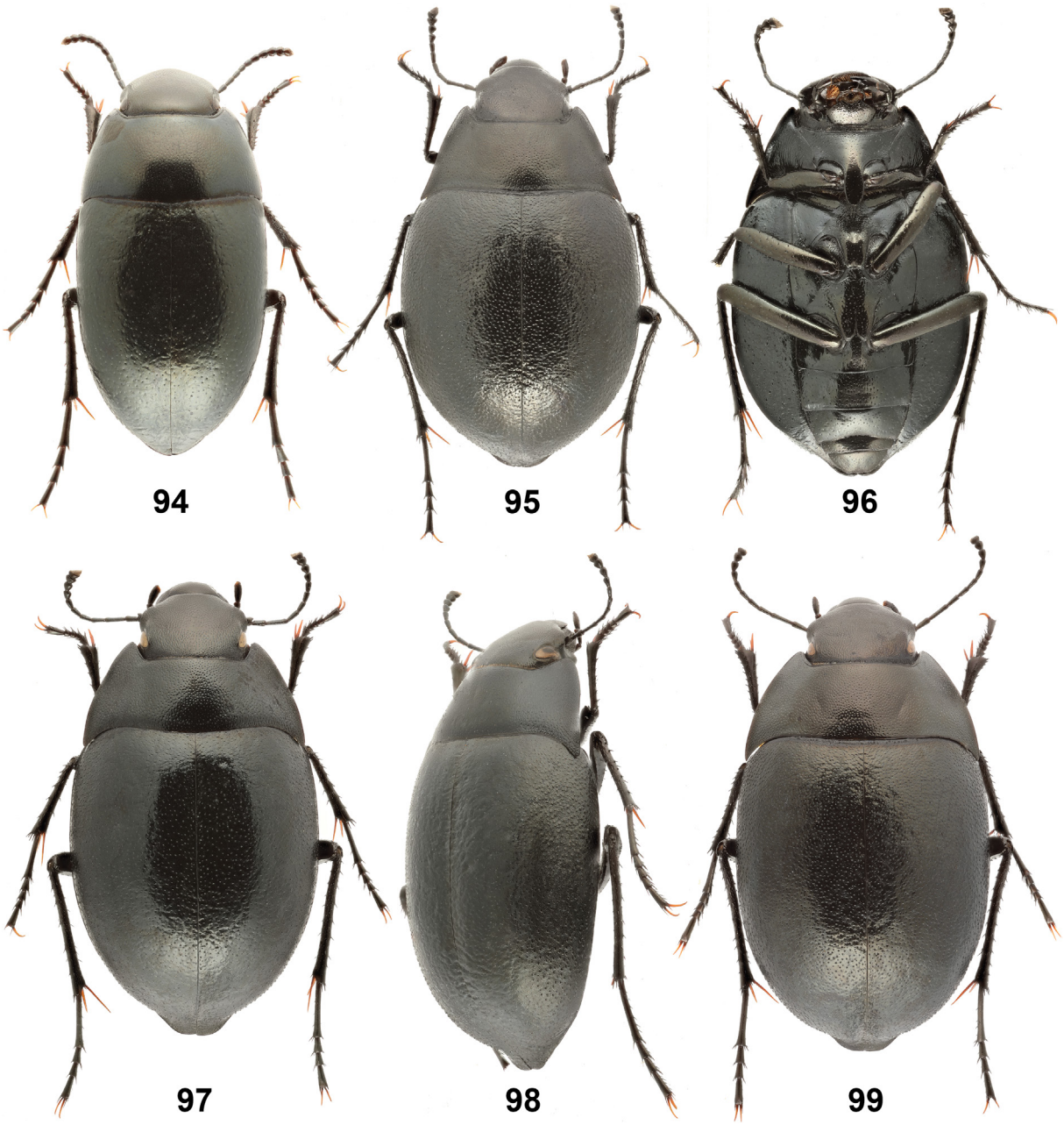
Pronotum trapezoidal. Lateral margins straight or sometimes weakly widely emarginated in basal third. Anterior margin deeply emarginated, straight at middle; base almost straight; anterior and posterior angles strongly projected, acute. Lateral and anterior margins finely beaded; base not beaded. Surface of pronotal disc with microreticulation, strongly shagrened on lateral sides; puncturation fine and sparse (interpuncture distance ~2 times as long as puncture diameter).

Elytra wide, almost round, 1.1–1.12 times as long as wide, evenly very weakly convex at middle, without wide depression along suture; punctured with moderately coarse sparse punctures in middle and by sparse round microgranules on lateral sides.

Ventral side of body does not differ from that of other Middle Asian species of the subgenus.

Metafemora with line of sparse short spines on outher side and inner flexed margin.

Diagnosis. The new subspecies is different from two other subspecies by more rounded and wider elytra (1.1–1.12 times as long as wide in the new subspecies vs



Figs 94–99. Tenebrionidae (Zophosini) of Uzbekistan, habitus.

94 – *Zophosis punctata punctata*; 95–96 – *Zophosis scabriuscula karakalpakensis* Nabozhenko et N. Bekchanov, **subsp. n.**: 95 – dorsally, 96 – ventrally; 97–98 – *Zophosis* aff. *scabriuscula lata* (eastern Ustyurt); 99 – *Zophosis scabriuscula scabriuscula* (Zeravshan).

Рис. 94–99. Жуки-чернотелки (Zophosini) Узбекистана, габитус.

94 – *Zophosis punctata punctata*; 95 – *Zophosis scabriuscula karakalpakensis* Nabozhenko et N. Bekchanov, **subsp. n.**: 95 – дорсально, 96 – вентрально; 97–98 – *Zophosis* aff. *scabriuscula lata* (Восточный Устюрт); 99 – *Zophosis scabriuscula scabriuscula* (Зеравшан).

1.2–1.22 times as long as wide in compared subspecies) and straight or weakly emarginated lateral margins of pronotum. We checked specimens of *Z. s. scabriuscula* Ménétriés, 1849 (Fig. 99) from central and southern Uzbekistan (Bukhara, Karshi, Termez), eastern Turkmenistan (Farab, Kelif and Kugitang) and specimens of *Z. s. lata* Kraatz, 1882 from Kazakhstan (southeast of Kyzylkum desert), Uzbekistan (Fergana Valley, Ustyurt) and northern Tajikistan (Khujand). All specimens of both these subspecies have evenly weakly rounded lateral margins of pronotum. The new subspecies inhabits the most severe and hot gravelly biotopes with very sparse vegetation in the Karatau mountains (Figs 2–4), in contrast to other subspecies occuring in fixed sands and sandy loams.

Bionomics. Diurnal species which inhabits stony and rubble biotopes.

Distribution. The subspecies is distributed only in the Karatau mountains along the right bank of the Amudarya.

Etymology. The name of the subspecies derives from Karakalpakstan.

Zophosis (*Septentriophosis*) *scabriuscula* aff. *lata* Kraatz, 1882
(Fig. 97, 98)

Material. 4 ex. (ZIN, PCNB), Karakalpakstan, Kungrad District, near Elabad, Ustyurt Plateau, sands, 43°05′13″N / 58°19′55″E, 23.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov, U.E. Duschanov, D.A. Yavkachev).

Notes. The subspecies was described from Margilan (Fergana Valley) and differs from the nominotypical one in the widely depressed elytra along suture. Our specimens from the Ustyurt also have depressed elytra, but such very large disjunction in the range calls into question the status of this subspecies and requires further study and additional records especially in the middle and lower reaches of the Syrdarya (Kazakhstan).

Bionomics. Diurnal species, collected on fixed sands.

Distribution. Uzbekistan: Fergana Valley ([Kraatz, 1882]; collection of ZIN), eastern Ustyurt.

Distribution of the nominotypical subspecies. Kazakhstan: Mangyshlak Plateau [Skopin, 1964], east of the Syrdarya valley and southeastern Kyzylkum [Skopin, 1968], eastern Turkmenistan, western and central Uzbekistan [Medvedev, Nepesova, 1985]. Pirnazarov [1970] listed this species from Nukus and Turtkul in Karakalpakstan.

Key to subspecies of *Zophosis scabriuscula*

1(4). Lateral margins of pronotum weakly evenly rounded. Elytra more elongate, 1.2–1.22 times as long as wide.
2(3). Elytra evenly very weakly convex in middle .... *Z. s. scabriuscula*
3(2). Elytra weakly widely depressed along suture .... *Z. s. lata*
4(1). Lateral margins of pronotum straight or weakly widely emarginated in basal third. Elytra more rounded and wider, 1.1–1.12 times as long as wide .... *Z. s. karakalpakensis* **subsp. n.**

Subfamily Blaptinae Leach, 1815
Tribe Blaptini Leach, 1815

The majority of *Blaps* listed below were well illustrated in the recent revision [Chigray, Ivanov, 2020] in open access. As a result, we give photographs not for all species.

Blaps (*Arenoblaps*) *hiemalis* Semenov et Bogatchev, 1940
(Fig. 100)

Material. 1 ex., dry (ZIN), Khorezm Region, Khiva District, Karakum desert, 41°19′47″N / 60°27′08″E, Haloxylon habitat, 18.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov, U.E. Duschanov).

Distribution. Eastern part of Karakum desert in Turkmenistan [Medvedev, Nepesova, 1985] and Uzbekistan (new record for the country).

Blaps (s. str.) *deplanata* Ménétriés, 1832

Material. 1♀ (PCNB), Karakalpakstan, N of Moynaq, sands, 43°47′53″N / 59°01′42″E, 1.06.2022 (N.Kh. Bekchanov); 1♀ (PCMN), the same locality, 23.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov, U.E. Duschanov, D.A. Yavkachev); 1♂, 3♀ (ZIN, PCMN, PCNB), Karakalpakstan, Kungrad District, NE of Kungrad, 43°06′10″N / 59°01′39″E, 21.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov, U.E. Duschanov, D.A. Yavkachev); 2♂ (PCMN, PCNB), Karakalpakstan, Kungrad District, near Elabad, Ustyurt Plateau, sands, 43°05′13″N / 58°19′55″E, 23.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov, U.E. Duschanov, D.A. Yavkachev).

Bionomics. The species was found on consolidated sands and dusty clay at night from 8:20 pm (in April) in black saxaul forest near Kungrad town and on fixed sands in Moynaq and on the Ustyurt Plateau. Beetles hide in rodent burrows, under Haloxylon and Tamarix in the daytime.

Distribution. Azerbaijan (Absheron), southern Kazakhstan, central Uzbekistan, Turkmenistan [Chigray, Ivanov, 2020], Iran [Medvedev, Nepesova, 1985]. New species for the fauna of western Uzbekistan and the Ustyurt Plateau.

Blaps (s. str.) *faustii* Seidlitz, 1893

Material. 1 ex. (PCNB), Khorezm Region, Hazorasp (Tuprokkala) District, Kyzylkum desert, 41°04′29.5″N / 61°58′12.2″E, 3.06.2023 (N.Kh. Bekchanov, O.N. Jumaniyozov).

Bionomics. This species prefers loamy soils and sandy loam, often occurs in rodent burrows, active at night [Skopin, 1968].

