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A review of the *Malthinus flaveolus* (Herbst, 1786) group of species (Coleoptera: Cantharidae) of the European part of Russia and the Caucasus

© S.V. Kazantsev

Diplomatic Academy of the Ministry of Foreign Affairs of the Russian Federation, Ostozhenka Street, 53/2, Moscow 119021 Russia. E-mail: kazantss@mail.ru

Abstract. The list of soldier beetles of the genus *Malthinus* Latreille, 1805 of the Caucasus is complemented with *Malthinus pseudoflaveolus* Wittmer, 1974 from the *M. flaveolus* (Herbst, 1786) species group. Although *M. pseudoflaveolus* had been reported from the region, it was later excluded from the Caucasian fauna. This time it is registered in Georgia, and this increases the total number of *Malthinus* species known from the Caucasus to 15. The habitus of *M. pseudoflaveolus*, as well as the aedeagi and male ultimate abdominal segments of *M. flaveolus*, *M. pseudoflaveolus* and *M. flaveoloides* Švihla, 1997 are illustrated.

Key words: Cantharidae, Malthininae, *Malthinus*, faunistics, Caucasus, Palaearctic region.

Обзор группы видов *Malthinus flaveolus* (Herbst, 1786) (Coleoptera: Cantharidae) европейской части России и Кавказа

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Дипломатическая академия МИД России, ул. Остоженка, 53/2, Москва 119021 Россия. E-mail: kazantss@mail.ru

Резюме. Список мягкотелок рода *Malthinus* Latreille, 1805 Кавказа дополняется *Malthinus pseudoflaveolus* Wittmer, 1974 из группы видов *M. flaveolus* (Herbst, 1786). Хотя *M. pseudoflaveolus* ранее указывался из региона, позднее он был исключен из кавказской фауны. На этот раз он обнаружен в Грузии, что увеличивает общее число зарегистрированных на Кавказе видов *Malthinus* до 15. Приведены фотографии габитуса *M. pseudoflaveolus*, а также эдегусов и верхних сегментов брюшка самцов *M. flaveolus*, *M. pseudoflaveolus* и *M. flaveoloides* Švihla, 1997.

Ключевые слова: Cantharidae, Malthininae, *Malthinus*, фаунистика, Кавказ, Палеарктика.

Introduction

Malthinus flaveolus (Herbst, 1786) is the type species of the soldier beetle genus *Malthinus* Latreille, 1805, the type genus of the subfamily Malthininae. The genus accounts for over 350 species distributed throughout the Holarctic realm, also penetrating into the Neotropics and the Oriental region [Delkeskamp, 1977; Kazantsev, Brancucci, 2007]. The Caucasian fauna lists 14 species of this genus [Švihla, 1990, 1997; Wittmer, 1992; Kazantsev, 2001, 2024, 2025a, b].

Malthinus is divided into two subgenera, *Malthinus* s. str., with the maximum distribution range, and *Indomalthinus* Brancucci, 1978, restricted to Nepal, Himalayan and sub-Himalayan provinces of India and Pakistan, and central China [Brancucci, 1980; Kopetz, 2015; Kazantsev, 2025c]. At the same time, there appear to be easily recognisable species groups in the nominotypical subgenus, the Caucasian representatives of two of which, *M. facialis* Thomson, 1864 and *M. biguttatus* (Linnaeus, 1758) groups, were reviewed recently [Kazantsev, 2025a, b].

The *Malthinus flaveolus* group is another well-defined group of species in *Malthinus* s. str., including four species: the pan-European *M. flaveolus* (Herbst, 1786), *M. deceptor* Baudi di Selve, 1893 from Italy, *M. pseudoflaveolus* Wittmer, 1974 from Turkey and *M. flaveoloides* Švihla, 1997 from the Caucasus [Švihla, 1997]. The group is characterized by the

widened anteriorly and more or less rounded at anterior margin pronotum, absent of elytral longitudinal rows of punctures, mostly light yellow (except head and elytra) body and by the specific structure of the aedeagus, with very long median piece, developed parameres, latero- and interophyses (Figs 1–3, 9–13).