Distribution. Kazakhstan, Uzbekistan (Kyzylkum, Kattakum), Turkmenistan, southwestern Tajikistan, Afghanistan [Chigray, Ivanov, 2020].

Blaps (s. str.) *holconota* Fischer von Waldheim, 1844

Material. 2♂ (PCMN), Khorezm Region, Xonqa, Sarapayan, 41°29′08.03″N / 60°45′33.33″E, 14–16.04.2023 (the Bekchanovs).

Notes. Chigray et al. [2016] and Chigray and Ivanov [2020] informed that they didn't find clear differences between *B. holconota* and *B. scutellata* Fischer von Waldheim, 1844 and use the name *B. holconota* for this taxon.

Bionomics. Two specimens were found under construction debris. Pirnazarov [1970] collected this species from rodent burrows in sand biotopes with Tamarix and Haloxilon.

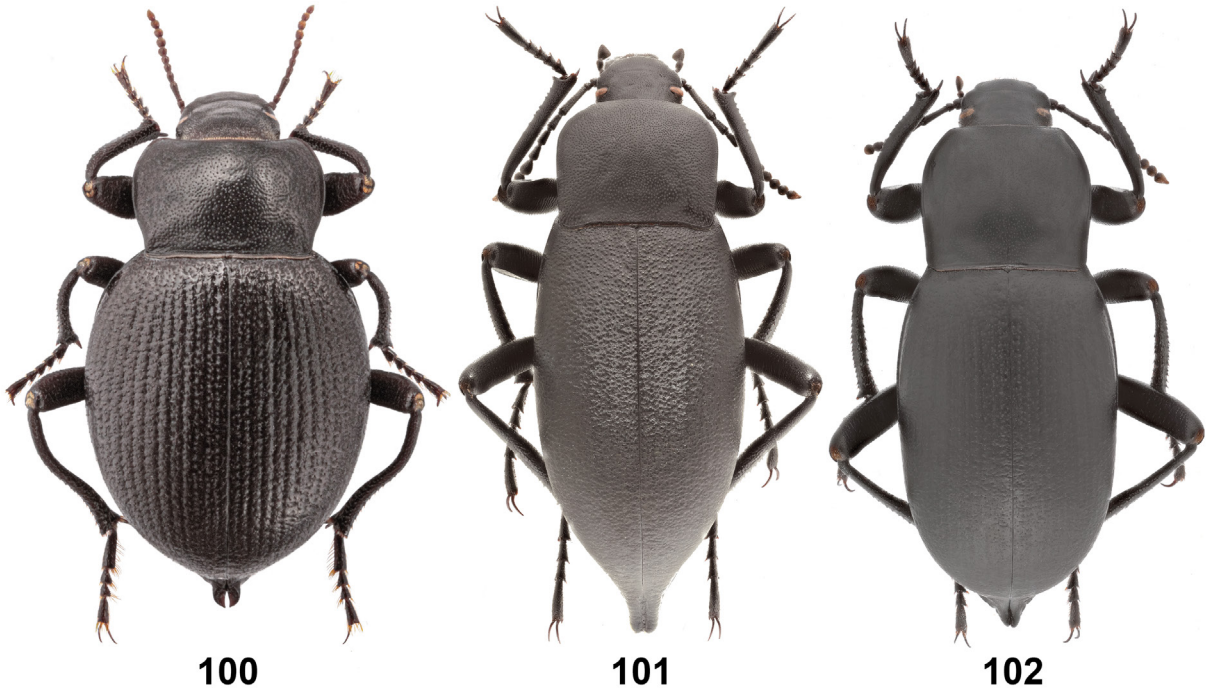
Distribution. Northern and southern Kazakhstan, Uzbekistan, Turkmenistan, Afghanistan [Chigray, Ivanov, 2020].

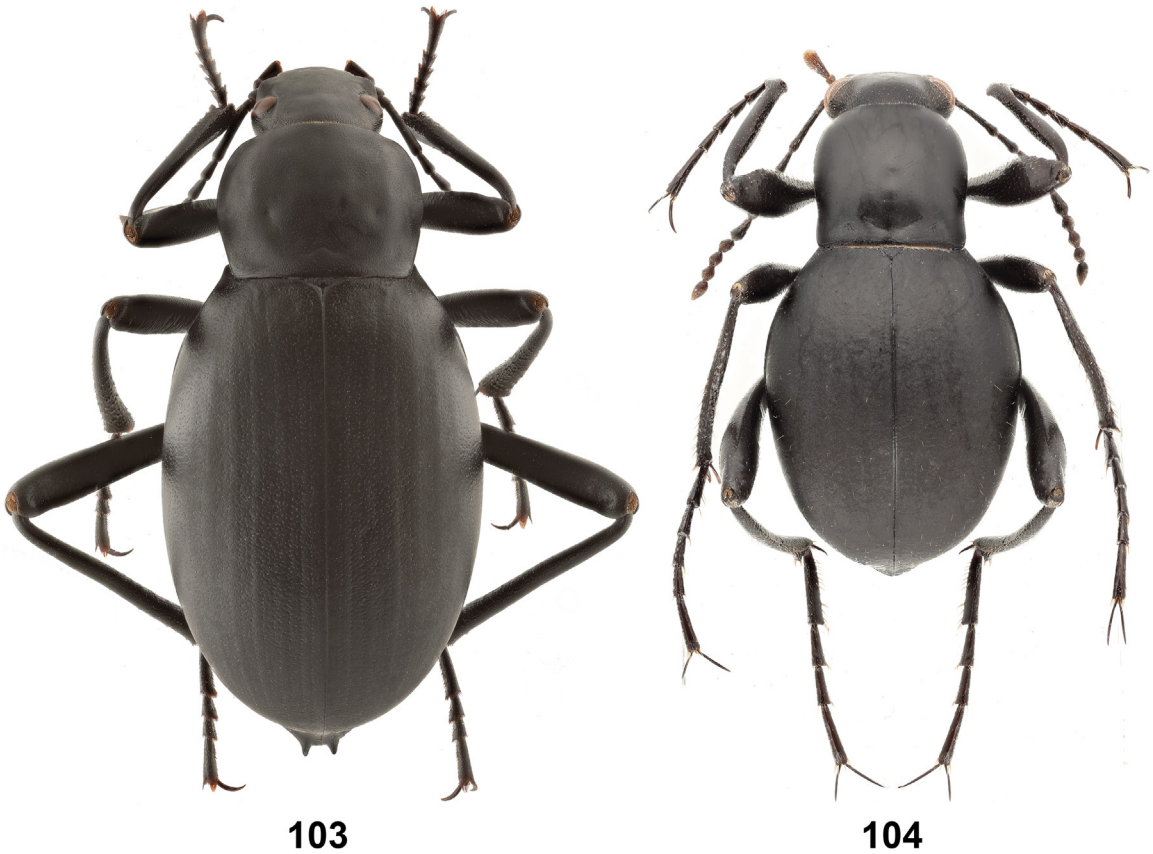
Blaps (s. str.) *inflexa* Zubkov, 1833
(Fig. 101)

Material. 1♂ (PCNB), Karakalpakstan, Moynaq District, Kyzylzhar, 43°34′24″N / 59°05′18″E, 1.06.2022 (N.Kh. Bekchanov); 5♂, 1♀ (ZIN, PCMN, PCNB), the same locality, 21.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov, U.E. Duschanov, D.A. Yavkachev).

Bionomics. The species was found in turanga forest and at the edge of the forest among the Tamarix bushes. Beetles were active during the day in cloudy weather.

Distribution. Kazakhstan (Syrdarya valley), Uzbekistan (Amudarya delta) [Pirnazarov, 1970; Medvedev, Nepesova, 1985; Chigray et al., 2016; Chigray, Ivanov, 2020]. Some authors listed this species for Turkmenistan [Medvedev, Nepesova, 1985; Chigray, Ivanov, 2020] but these data are provisional and not confirmed by the material.





Figs 100–104. Tenebrionidae (Blaptini) of western Uzbekistan, habitus.
100 – *Blaps hiemalis*; 101 – *Blaps inflexa*, male; 102 – *Blaps parvicollis parvicollis*, male; 103 – *Blaps pruinosa*, female; 104 – *Tagona macrophthalma macrophthalma*, male.

Рис. 100–104. Жуки-чернотелки (Blaptini) Западного Узбекистана, габитус.
100 – *Blaps hiemalis*; 101 – *Blaps inflexa*, самец; 102 – *Blaps parvicollis parvicollis*, самец; 103 – *Blaps pruinosa*, самка; 104 – *Tagona macrophthalma macrophthalma*, самец.

Blaps (s. str.) *parvicollis parvicollis* Zubkov, 1829
(Fig. 102)

Material. 1♂, 2♀ (ZIN, PCNB), Karakalpakstan, Kungrad District, NE of Kungrad, 43°06′10″N / 59°01′39″E, 21.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov, U.E. Duschanov, D.A. Yavkachev); 2♀ (PCMN, PCNB), Karakalpakstan, N of Moynaq, sands, 43°47′53″N / 59°01′42″E, 23.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov, U.E. Duschanov, D.A. Yavkachev); 1♀ (ZIN), Karakalpakstan, Kungrad District, between Elabad and Kungrad, Ustyurt Plateau, clay desert, 43°05′08″N / 58°32′25″E, 23.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov, U.E. Duschanov, D.A. Yavkachev).

Bionomics. In contrast to the western Caspian populations living on loose sands, our specimens were found on hard consolidated sands and sandy loams in black saxaul forests and deserts with Haloxylon, Calligonum and Tamarix. Specimen from the Ustyurt was collected in clay desert with Artemisia and Tamarix.

Distribution. South of the European part of Russia, Azerbaijan (Absheron), Kazakhstan [Abdurakhmanov, Nabozhenko, 2011; Chigray, Ivanov, 2020], western Uzbekistan (omitted in the Catalogue of Palaearctic Coleoptera [Nabozhenko, Chigray, 2020]) [Pirnazarov, 1970].

Blaps (s. str.) *pruinosa* Eversmann, 1833
(Fig. 103)

Material. 1♂, dry (PCMN), Karakalpakstan, Kungrad District, NE of Kungrad, 43°06′10″N / 59°01′39″E, 21.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov, U.E. Duschanov, D.A. Yavkachev); 1♀ (ZIN), Karakalpakstan, Moynaq District, Shege, 43°34′24″N / 59°09′12″E, 22.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov, U.E. Duschanov, D.A. Yavkachev); 1♀ (ZIN), Khorezm Region, Yangiariq District, S of Yangiariq, Karakum desert, 41°15′51.0″N / 60°31′36.8″E, 24.05.2023 (N.Kh. Bekchanov).

Bionomics. Beetles were found in the daytime under Tamarix in eolian sands. Bionomics of this psammophilic species is analyzed in the works of Dalvetshina [1967], Pirnazarov [1970], Nepesova [1980], Mitroshina [1988], Kaplin [2019] and many other authors.

Distribution. South of the European part of Russia (Caspian depression), all countries of Middle Asia excluding Kyrgyzstan [Chigray, Ivanov, 2020].

Tagona macrophthalma macrophthalma
Fischer von Waldheim, 1820
(Fig. 104)

Material. 1♂ (ZIN), Karakalpakstan, Kungrad District, near Elabad, Ustyurt Plateau, sands, 43°05′13″N / 58°19′55″E, 23.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov, U.E. Duschanov, D.A. Yavkachev).

Bionomics. Nocturnal species which was collected under Haloxylon.

Distribution. Southern Russia (Astrakhan Region) [Kaluzhnaya et al., 2000; Abdurakhmanov, Nabozhenko, 2011], Kazakhstan (from Mangyshlak to Muyunkum), Uzbekistan (Kyzylkum), Turkmenistan [Skopin, 1970]. Pirnazarov [1970] listed this species for western coast of the Aral Sea. The subspecies *T. macrophthalma rugipleuris* Reitter, 1901 is known from Muyunkum desert and near Balkhash Lake [Skopin, 1970].

Tribe Opatrini Brullé, 1832

Adavius fimbriatus (Ménétriés, 1849)
(Fig. 105)

Material. 2 ex. (ZIN, PCMN), Khorezm Region, Xonqa District, Amudarya bank, 41°27′04.7″N / 60°59′11.3″E, 13.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. Bekchanov); 8 ex. (ZIN, PCMN, PCNB), Karakalpakstan, Moynaq District, Shege, 43°34′24″N / 59°09′12″E, 22.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov, U.E. Duschanov, D.A. Yavkachev); 1 ex. (ZIN), Khorezm Region, Yangiariq District, S of Yangiariq, Karakum desert, 41°15′51.0″N / 60°31′36.8″E, 24.05.2023 (N.Kh. Bekchanov); 3 ex. (PCNB), Khorezm Region, Hazorasp (Tuprokkala) District, Kyzylkum desert, 40°57′14.6″N / 62°01′31.8″E, 3.06.2023 (N.Kh. Bekchanov, O.N. Jumaniyozov, U.E. Duschanov).

Bionomics. Nocturnal species, active from 8:00 pm (in April). Adults were collected on sands under Alhagi sp. and rarely under Tamarix on loose sands.

Distribution. Azerbaijan (Absheron Peninsula), Kazakhstan (the Aral Sea region: western coast and former Barsa-Kelmes island), Uzbekistan (sands in the Amudarya valley from Termez to the delta, Fergana Valley) [Medvedev, Nepesova, 1985], Turkmenistan (Farab) [Reichardt, 1936]. Reichardt [1936] mentioned that records of E. Reitter for Afghanistan (Sephid-Kuh) is erroneous. Pirnazarov [1970] recorded this species from Kegeyli.

Caediexis arenicola Lebedev, 1932
(Fig. 106)

Material. 2 ex. (ZIN, PCMN), Karakalpakstan, Moynaq District, 43°47′53.9″N / 59°01′40.9″E, 1.06.2022 (N.Kh. Bekchanov).

Bionomics. Nocturnal psammobiotic species; two specimens were found on loose sands under Calligonum. It was obsereved in sands under Peganum sp. in Turkmenistan [Reichardt, 1936].

Distribution. Kazakhstan (former Aral Sea: Uzunkair, Barsakelmes; omitted in the Catalogue of Palaearctic Coleopera [Iwan et al., 2020]), Turkmenistan (Esenguly), Uzbekistan (southwest, Samarkand) [Reichardt, 1936; Medvedev, Nepesova, 1985].

Clitobius oblongiusculus (Fairmaire, 1875)
(Fig. 107)

Material. 1 ex. (ZIN), Khorezm Region, Yangiariq District, S of Yangiariq, Karakum desert, 41°15′51.0″N / 60°31′36.8″E, 24.05.2023 (N.Kh. Bekchanov).

Bionomics. The species was collected on a light trap in sands with dense saxauls.

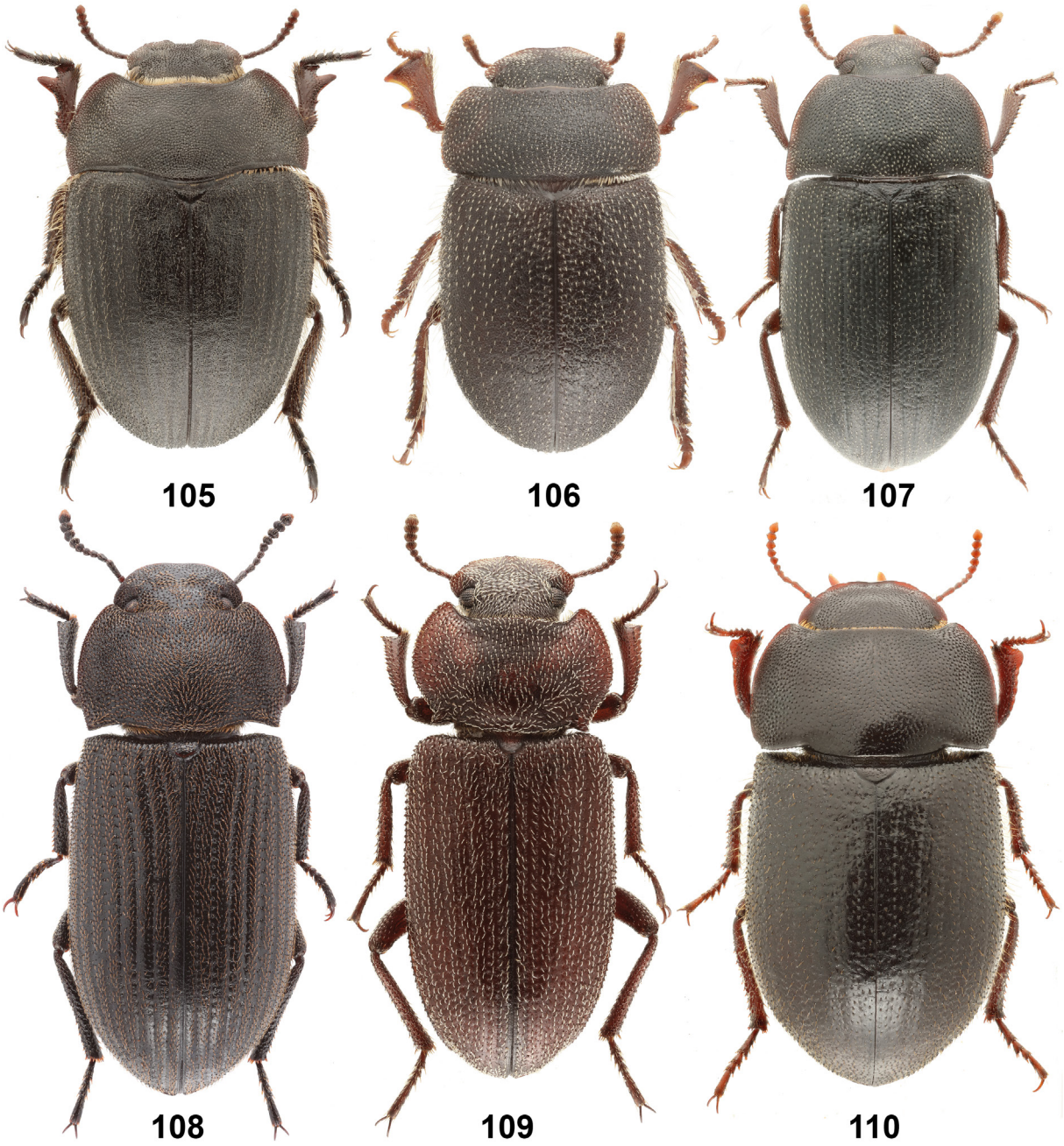
Distribution. Widely distributed from North Africa and Western Europe to Tajikistan [Iwan et al., 2020]. The species was listed for Khorezm Region by Pirnazarov [1973] and Medvedev and Nepesova [1985].

Gonocephalum (s. str.) *rusticum* (G.-A. Olivier, 1811)
(Fig. 108)

Material. 1 ex. (ZIN), Karakalpakstan, Moynaq District, Kyzylzhar, 43°34′24″N / 59°05′18″E, 21.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov, U.E. Duschanov, D.A. Yavkachev).

Bionomics. The species was collected on dusty clay near a water channel near tugai forest.

Distribution. From the Atlantic Ocean and the Afrotropical region to northwestern China and Mongolia



Figs 105–110. Tenebrionidae (Opatrini) of western Uzbekistan, habitus.
Рис. 105–110. Жуки-чернотелки (Opatrini) Западного Узбекистана, габитус.
105 – *Adavius fimbriatus*; 106 – *Caediexis arenicola*; 107 – *Clitobius oblongiusculus*; 108 – *Gonocephalum rusticum*; 109 – *Gonocephalum setulosum setulosum*; 110 – *Melanesthes hirsuta hirsuta*.

(northern Gobi desert) [Reichardt, 1936; Iwan et al., 2010]. Pirnazarov [1970] collected this species in many localities in Karakalpakstan.

Gonocephalum (s. str.) *setulosum setulosum* (Faldermann, 1837)
(Fig. 109)

Material. 45 ex. (ZIN, PCMN, PCNB), Khorezm Region, Xonqa District, Amudarya bank, 41°27′04.7″N / 60°59′11.3″E, 13.04.2023 (M.V. and S.V. Nabozhenko, N. Bekchanov); 2 ex. (PCMN), Khorezm Region, Xonqa, Sarapayan, 41°29′08.03″N / 60°45′33.33″E, 14–16.04.2023 (the Bekchanovs); 8 ex. (ZIN), Khorezm Region, Yangiariq District, S of Yangiariq, Karakum desert, 41°15′51.0″N / 60°31′36.8″E, 24.05.2023 (N.Kh. Bekchanov).

Bionomics. The species occurs on saline clay soils in very diverse biotopes, most often coastal near the Amudarya. Adults were collected on a light trap.

Distribution. Afrotropical region (Sahel, Yemen, including Socotra), Palaearctic from Maghreb and Iberian Peninsula to China [Iwan et al., 2010].

Melanesthes hirsuta hirsuta (Reitter, 1896)
(Fig. 110)

Material. 24 ex. (ZIN, PCMN, PCNB, IZUZ), Karakalpakstan, Beruni District, Sulton Uvays Mts., 42°02′19″N / 60°39′26″E, 230 m, 15.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov, U.E. Duschanov); 3 ex. (PCMN), Karakalpakstan, Beruni District, turning from the road to Lower Amudarya State Biosphere Reserve, 42°01′27″N / 60°26′34″E, 24–25.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov).

Bionomics. Nocturnal species, feeds on plant detritus. Adults were collected in the daytime in eolian sediments under Artemisia and Salsola and at night (from 9:30 pm) near Artemisia bushes. It inhabits clay deserts with Tamarix and Artemisia and rubble biotopes in the Karatau mountain system.

Distribution. Kazakhstan from Mangyshlak to Balkhash Lake [Skopin, 1961b, 1964, 1967], Turkmenistan (Uzboy canyon [Jachontov, Davletshina, 1956], lower reaches of the Amudarya [Medvedev, Nepesova, 1985]), Uzbekistan (Nukus; omitted in the Catalogue of Palaearctic Coleoptera [Iwan et al., 2020]) [Pirnazarov, 1970]. The second subspecies, *M. hirsuta balchashensis* Skopin, 1967, was described from the northern coast of Balkhash Lake [Skopin, 1967].