An opportunity to study the new *Malthinus* material collected during the 2024–2025 expeditions to Georgia allows adding another species, *M. pseudoflaveolus*, to the fauna of the country and of the Caucasus in general. Although it had been reported for the Caucasus by Wittmer [1992], later it was excluded from the regional fauna after the Caucasian '*M. pseudoflaveolus*' specimens from the Wittmer collection in the Naturhistorisches Museum in Basel were re-examined by Švihla [1997], who found them to represent a new species, *M. flaveoloides*. Thus, although the species was mentioned in the catalogue of Palaearctic Coleoptera as occurring in Georgia and the northwestern Caucasus in Russia [Kazantsev, Brancucci, 2007], it was excluded from the fauna of these territories in a later Identification Key to soldier beetles [Kazantsev, 2022]. Now, with the material from the Meskheti Mountains (southern Georgia) and Upper Svaneti (northwestern Georgia) at hand, it is obvious that *M. pseudoflaveolus* does occur in the Caucasus. The aedeagi and male ultimate abdominal segments of the three species of the *Malthinus flaveolus* group of the region are illustrated below.

Material and methods

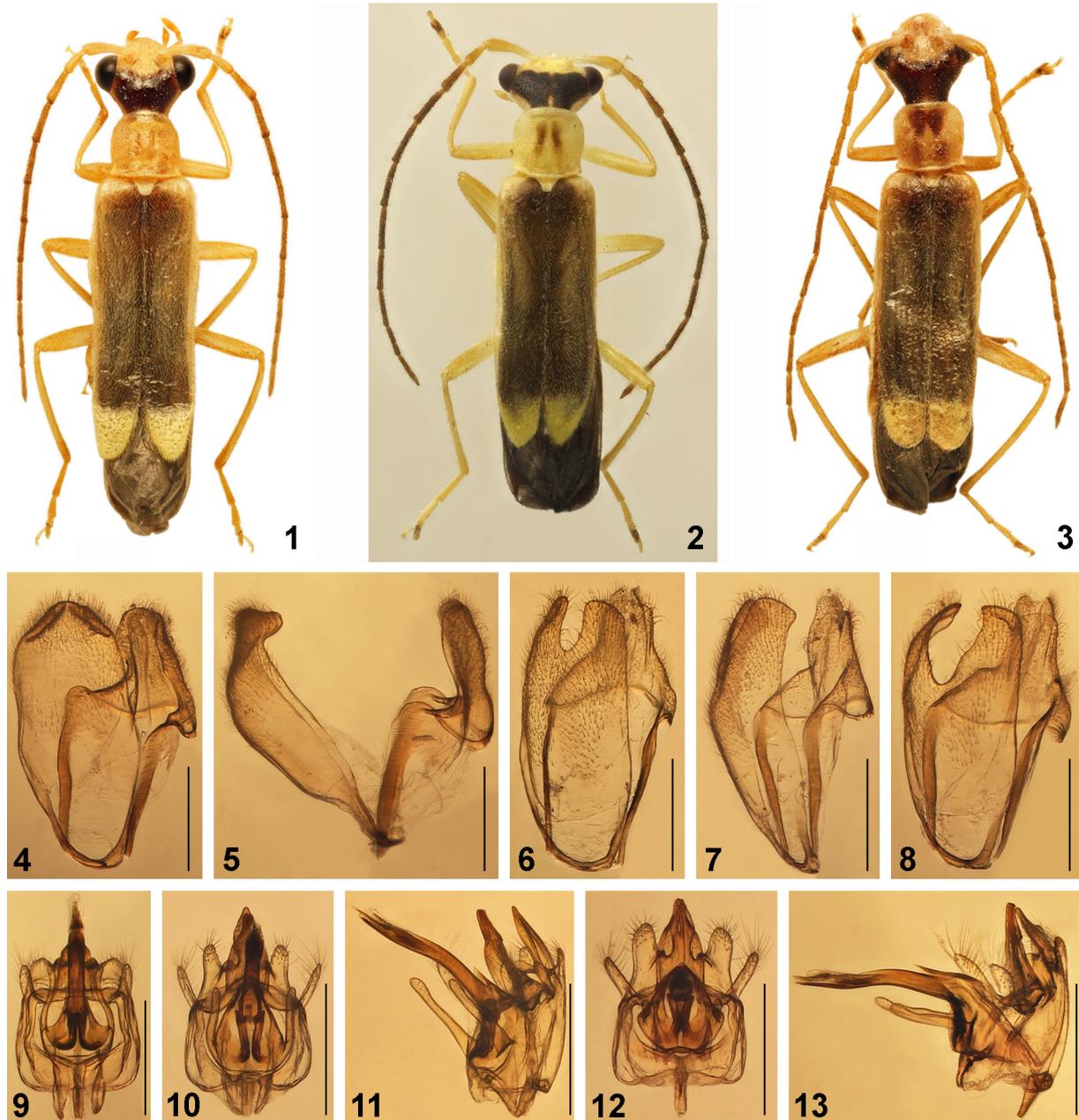
The studied beetles were glued on cardboard plates or triangles. Before the examination, they were relaxed in water, then their detached abdomens were kept for several hours in 10% KOH at room temperature. The KOH treated aedeagi and terminal abdominal segments were then placed in microvials with glycerin for photographing.