Neopachypterus serrulatus (Reitter, 1904)
(Fig. 111)

Material. 6 ex. (ZIN, PCMN, PCNB), Khorezm Region, Xonqa District, Amudarya bank, 41°27′04.7″N / 60°59′11.3″E, 13.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. Bekchanov); 1 ex. (PCNB), Khorezm Region, Hazorasp (Tuprokkala) District, Kyzylkum desert, 40°57′14.6″N / 62°01′31.8″E, 3.06.2023 (N.Kh. Bekchanov, O.N. Jumaniyozov, U.E. Duschanov).

Bionomics. Adults were collected on a light trap. Beetles inhabit clay deserts.

Distribution. Armenia, Azerbaijan, southern Kazakhstan, southern and eastern Turkmenistan, Uzbekistan, Tajikistan, northern Afghanistan [Medvedev, Nepesova, 1985].

Opatroides punctulatus parvulus (Faldermann, 1837)
(Fig. 112)

Material. 2 ex. (PCMN), Karakalpakstan, Beruni District, Sulton Uvays Mts., 42°02′19″N / 60°39′26″E, 230 m, 15.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov, U.E. Duschanov); 27 ex. (PCMN, PCNB), Karakalpakstan, Kungrad District, NE of Kungrad, 43°06′10″N / 59°01′39″E, 21.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov, U.E. Duschanov, D.A. Yavkachev); 2 ex. (PCMN, PCNB), Karakalpakstan, Moynaq District, Kyzylzhar, 43°34′24″N / 59°05′18″E, 21.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov, U.E. Duschanov, D.A. Yavkachev); 7 ex. (PCNB), Karakalpakstan, Kungrad District, near Elabad, Ustyurt Plateau, sands, 43°05′13″N / 58°19′55″E, 23.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov, U.E. Duschanov, D.A. Yavkachev); 2 ex. (PCMN), Karakalpakstan, Kungrad District, between Elabad and Kungrad, Ustyurt Plateau, clay desert, 43°05′08″N / 58°32′25″E, 23.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov, U.E. Duschanov, D.A. Yavkachev); 15 ex. (ZIN, PCMN, PCNB), Karakalpakstan, Amudarya District, Karatau Mts., around Shaykh Jalil Bobo ziyoratgohi, 42°09′30″N / 60°15′03″E, 24.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov, U.E. Duschanov, D.A. Yavkachev); 1 ex. (PCMN), Karakalpakstan, Beruni District, turning from the road to Lower Amudarya State Biosphere Reserve, 42°01′27″N / 60°26′34″E, 24–25.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov).

Bionomics. Numerous nocturnal species, occurs in clay deserts, tugai forests, rubble mountains and halophytic biotopes. Adults hide in the daytime in the plant detritus under different shrubs and in leaf litter in turanga forests.

Distribution. Anatolia, the Middle East, the Caucasus and Middle Asia [Ferrer, 2005].

Penthicinus amudariensis
Nabozhenko et N. Bekchanov, **sp. n.**
(Figs 113–117)

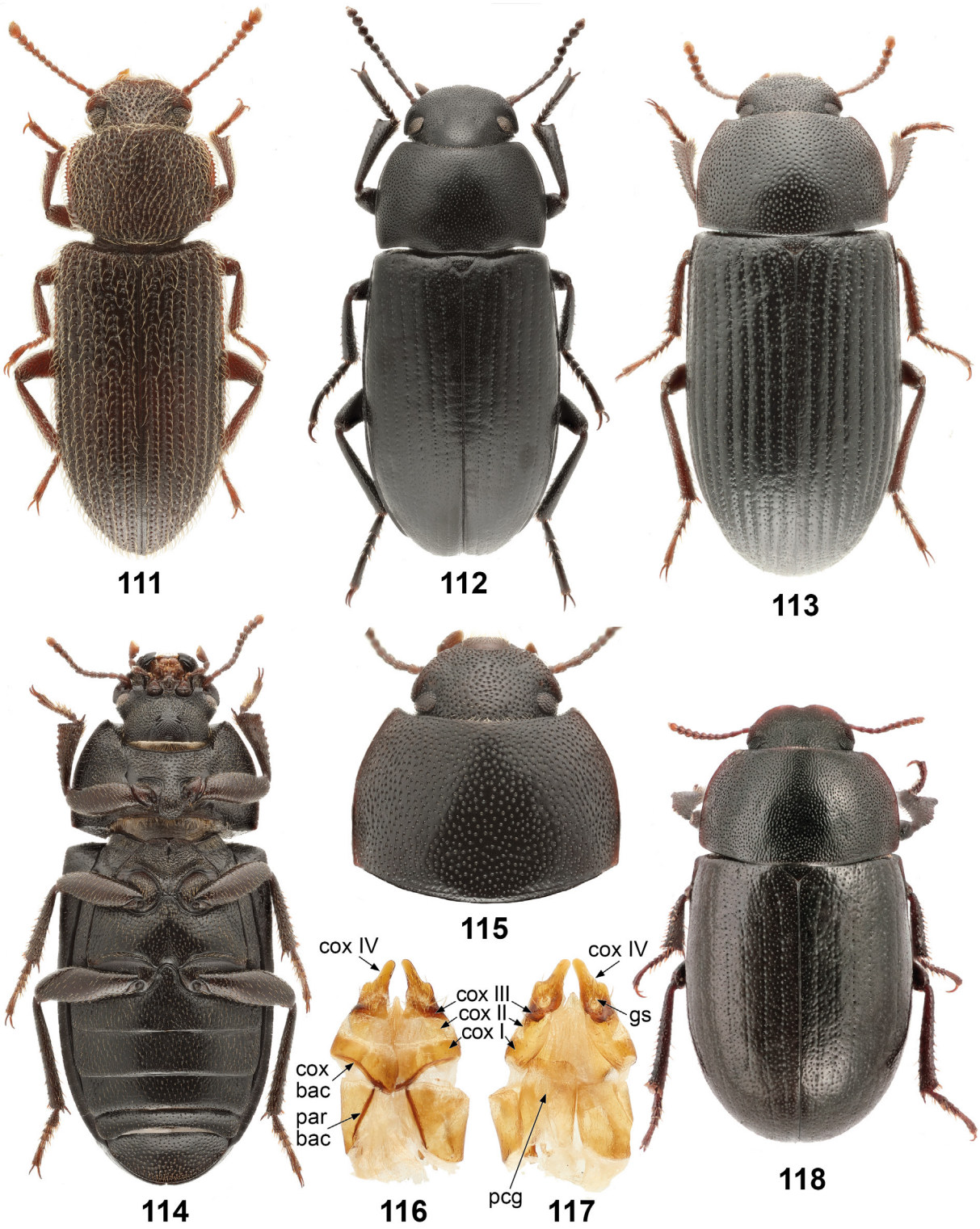
Material. Holotype, ♀ (ZIN): Uzbekistan, Karakalpakstan, Beruni District, Lower Amudarya State Biosphere Reserve, 41°58′38″N / 60°24′12″E, 15–16.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov, U.E. Duschanov). Paratype: 1♀ (ZIN), Uzbekistan, Karakalpakstan, Amudarya District, Karatau Mts., around Shaykh Jalil Bobo ziyoratgohi, 42°09′30″N / 60°15′03″E, 24.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov, U.E. Duschanov, D.A. Yavkachev).

Description. Body slender, moderately shiny, dorsally black, ventrally dark-brown, legs and antennae brown (Figs 113, 114). Body length 6–7.3 mm, width 2–2.8 mm.

Head widest at genal level (Fig. 115). Anterior margin of head widely deeply emarginated. Fronto-epistomal suture visible on lateral sides and interrupted in middle. Lateral margins of gena strongly narrowly rounded near eyes and weakly evenly rounded from widest part to epistoma. Lateral margins of head without emargination between genae and epistoma. Eyes moderately convex, ratio between width of head on eye level to interocular width 1.44. Head dorsally punctured with coarse and dense (puncture diameter subequal to interpuncture space) rasp-like punctures; each puncture with short recumbent seta directed to the middle of frons. Head ventrally covered with granules and dense pubescence (Fig. 114). Submentum with two foveae each bearing long seta. Mentum with strongly elevated longitudinal ridge in middle. Apical maxillary palpomeres weakly securiform. Antennae short, not reaching base of pronotum, covered with moderately long recumbent light setae. Antennomeres 7–10 enlarged and more transverse than 1–6 ones. Third antennomere 1.2 times as long as second one.

Prothorax. Pronotum transverse, 1.46 times as wide as long, widest at basal third, where it slightly wider than at base (Fig. 115), 1.77 times as wide as head. Ratio of pronotal width at base, at widest part and at anterior margin as following: 28.6 : 29 : 19.5. Lateral margins of pronotum almost straight at basal third and weakly evenly roundely narrowed to apical margin in anterior two thirds. Anterior margin widely emarginated; base widely rounded. Anterior angles right, pointed at apex, posterior ones weakly obtuse, also pointed at apex. Lateral margins completely finely beaded, anterior margin and base with widely interrupted bead in middle. Disc of pronotum evenly weakly convex, lateral sides narrowly flattened. Puncturation of disc the same as on head, setae much shorter and better expressed near lateral margins. Prosternum with coarse and dense rasp-like setigerous punctures. Prosternal process coarsely and densely punctured by simple round punctures, widened from base to apex, where its margin widely rounded. Prothoracic hypomera narrowly flattened along outer margins, covered with coarse granules, bearing long seta.

Pterothorax. Scutellar shield triangle, densely and coarsely punctured. Elytra elongate (1.58 times as long as wide), subparallel, 1.9 times as wide as head and 1.12 times as wide as pronotum, 2.62–2.64 times as long as pronotum. Lateral deflexed margin of elytra visible dorsally only in anterior third. Strial and interstrial punctures with equal size, round; punctures in striae widely separated but connected by furrow. Intersrtiae convex with coarse and sparse punctures, concentrated near striae. Surface of elytra with long transverse fine wrinkles. Epipleura wide, reaching base of abdominal ventrite 5, covered with short recumnbent setae. Hind wings small, reduced. Mesoventrite coarsely and densely covered with transverse rugosity and dense recumbent pubescence, with shiny and smooth median elevation in anterior part; intercoxal



Figs 111–118. Tenebrionidae (Opatrini) of western Uzbekistan, habitus and details of structure.

111 – *Neopachypterus serrulatus*; 112 – *Opatroides punctulatus parvulus*; 113–117 – *Penthicinus amudariensis* Nabozhenko et N. Bekchanov, **sp. n.**, female: 113 – habitus dorsally, 114 – habitus ventrally, 115 – head and pronotum, 116 – ovipositor ventrally, 117 – ovipositor dorsally; 118 – *Penthicinus pedinoides* (ZIN; Fergana, Uzbekistan), female, habitus dorsally. gs – gonostyli, other abbreviations for ovipositor structures as in Figs 44 and 45.

Рис. 111–118. Жуки-чернотелки (Opatrini) Западного Узбекистана, габитус и детали строения.

111 – *Neopachypterus serrulatus*; 112 – *Opatroides punctulatus parvulus*; 113–117 – *Penthicinus amudariensis* Nabozhenko et N. Bekchanov, **sp. n.**, самка: 113 – габитус дорсально, 114 – габитус вентрально, 115 – голова и переднеспинка, 116 – яйцеклад вентрально, 117 – яйцеклад дорсально; 118 – *Penthicinus pedinoides* (ZIN; Фергана, Узбекистан), самка, габитус дорсально. gs – гоностили, другие обозначения для структур яйцеклада как на рисунках 44 и 45.

process of mesovenrite smooth, with short lateral setae. Mesepisterna and mesepimera with sparse rasp-like punctures. Metaventrite and metepisterna coarsely and sparsely punctured with simple round punctures bearing long recumbent setae.

Legs. All femora covered with long recumbent setae. Protibiae weakly broadened and flattened, triangle, moderately widened from proximal part to distal margin. Lateral outer margin of protibiae bears short strong spines; dorsal surface punctured and setated; ventral surface also punctured and setated, but additionally bears strong short spines as on lateral margin. Meso- and metatibiae not widened, covered with strong long spines and setae. Protarsi comparatively long, anterior margin of protibiae reaching apex of protarsomere 3. Mesotarsomere 1 weakly enlarged, slightly larger than the second one. Metatarsomere 1 strongly enlarged and widened, much larger than the second one.

Abdomen. Abdominal ventrites not beaded, setated with recumbent setae, ventrites 1–3 covered with rasp-like punctures in middle and granules on sides; ventrites 4 and 5 punctured, without granules, the latter bears longer recumbent setae near apex. Ovipositor (Figs 116, 117). Paraproct shorter than coxite, with oblique straight baculi. Coxite with visible four pairs of lobes. Baculi of coxite transverse, S-shaped, coxite lobe II most weakly sclerotized, while coxite lobes III and IV most sclerotized. Coxite lobes IV transformed to long rounded blades with lateral lobe-like processes. Gonostyli almost redused and stored as small granule bearing strong long seta located in a round, weakly sclerotized area. Proctiger with a rectangular apical part, without baculi.

Diagnosis. The new species is well differs from four known species of *Penthicinus* Reitter, 1896 by convex interstriae with coarse puncturation, concentrated near striae. Two species, *P. koltzei* Reitter, 1896 and *P. ghilarovi* G.S. Medvedev, 1988, are well different in the pronotum widest ahead of the middle and straight lateral margins, distinctly narrowed from the widest part to base [Medvedev, 1988]. The new species additionally differs from *P. koltzei* by coarse and dense puncturation of pronotum and well expressed elytral striae. *Penthicinus ghilarovi* well differs from *P. amudariensis* **sp. n.** by the granulated head, fine elytral puncturation, completely bordered base of the pronotum, much stronger widened protibiae without spines on the lateral margin and the structure of the ovipositor without lateral process on the coxite lobe IV. *Penthicinus netshaevae* G.S. Medvedev, 1970 differs from the new species additionally in the pronotum widened from middle to base, the base is straight at middle and translucent lateral margins of the pronotum. The second Uzbek species, *Penthicinus pedinoides* Reitter, 1896, well differs from *P. amudariensis* **sp. n.** in the much shorter elytra with finely and sparsely punctured interstriae, strongly widened serrated (but without spines) protibiae and widened mesotibiae (Fig. 118).

Bionomics. This rare species inhabits tugai forests with saline soils along the Amudarya (Figs 4, 6, 7) and occurs under large Tamarix.

Etymology. The species is named after the Amudarya River, on banks of which it was collected.

Penthicus (*Discotus*) *dilectans* (Faldermann, 1836)
(Fig. 119)

Material. 4 ex. (PCNB), Karakalpakstan, Beruni District, Lower Amudarya State Biosphere Reserve, 41°58′38″N / 60°24′12″E, 28.08.2021 (N.Kh. Bekchanov); 5 ex. (ZIN, PCMN), the same locality, 15–16.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov, U.E. Duschanov); 11 ex. (ZIN, PCMN, PCNB), Khorezm Region, Khiva District, Karakum desert, 41°18′10″N / 60°27′03″E, Tamarix habitat, 19.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov, U.E. Duschanov); 6 ex. (PCMN), Karakalpakstan, Moynaq District, Kyzylzhar, 43°34′24″N / 59°05′18″E, 21.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov, U.E. Duschanov, D.A. Yavkachev); 9 ex. (PCNB), Khorezm Region, Hazorasp (Tuprokkala) District, Kyzylkum desert, 40°57′14.6″N / 62°01′31.8″E, 3.06.2023 (N.Kh. Bekchanov, O.N. Jumaniyozov, U.E. Duschanov).

Bionomics. Numerous nocturnal species, active from 8:00 pm (in April). Adults inhabit halophityc biotopes and tugai forests. Almost all beetles were collected under Tamarix.

Distribution. South of Russia (Caspian depression), Transcaucasia, Turkey [Nabozhenko et al., 2022a], Iran [Reichardt, 1936], Kazakhstan (from the Volga River to the north of Balkhash Lake), Uzbekistan, Turkmenistan, Kyrgyzstan, Tajikistan (Vanch, Darvaz; omitted in the Catalogue of Palaearctic Coleoptera [Iwan et al., 2020]). Pirnazarov [1970] listed this species for the central Ustyurt and many localities in lower reaches of the Amudarya.

Penthicus (*Discotus*) *semenovi* (Reichardt, 1936)
(Fig. 120)

Material. 1 ex. (ZIN), Khorezm Region, Khiva District, Karakum desert, 41°18′10″N / 60°27′03″E, Tamarix habitat, 19.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov, U.E. Duschanov).

Bionomics. One specimen was collected under Salsola sp. on wet solonchak.

Distribution. Southern Kazakhstan from the Emba valley to Alakol, Uzbekistan, Turkmenistan, southern Mongolia [Reichardt, 1936; Medvedev, Nepesova, 1985], Tajikistan, northwestern China [Iwan et al., 2020]. Pirnazarov [1970] listed this species for many localities in Karakalpakstan.

Penthicus (s. str.) *pinguis pinguis* Faldermann, 1836
(Fig. 121)

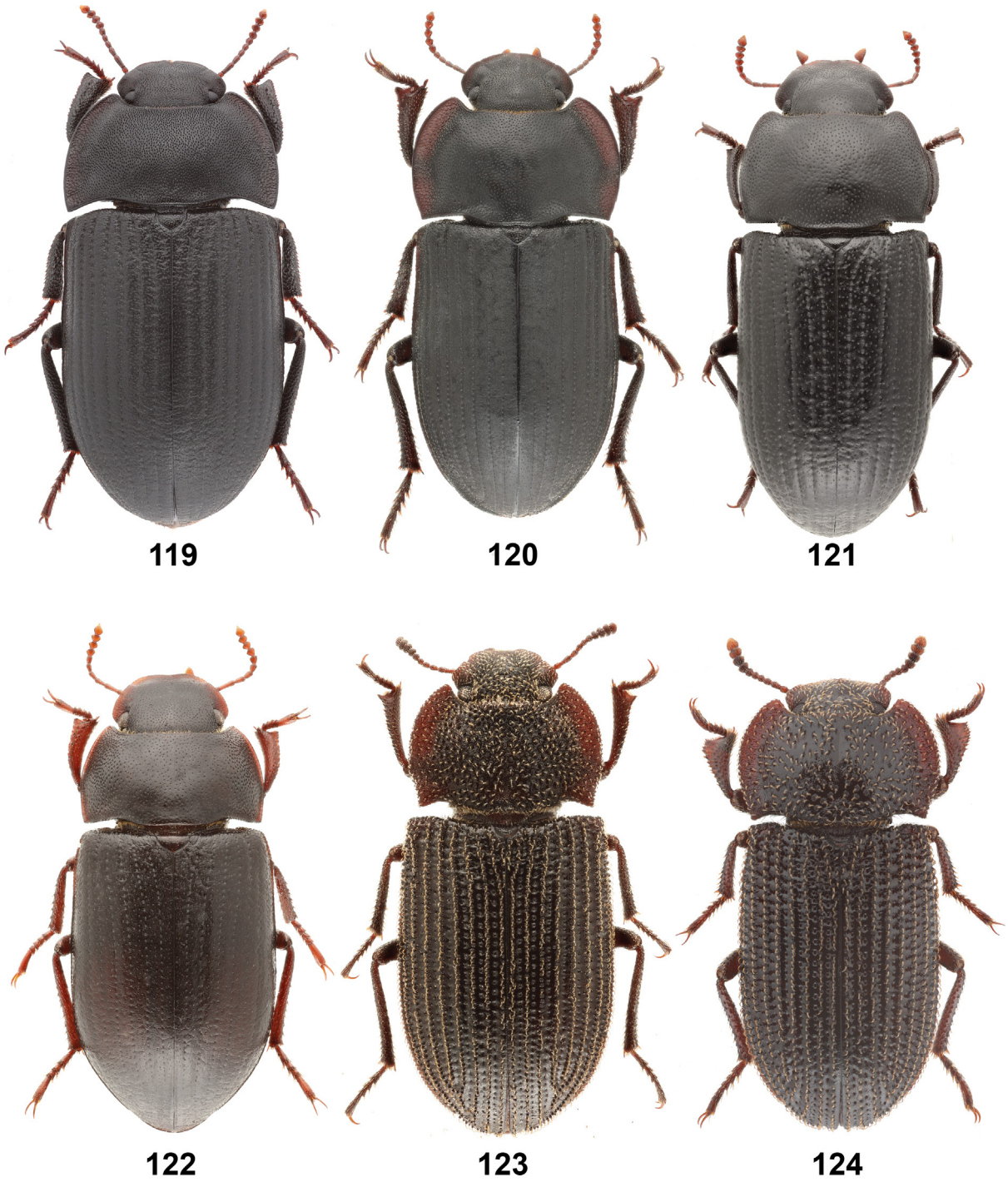
Material. 4 ex. (ZIN, PCMN, PCNB), Karakalpakstan, Beruni District, Sulton Uvays Mts., 42°02′19″N / 60°39′26″E, 230 m, 15.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov, U.E. Duschanov).

Bionomics. Beetles were found under stones in gravel slopes without vegetation. Skopin [1964] pointed out that the species inhabits sandy and sandy loamy soils. Pirnazarov [1970] collected it on hard soils under stones.

Distribution. Transcaucasia, western (our data) and southern Kazakhstan east to Alakol depression, Uzbekistan, Turkmenistan, northern Afghanistan [Medvedev, Nepesova, 1985].