MSP-1 zoom stereoscopic dissecting microscope with 8–80 times magnification range was used for examination of diagnostic characters. Photographs were taken with a Canon EOS 6D camera and Canon MP-E 65 mm lens and processed with Zerene Stacker and Adobe Photoshop software.

The following acronym is used the text:

ICM – Insect Center (Moscow, Russia);

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



Figs 1–13. *Malthinus* (s. str.), males.

1, 4–5, 9 – *M. flaveolus*; 2, 6–7, 10–11 – *M. pseudoflaveolus*; 3, 8, 12–13 – *M. flaveoloides*. 1–3 – general view (1, 3 – after Kazantsev [2022]); 4–8 – ultimate abdominal segments: 4, 6, 8 – ventrally, 5, 7 – laterally; 9–13 – aedeagi: 9, 10, 12 – ventrally, 11, 13 – laterally. Scale bars 0.5 mm.

Рис. 1–13. *Malthinus* (s. str.), самцы.

1, 4–5, 9 – *M. flaveolus*; 2, 6–7, 10–11 – *M. pseudoflaveolus*; 3, 8, 12–13 – *M. flaveoloides*. 1–3 – общий вид (1, 3 – по [Kazantsev, 2022]); 4–8 – верхние брюшные сегменты: 4, 6, 8 – снизу, 5, 7 – сбоку; 9–13 – эдеагусы: 9, 10, 12 – снизу, 11, 13 – сбоку. Масштабные линейки 0.5 мм.

Family Cantharidae Imhoff, 1856 (1815)
Subfamily Malthininae Kiesenwetter, 1852
Tribe Malthininae Kiesenwetter, 1852
Genus *Malthinus* Latreille, 1805
Subgenus *Malthinus* Latreille, 1805

Malthinus Latreille, 1805: 261 (type species *Cantharis flaveola* Herbst, 1786 (subsequent designation by Delkeskamp [1977])).

= *Apteromalthinus* Escalera, 1913: 322 (type species *Apteromalthinus pithanoides* Escalera, 1913 (by monotypy)).

= *Malachidius* Motschulsky, 1860: 62 (type species *Malthinus conspicuus* Kiesenwetter, 1852 (original designation)).

= *Progeutes* Abeille de Perrin, 1894: 92 (type species *Malthinus longipennis* P.H. Lucas, 1846 (subsequent designation by Delkeskamp [1977])).

= *Ymnis* Des Gozis, 1886: 23 (type species *Malthinus flaveolus* Herbst, 1786 (original designation)).

Malthinus (s. str.) *flaveolus* (Herbst, 1786)
(Figs 1, 4, 5, 9)

Cantharis flaveolus Herbst, 1786: 171.

= *Cantharis collaris* Latreille, 1805: 262.

= *Cantharis flavus* Latreille, 1805: 262.

= *Malthinus griseipennis* Pic, 1913: 97.

= *Cantharis immunis* Marsham, 1802: 374.

= *Telephorus minimus* A.G. Olivier, 1790: no. 26, 17.

= *Malthinus robustus* Motschulsky, 1853: 4.

= *Malthinus subfusca* Pic, 1906: 24.

Material. 1♂ (ICM), "E Moscow, Bykovo, VNIKR, 4.VI.2012, S. Kurbatov leg."; 1♂ (ICM), "Russia, Crimea, Bakhchis., Sokolinoe, 44°32'08.6"N 33°58'29.0"E, 300 m, 27.V.2022, A. Prosvirov leg."

Notes. *Malthinus flaveolus* differs from *M. pseudoflaveolus* and *M. flaveoloides* in the shape of the ultimate male abdominal ventrite, with not medially incised, in ventral view, apex, and abruptly bent in the middle, in lateral view, ultimate abdominal tergite (Figs 4, 5).

Distribution. *Malthinus* (s. str.) *flaveolus* is distributed in the forest zone from Western Europe to West Siberia [Kazantsev, Brancucci, 2007; Sergeeva et al., 2024].

Malthinus (s. str.) *pseudoflaveolus* Wittmer, 1974
(Figs 2, 6, 7, 10, 11)

Malthinus pseudoflaveolus Wittmer, 1974: 422.