Penthicus (s. str.) *rufescens rufescens*
(Mulsant et Rey, 1859)
(Fig. 122)

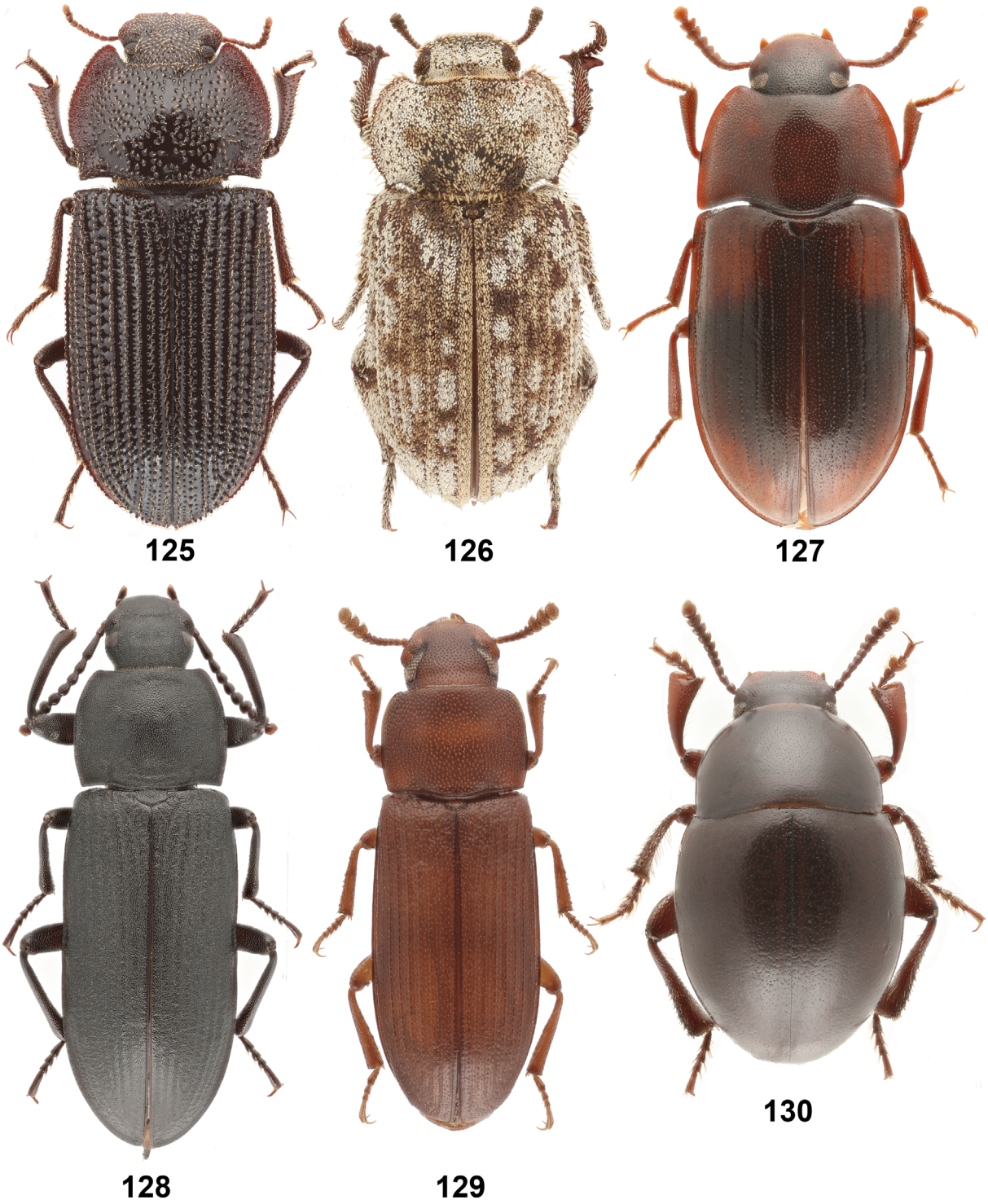
Material. 1 ex. (ZIN), Khorezm Region, Khiva District, Karakum desert, 41°19′47″N / 60°27′08″E, Haloxylon habitat, 18.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov, U.E. Duschanov); 1 ex. (PCMN), Khorezm Region, Khiva District, Karakum desert, 41°18′10″N / 60°27′03″E, Tamarix habitat, 19.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov, U.E. Duschanov); 9 ex. (PCNB), Khorezm Region, Hazorasp (Tuprokkala) District, Kyzylkum desert, 40°57′14.6″N / 62°01′31.8″E, 3.06.2023 (N.Kh. Bekchanov, O.N. Jumaniyozov).



Figs 119–124. Tenebrionidae (Opatrini) of western Uzbekistan, habitus.

Рис. 119–124. Жуки-чернотелки (Opatrini) Западного Узбекистана, габитус.

119 – *Penthicus dilectans*; 120 – *Penthicus semenovi*; 121 – *Penthicus pinguis pinguis*; 122 – *Penthicus rufescens rufescens*; 123 – *Scleropatroides breviusculus*; 124 – *Scleropatroides hirtulus*.



Figs 125–130. Tenebrionidae of western Uzbekistan, habitus.
Рис. 125–130. Жуки-чернотелки Западного Узбекистана, габитус.
125 – *Scleropatroides seidlitzi*; 126 – *Leichenum pictum*; 127 – *Diaclina testudinea*; 128 – *Tenebrio obscurus*; 129 – *Tribolim castaneum*; 130 – *Bradyus pygmaeus*.

Bionomics. Adults were found in sands under Haloxylon and Calligonum. Skopin [1968] and Pirnazarov [1970] mentioned that this phytophagous species occurs on sandy soils with thickets of black saxaul, as well as on irrigated lands.

Distribution. South and eastern Kazakhstan (Kyzylkum, Syrdarya valley, Muyunkum) [Skopin, 1968], Transcaucasia, Uzbekistan, Turkmenistan [Medvedev, Nepesova, 1985], Turkey [Nabozhenko et al., 2022b].

Scleropatroides breviusculus (Reitter, 1889)
(Fig. 123)

Material. 4 ex. (ZIN, PCMN, PCNB), Khorezm Region, Xonqa District, Amudarya bank, 41°27′04.7″N / 60°59′11.3″E, 13.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. Bekchanov).

Bionomics. Adults of this species were collected in the evening twilight on the leaves and branches of young Tamarix on the bank of the Amudarya.

Distribution. Azerbaijan (type locality is Ordubad in Nakhichevan), Armenia [Abdurakhmanov, Nabozhenko, 2011], Uzbekistan, Turkmenistan (lower reaches of the Amudarya, south of Bukhara, Fergana) [Reichardt, 1936], northern Afghanistan [Medvedev, Nepesova, 1985]. Pirnazarov [1970] listed this species from Kegeyli and Turtkul in Karakalpakstan.

Scleropatroides hirtulus (Baudi di Selve, 1876)
(Fig. 124)

Material. 1 ex. (ZIN), Karakalpakstan, N of Moynaq, sands, 43°47′53″N / 59°01′42″E, 1.06.2022 (N.Kh. Bekchanov); 1 ex. (ZIN), Karakalpakstan, Moynaq District, Kyzylzhar, 43°34′24″N / 59°05′18″E, 21.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov, U.E. Duschanov, D.A. Yavkachev).

Bionomics. The species inhabits halophytic biotopes with Tamarix.

Distribution. Sinai [Reichardt, 1936], Turkey (Kahramanmaraş) [Nabozhenko et al., 2022b], Transcaucasia, Iraq, Iran, south of the European part of Russia, Kazakhstan from Mangyshlak to the Ili valley, all countries of Middle Asia, northern Afghanistan [Medvedev, Nepesova, 1985].

Scleropatroides seidlitzi (Reitter, 1898)
(Fig. 125)

Material. 1 ex. (ZIN), Karakalpakstan, N of Moynaq, sands, 43°47′53″N / 59°01′42″E, 1.06.2022 (N.Kh. Bekchanov).

Bionomics. The species inhabits halophytic biotopes.

Distribution. South of the European part of Russia (Caspian depression) [Abdurakhmanov, Nabozhenko, 2011], Transcaucasia [Abdurakhmanov, Nabozhenko, 2011], southern Kazakhstan, southern Turkmenistan, northern Afghanistan, western China [Iwan et al., 2020].

Tribe Pedinini Eschscholtz, 1829
Leichenum pictum (Fabricius, 1801)
(Fig. 126)

Material. 1♂ (ZIN), Khorezm Region, Xonqa District, Amudarya bank, 41°27′04.7″N / 60°59′11.3″E, 24.04.2022 (N.Kh. Bekchanov).

Bionomics. The species inhabits sands near rivers and reservoirs. Our specimen flew to a light trap near the bank of the Amudarya.

Distribution. Europe from Apennine Peninsula to Astrakhan Region of Russia and adjacent regions of western Kazakhstan. New record for Uzbekistan and in general for Middle Asia.

Subfamily Tenebrioninae Latreille, 1802
Tribe Alphitobiini Reitter, 1917
Diaclina testudinea (Piller et Mitterpacher, 1783)
(Fig. 127)

Material. 1 ex. (ZIN), Khorezm Region, Xonqa District, Amudarya bank, 41°27′04.7″N / 60°59′11.3″E, 13.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. Bekchanov).

Bionomics. This species inhabits forests (including floodplain ones and artificial plantations); it occurs under the bark of rotten trees, mycetophagous [Nabozhenko et al., 2010]. Our specimen flew to a light trap.

Distribution. Europe, Anatolia, Caucasus, northern Iran (hyrcanian forests) [Abdurakhmanov, Nabozhenko, 2011]. New record to the fauna of Uzbekistan and Middle Asia and easternmost locality of the species range.

Tribe Tenebrionini Latreille, 1802
Tenebrio (s. str.) *obscurus* Fabricius, 1792
(Fig. 128)

Material. 1♂ (ZIN), Khorezm Region, Xonqa, Sarapayan, 41°29′08.03″N / 60°45′33.33″E, 23.05.2023 (N.Kh. Bekchanov).

Bionomics. The specimen was collected in the house; often occurs in stored products.

Distribution. Cosmopolitan species [Denisova, 1940].

Tribe Triboliini Gistel, 1848
Tribolim (s. str.) *castaneum* (Herbst, 1797)
(Fig. 129)

Material. 1 ex. (PCNB), Khorezm Region, Hazorasp (Tuprokkala) District, Kyzylkum desert, 40°57′14.6″N / 62°01′31.8″E, 3.06.2023 (N.Kh. Bekchanov, O.N. Jumaniyozov, U.E. Duschanov).

Bionomics. The species was collected on a light trap. Beetles and larvae usually inhabit stored products.

Distribution. Cosmopolitan species [Iwan et al., 2020], which is formally recorded for Uzbekistan for the first time.

Tribe Dissonomini G.S. Medvedev, 1968
Bradyus pygmaeus (Fischer von Waldheim, 1821)
(Fig. 130)

Material. 2 ex. (ZIN, PCNB), Karakalpakstan, Kungrad District, near Elabad, Ustyurt Plateau, sands, 43°05′13″N / 58°19′55″E, 23.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov, U.E. Duschanov, D.A. Yavkachev); 1 ex. (ZIN), Khorezm Region, Yangiariq District, S of Yangiariq, Karakum desert, 41°15′51.0″N / 60°31′36.8″E, 24.05.2023 (N.Kh. Bekchanov).

Bionomics. This species inhabits loose sands with Haloxylon and Calligonum [Medvedev, 1959].

Distribution. Kazakhstan, Turkmenistan, Uzbekistan (Karakum and Kyzylkum deserts), Afganistan [Iwan et al., 2020]. Pirnazarov [1970] collected this species in Nukus. New to the fauna of the Ustyurt.

Figs 131–134. Tenebrionidae of western Uzbekistan, habitus.
Рис. 131–134. Жуки-чернотелки Западного Узбекистана, габитус.
131 – *Hedyphanes besseri*; 132 – *Cheirodes dentipes*; 133 – *Cheirodes brevicollis*; 134 – *Phtora hauseriana*.

Tribe Helopini Latreille, 1802
Hedyphanes (s. str.) *besseri* Faldermann, 1837
(Fig. 131)

Material. 1♀ (ZIN), Karakalpakstan, Beruni District, Sulton Uvays Mts., 42°02′19″N / 60°39′26″E, 230 m, 15.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov, U.E. Duschanov); 1♀ (ZIN), Karakalpakstan, Beruni District, Lower Amudarya State Biosphere Reserve, administration, 42°00′06.04″N / 60°26′22.58″E, 15.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov, U.E. Duschanov).

Bionomics. The species was collected near Salsola in clay and stody deserts; active at dusk.

Distribution. Western Kazakhstan, Turkmenistan [Nabozhenko, 2018], Uzbekistan (the first confirmed record). Pirnazarov [1973] listed this species for Karakalpakstan (he collected it at the base of the eastern Ustyurt cliffs near the Aral Sea), but we didn't find any specimens in ZIN and cannot confirm this record.

Tribe Melanimonini Seidlitz, 1894
Cheirodes (s. str.) *dentipes* (Ballion, 1878)
(Fig. 132)

Material. 12 ex. (ZIN, PCMN, PCNB), Khorezm Region, Xonqa District, Amudarya bank, 41°27′04.7″N / 60°59′11.3″E, 13.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. Bekchanov); 2 ex. (ZIN), Khorezm Region, Yangiariq District, S of Yangiariq, Karakum desert, 41°15′51.0″N / 60°31′36.8″E, 24.05.2023 (N.Kh. Bekchanov).

Bionomics. Psammophilic species, collected on a light trap.

Distribution. South of Russia (Caspian depression), Azerbaijan (Absheron) [Abdurakhmanov, Nabozhenko, 2011], Iran, Middle Asia, Afghanistan, northwestern China, Mongolia [Iwan et al., 2020]. Pirnazarov [1970] listed this species from Kegeyli in Karakalpakstan.

Cheirodes (*Pseudanemia*) *brevicollis* Wollaston, 1864
(Fig. 133)

Material. 3 ex. (ZIN, PCMN, PCNB), Khorezm Region, Xonqa District, Amudarya bank, 41°27′04.7″N / 60°59′11.3″E, 13.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. Bekchanov).

Bionomics. Psammophilic species, collected on a light trap.

Distribution. Afrotropical region, Southwestern Europe, Middle East, Iran, Middle Asia, Afghanistan, northwestern China, Mongolia [Iwan et al., 2020]. Pirnazarov [1970] listed this species from Sulton Uvays Mts. in Karakalpakstan.

Subfamily Diaperinae Latreille, 1820
Tribe Phaleriini Blanchard, 1845
Phtora (s. str.) *hauseriana* (Reitter, 1895)
(Fig. 134)

Material. 3 ex. (ZIN, PCMN, PCNB), Karakalpakstan, Moynaq District, Kyzylzhar, 43°34′24″N / 59°05′18″E, 21.04.2023 (M.V. and S.V. Nabozhenko, N.Kh. and Kh.U. Bekchanov, U.E. Duschanov, D.A. Yavkachev).

Bionomics. The species was collected on a light trap. It inhabits halophytic biotopes near salt lakes.

Distribution. Transcaucasia, Uzbekistan, Turkmenistan [Iwan et al., 2020]. Medvedev and Nepesova [1985] listed this species for the Amudarya delta.

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References

Abdurakhmanov G.M., Nabozhenko M.V. 2011. Opredelitel' i katalog zhukov-chernotelok (Coleoptera: Tenebrionidae s. str.) Kavkaza i yuga evropeyskoy chasti Rossii [Keys and catalogue to darkling beetles (Coleoptera: Tenebrionidae s. str.) of the Caucasus and south of European part of Russia]. Moscow: KMK Scientific Press Ltd. 361 p. (in Russian).

Bouchard P., Bousquet Y., Aalbu R.L., Alonso-Zarazaga M.A., Merkl O., Davies A.E. 2021. Review of genus-group names in the family Tenebrionidae (Insecta, Coleoptera). *ZooKeys*. 1050: 1–633. DOI: 10.3897/zookeys.1050.64217

Chigray I., Ivanov A. 2020. A review of the genus *Blaps* (Coleoptera: Tenebrionidae) of Central and South Kazakhstan with description of two new species. *Acta Zoologica Academiae Scientiarum Hungaricae*. 66(2): 111–162. DOI: 10.17109/AZH.66.2.111.2020

Chigray I.A., Abdurakhmanov G.M., Nabozhenko M.V., Shapovalov A.M. 2016. On *Blaps* Fabricius, 1775 (Coleoptera: Tenebrionidae) from Western Kazakhstan with description of a new species from Tyuleniy Archipelago (Caspian Sea). *Zootaxa*. 4173(1): 1–17. DOI: 10.11646/zootaxa.4173.1.1

Chigray S.N. 2019. Revision of the Palaearctic Pimeliini (Coleoptera, Tenebrionidae): the genus *Podhomala* Solier, 1836. *Entomological Review*. 99(7): 924–948. DOI: 10.1134/S0013873819070066

Chigray S.N., Abakumov E.V. 2019. Taxonomic revision of the genus *Calyptopsis* Solier, 1835 (Coleoptera, Tenebrionidae: Pimeliinae: Tentyriini) from Iran. *Entomological Review*. 99(2): 209–244. DOI: 10.1134/S001387381902009X

Davletshina A.G. 1967. Species composition and distribution of darkling beetles (Tenebrionidae) in biotopes of south-west Kyzyl-Kumy. *Zoologicheskii zhurnal*. 46(4): 524–533 (in Russian).

Davletshina A.G., Avanesova G.A., Mansurov A.K. 1979. Entomofauna yugo-zapadnogo Kyzylkuma [Entomofauna of southwestern Kyzylkum]. Tashkent: FAN. 128 p. (in Russian).

Denisova L.A. 1940. Review of the Palaearctic species of the subfamily Tenebrioninae (Coleoptera, Tenebrionidae). *In:* Trudy Zoologicheskogo instituta. T. 6, vyp. 1–2 [Proceedings of the Zoological Institute. Vol. 6, iss. 1–2]. Moscow – Leningrad: Academy of Sciences of the USSR: 222–251 (in Russian).

Doyen J.T. 1993. Cladistic relationships among Pimeliine Tenebrionidae (Coleoptera). *Journal of the New York Entomological Society*. 101(4): 443–514.

Egorov L.V. 2012. On the composition of the fauna of darkling beetles of the tribe Platyscelidini (Coleoptera, Tenebrionidae) of Uzbekistan. *In:* Trudy XIV s'ezda Russkogo entomologicheskogo obshchestva [Proceedings of the XIV Congress of the Russian Entomological Society (August 26 – September 1, 2012, St Petersburg, Russia)]. St Petersburg: Zoological Institute of the Russian Academy of Sciences: 138 (in Russian).

Egorov L.V., Rakhimov T.U. 2015. Materials to the knowledge of darkling beetles (Coleoptera: Tenebrionidae) of Uzbekistan. *Eversmannia*. Supplement 5: 30–35 (in Russian).

Ferrer J. 2005. Révision du genre *Opatroides* Brullé, 1832 (Coleoptera: Tenebrionidae: Opatrinae: Opatrini). *Annales Zoologici*. 55(1): 11–22. DOI: 10.3161/0003454053642248

Grimm R. 2015. Tenebrionidae (Insecta: Coleoptera) from Iran. *Veröffentlichungen des Naturkundemuseums Erfurt*. 34: 299–318.

Iwan D., Ferrer J., Raś M. 2010. Catalogue of the world *Gonocephalum* Solier, 1834 (Coleoptera, Tenebrionidae, Opatrini). Part 1. List of the species and subspecies. *Annales zoologici*. 60(2): 245–304. DOI: 10.3161/000345410X516920

Iwan D., Löbl I., Bouchard P., Bousquet Y., Kamiński M.J., Merkl O., Ando K., Schawaller W. 2020. Family Tenebrionidae Latreille, 1802. *In:* Catalogue of Palaearctic Coleoptera. Volume 5. Revised and updated second edition. Tenebrionoidea. Leiden: Brill: 104–475. DOI: 10.1163/9789004434998

Jachontov V.V., Davletshina A.G. 1956. To the knowledge of species composition of darkling beetles (Tenebrionidae) of ancient delta of Amudarya. *In:* Trudy Instituta zoologii i parazitologii. Vyp. 6. Entomologicheskiy sbornik [Proceedings of Institute of Zoology and Parazitology. Iss. 6. Entomological collection of papers]. Tashkent: Academy of Sciences of the Uzbek SSR: 31–38 (in Russian).

Kalyuzhnaya N.S., Komarov E.V., Cherezova L.B. 2000. Zhestkokrylye nasekomye (Insecta, Coleoptera) Nizhnego Povolzh'ya [Coleoptera of the Lower Volga region]. Volgograd: Nissa-region. 204 p. (in Russian).

Kaplin V.G. 1995. Territorial and trophic relations of darkling beetle *Pisterotarsa gigantea* (Coleoptera, Tenebrionidae) in Eastern Kara Kum. *Zoologicheskii zhurnal*. 74(11): 459–461 (in Russian).

Kaplin V.G. 2019. Distribution, life forms and ecological peculiarities of darkling beetles (Coleoptera, Tenebrionidae) of the Eastern Kara Kum. *Entomological Review*. 99(7): 987–1004. DOI: 10.1134/S0013873819070091

Kaszab Z. 1959. Die Tenebrioniden Afghanistans, auf Grund der Ergebnisse der Sammelreise des Herrn J. Klapperich in den Jahren 1952/53 (Col.). *Entomologische Arbeiten aus dem Museum G. Frey Tutzing bei München*. 10: 321–404, 10 taf.

Kaszab Z. 1960. Die Tenebrioniden Afghanistans, auf Grund der Ergebnisse der Sammelreise des Herrn J. Klapperich in den Jahren 1952/53 (Col.). 1. Fortsetzung und Schluss. *Entomologische Arbeiten aus dem Museum G. Frey Tutzing bei München*. 11: 1–179.

Kaszab Z. 1966. Revision der Tenebrioniden-Gattung *Microdera* Eschsch. (Coleoptera). *Acta Zoologica Academia Scientiarum Hungaricae*. 12(3–4): 279–305.

Kaszab Z. 1979. Revision der asiatischen *Arthrodosis*-artigen Erodiini (Coleoptera: Tenebrionidae). *Acta Zoologica Academia Scientiarum Hungaricae*. 25(1–2): 69–119.

Kraatz G. 1882. Beiträge zur Käferfauna von Turkestan. II. Neue Tenebrioniden von Margelan. *Deutsche Entomologische Zeitschrift*. 26(1): 81–95.

Kuznetsov V.I. 1970. To the ecology of darkling beetles (Coleoptera, Tenebrionidae) of southeastern Karakum. *In:* Fiziologicheskie mekhanizmy adaptatsii zhivotnykh v usloviyakh zasushlivykh aridnykh zon [Physiological mechanisms of animal adaptation in dry arid zones]. Novosibirsk: Nauka: 56–59 (in Russian).

Kuznetsov V.I. 1971. Daily activity rhythm of the desert darkling beetles (Coleoptera, Tenebrionidae) in different seasons of the year. *In:* Energetika povedeniya i spontannaya deyatel'nost' [Energy of behavior and spontaneous activity]. Leningrad: Nauka: 69–71 (in Russian).

Medvedev G.S. 1958. Materials on the fauna and stationary distribution of darkling beetles (Coleoptera, Tenebrionidae) of Badkhyz. *Izvestiya Akademii nauk Turkmenskoy SSR*. 5: 60–68 (in Russian).

Medvedev G.S. 1959. Genus *Aphaleria* Rtt. (Coleoptera, Tenebrionidae) and its position in the classification. *Entomologicheskoe obozrenie*. 38(1): 219–222 (in Russian).

Medvedev G.S. 1973. Position of the genera *Leichenum* Dej. and *Idisia* Pasc. (Coleoptera, Tenebrionidae) in the system, and the description of new genus from the northern Karakums. *Entomological Review*. 52(3): 428–433.

Medvedev G.S. 1975. A review of tenebrionid beetles of the genus *Dichillus* Jacquelin du Val (Coleoptera, Tenebrionidae) from the fauna of the USSR. *Entomological Review*. 54(3): 75–86.

Medvedev G.S. 1982. New species of darkling-beetle of the genus *Cnemeplatia* Costa (Coleoptera, Tenebrionidae) from Karakalpak ASSR. *In:* Trudy Zoologicheskogo instituta Akademii nauk SSSR. T. 110 [Proceedings of the Zoological Institute of the Academy of Sciences of the USSR. Vol. 110]. Leningrad: Zoological Institute of the Academy of Sciences of the USSR: 40–41 (in Russian).

Medvedev G.S. 1988. Review of tenebrionids of the genus *Penthicinus* Rtt. (Coleoptera, Tenebrionidae). *In:* Trudy Vsesoyuznogo entomologicheskogo obshchestva. T. 70. Sistematika nasekomykh i kleshchey [Proceedings of the All-Union Entomological Society. Vol. 70. Systematics of insects and mites]. Leningrad: Nauka: 55–65 (in Russian).

Medvedev G.S. 1990. Review of darkling beetles of the genus *Alcinoeta* Strand (Coleoptera, Tenebrionidae). *Entomological Review*. 69(1): 15–19.

Medvedev G.S. 2006. To the systematics and nomenclature of tenebrionid beetles of the tribes Phaleriini, Lachnogyini, Klewariini, and Blaptini (Coleoptera, Tenebrionidae). *Entomological Review*. 86(7): 820–839. DOI: 10.1134/S0013873806070062

Medvedev G.S., Nepesova M.G. 1985. Opredelitel' zhukov-chernotelok Turkmenistana [Key to darkling beetles of Turkmenistan]. Ashkhabad: Ylym. 180 p. (in Russian).

Medvedev G.S., Nepesova M.G. 1986. New species of tenebrionid beetles (Coleoptera, Tenebrionidae) from Turkmenia and Karakalpakia. *Entomological Review*. 65(2): 82–87.

Medvedev G.S., Nepesova M.G. 1989. A review of the darkling beetles (Coleoptera, Tenebrionidae) of the Kopet Dagh. (Communication 1). *Izvestiya Akademii nauk Turkmenskoy SSR. Seriya biologicheskikh nauk*. 3: 41–48 (in Russian).

Medvedev G.S., Pirnazarov B.P. 1972. New darkling beetle species of the genus *Leptodes* Sol. (Coleoptera, Tenebrionidae) from the Aral Coast. *Entomological Review*. 51(1): 78–80.

Mitroshina L.A. 1986. Species composition and distribution features of darkling beetles of Southern Ustyurt. *Izvestiya Akademii nauk Turkmenskoy SSR. Seriya biologicheskikh nauk*. 4: 76–78 (in Russian).

Mitroshina L.A. 1988. On the fauna of tenebrionids (Coleoptera, Tenebrionidae) in the south Usturt. *Zoologicheskii zhurnal*. 67(10): 1587–1588 (in Russian).

Mitroshina L.A. 1990. Features of adaptations of darkling beetle (Coleoptera, Tenebrionidae) to arid conditions of southern Ustyurt. *Ekologiya*. 1: 75–77 (in Russian).

Mitroshina L.A. 1994. Kompleksy chlenistonogikh zhivotnykh Yuzhnogo Ustyurta [Complexes of arthropods of South Ustyurt. PhD Abstract]. Ashgabat. 19 p. (in Russian).

Nabozhenko M.V. 2018. Review of the genus *Hedyphanes* Fischer von Waldheim, 1822 (Coleoptera: Tenebrionidae: Helopini) of Kazakhstan, Middle Asia, Iran and Afghanistan. *Entomological Review*. 98(5): 594–628. DOI: 10.1134/S0013873817050056

Nabozhenko M.V., Chigray I.A. 2020. Tribe Blaptini Leach, 1815. *In:* Catalogue of Palaearctic Coleoptera. Volume 5. Revised and updated second edition. Tenebrionoidea. Leiden: Brill: 268–296. DOI: 10.1163/9789004434998_004

Nabozhenko M.V., Chigray I.A., Bekchanov N.Kh. 2022a. A review of the genus *Psammocryptus* (Coleoptera: Tenebrionidae: Tentyriini). *Acta Entomologica Musei Nationalis Prague*. 62(1): 165–184. DOI: 10.37520/aemnp.2022.013

Nabozhenko M.V., Doğan D., Yıldırım E. 2022b. Additions to the knowledge of the diversity of darkling beetles (Coleoptera: Tenebrionidae) from Turkey with new records and taxonomic notes. *Journal of Insect Biodiversity*. 32(1): 5–25. DOI: 10.12976/jib/2022.32.1.2

Nabozhenko M.V., Kalashian M.Yu. 2022. Review of the darkling beetle genus *Microdera* Eschscholtz 1831 (Coleoptera, Tenebrionidae, Tentyriini) from the Caucasus and the plain parts of European Russia. *Zoologicheskii zhurnal*. 101(12): 1356–1371 (in Russian). DOI: 10.18470/10.31857/S004451342212008X

Nabozhenko M.V., Nikitskiy N.B., Bibin A.R. 2010. Family Tenebrionidae – darkling beetles. *In:* Zhestkokrylye nasekomye (Insecta, Coleoptera) Respubliki Adygeya (annotirovannyy katalog vidov) (Konspekty fauny Adygei. № 1) [Coleopterous insects (Insecta, Coleoptera) of Republic of Adygheya (annotated catalogue of species) (Fauna conspecta of Adygheya. № 1)]. Maykop: Adyghei State University Publishers: 231–239 (in Russian).

Nepesova M.G. 1980. Zhuki-chernotelki Turkmenistana (biologiya i ecologiya) [Darkling beetles of Turkmenistan (biology and ecology)]. Ashkhabad: Ylym. 210 p. (in Russian).

Pirnazarov B.P. 1970. Darkling beetles (Coleoptera: Tenebrionidae) of Karakalpakia. *Vestnik Karakalpakskogo filiala Akademii nauk Uzbekskoy SSR*. 3(41): 23–28 (in Russian).

Pirnazarov B.P. 1972. Darkling beetles of Karakalpakstan and peculiarities of their zoogeographical composition. *In:* Problemy pochvennoy zoologii. Materialy IV Vsesoyuznogo soveshchaniya [Problems of soil zoology. Materials of the 4th All-Union session (Baku, USSR, 1972)]. Moscow: Nauka: 111–112 (in Russian).

Pirnazarov B.P. 1973. Zhuki-chernotelki (Coleoptera, Tenebrionidae) Karakalpakskoy ASSR [Darkling beetles (Coleoptera, Tenebrionidae) of the Karakalpak ASSR. PhD Abstract]. Ashkhabad. 26 p. (in Russian).

Pirnazarov B.P. 1975. To the fauna of darkling beetles (Coleoptera, Tenebrionidae) in Karakalpak ASSR. *In:* Problemy pochvennoy zoologii. Materialy V Vsesoyuznogo soveshchaniya [Problems of soil zoology. Materials of the 5th All-Union session (Vilnius, USSR, 1975)]. Vilnius: Institute of Zoology and Parasitology of the Academy of Sciences of the USSR: 251–252 (in Russian).

Reichardt A.N. 1936. Opredeliteli po faune SSSR, izdavaemye Zoologicheskim institutom Akademii nauk. Vyp. 19. Zhuki-chernotelki triby Opatrini Palearkticheskoy oblasti [Keys to the fauna of the USSR published by the Zoological Institute of the Academy of Sciences. Iss. 19. Darkling beetles of the tribe Opatrini of the Palaearctic region]. Moscow – Leningrad: Academy of Sciences of the USSR. 224 p. (in Russian).

Skopin N.G. 1961a. Neue Tenebrioniden (Coleoptera) aus Zentralasien II, nebst einigen systematischen sowie synonymischen Bemerkungen. *Annales Historico-Naturales Musei Nationalis Hungarici*. 53: 381–401.

Skopin N.G. 1961b. Materials on the fauna and the ecology of darkling beetles (Coleoptera, Tenebrionidae) of southeastern Kazakhstan. *Trudy Nauchno-issledovatel'skogo instituta zashchity rasteniy Kazakhskoy akademii sel'skokhozyaystvennykh nauk*. 6: 172–208 (in Russian).

Skopin N.G. 1964. Material to the fauna of tenebrionids (Coleoptera, Tenebrionidae) of Mangyshlak and North-Western Ustyurt. *Trudy Kazakhskogo nauchno-issledovatel'skogo instituta zashchity rasteniy*. 8: 277–296 (in Russian).

Skopin N.G. 1966. Die Arten der Gattung *Tentyria* Latreille aus dem westlichen Zentralasien (Coleoptera, Tenebrionidae). *Entomologische Arbeiten aus dem Museum G. Frey*. 17: 1–6.

Skopin N.G. 1967. On nocturnal darkling beetles of the genus *Melanesthes* Lac. (Coleoptera, Tenebrionidae) from Central Kazakhstan. *Entomologicheskoe obozrenie*. 46(1): 205–210 (in Russian).

Skopin N.G. 1968. Darkling beetles (Coleoptera, Tenebrionidae) of Southern Kazakhstan and their economic significance. *Trudy Kazakhskogo nauchno-issledovatel'skogo instituta zashchity rasteniy*. 10: 74–114 (in Russian).

Skopin N.G. 1970. Revision der Tenebrioniden-Gattung *Tagona* Fisch.-W., 1822 (Coleoptera, Tenebrionidae). *Reichenbachia*. 13(16): 157–168.

Skopin N.G. 1973. Revision der Tenebrioniden-Gattungsgruppe *Trigonoscelis–Sternoplax* (Coleoptera). *Entomologische Arbeiten aus dem Museum G. Frey*. 24: 104–185.

Skopin N.G. 1974. Zur Revision der eurasiatischen Arten der Gattung *Belopus* Gb. *Entomologische Abhandlungen des Staatlichen Museum für Tierkunde in Dresden*. 40: 65–103.

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