Material. Russia. 3♂ (ICM), "Caucasus, Dagestan, Gunib, ca. 1500 m, 25.VI.89, S. Kazantsev leg."; "*Malthinus pseudoflaveolus* Wittm., det. W. Wittmer" (Wittmer's manuscript label).

Georgia. 2♂, 6♀ (ICM), "Georgia, env. Bakuriani, 2–3 km ESE Patara Mitarbi, 1500–1770 m, 41.77°N 43.59°E, 19.VII.2024, S. Kazantsev leg."; 2♂ (ICM), "Gruzia: UPPER SVANETI, N Nakra, 1300–1600 m, 43.103°N 42.394°E, 11.VII.2025, S. Kazantsev leg."; 2♂ (ICM), "Gruzia: UPPER SVANETI, E Nakra, 1400–1800 m, 43.086°N 42.365°E, 12.VII.2025, S. Kazantsev leg."; 1♂, 1♀ (ICM), "Gruzia: UPPER SVANETI, S Mestia, env. Heshkili, 1800–1850 m, 43.016°N 42.710°E, 13–14.VII.2025, S. Kazantsev leg."; 9♂, 7♀ (ICM), "Gruzia: UPPER SVANETI, S Mestia, 1.5 km E Heshkili, 1800 m, 43.017°N 42.697°E, 17–19.VII.2025, S. Kazantsev leg."; 9♂, 7♀ (ICM), 1♂, 1♀ (ZMMU), "Gruzia: UPPER SVANETI, S Mestia, 1.5 km E Heshkili, 43.017°N 42.697°E, 1800 m, 17–19.VII.2025, S. Kazantsev leg."

Notes. In the description *M. pseudoflaveolus* is separated from *M. flaveolus* by the shape of last abdominal sternites and the aedeagus – however, the author of the taxon does not say how exactly the sternites are different and does not describe or illustrate them [Wittmer, 1974]. As it is seen in the photographs, in *M. pseudoflaveolus* the

ultimate male abdominal ventrite, in ventral view, is indeed, unlike in *M. flaveolus*, noticeably incised at apex (Figs 6, 7).

Distribution. *Malthinus* (s. str.) *pseudoflaveolus* is known from Turkey ("Artwin", type locality), Georgia (Upper Svaneti and Meskheta Mountains) and the Eastern Caucasus in Russia (Dagestan).

Malthinus (s. str.) *flaveoloides* Švihla, 1997
(Figs 3, 8, 12, 13)

Malthinus flaveoloides Švihla, 1997: 123.

Material. 1♂ (ICM), "Abkhazia, Tsumuri, h=420 m, 28.V.1980"; 3♂, "Abkhazia, Ritsa Relic N.P., NNW Awadkhara Stn, subalpine, 1700–1800 m, 43.541°N 40.637°E, 4.VII.2021, S. Kazantsev leg."; 2♂, 2♀ (ICM), 1♂, 1♀ (ZMMU), "Abkhazia, Ritsa Relic N.P., Ritsa Lake shore, 950–1000 m, 43.486°N 40.548°E, 6.VII.2021, S. Kazantsev leg."; 2♂, 2♀ (ICM), "Abkhazia, Ritsa Relic N.P., N Gega Waterfalls, 550–750 m, 43.443°N 40.447°E, 11.VII.2021, S. Kazantsev leg."; 1♂ (ICM), "Abkhazia, Ritsa Relic N.P., Bzyb V./Kuzhba-Yashta road, 600–900 m, 43.393°N 40.522°E, 11.VII.2021, S. Kazantsev leg."

Notes. The type locality of *Malthinus flaveoloides* is "Mcara" near Gudauta in Abkhazia [Švihla, 1997], and all studied specimens from Abkhazia and the Northwestern Caucasus, in addition to the aedeagal structures mentioned in the description were found to differ from both *M. flaveolus* and *M. pseudoflaveolus* in the noticeably more prominent incision at the apex of ultimate male abdominal ventrite (Fig. 8).

Distribution. *Malthinus* (s. str.) *flaveoloides* has been reported from Russia (Northwestern Caucasus), Abkhazia, Georgia and Turkey [Švihla, 1997], although its occurrence in Turkey [Švihla, 1997: "Macka"] and Georgia [Švihla, 1997: "Georgia"] needs confirmation, as it may be based on material from Abkhazia (in case of Georgian attribution), or on misidentification of *M. pseudoflaveolus* specimens.

The three studied species of the *M. flaveolus* group are hardly distinguishable externally (Figs 1–3) and do not seem to differ much in female external genitalia. At the same time the males of the three species may be rather easily separated by the shape of the ultimate abdominal ventrite and the details of the aedeagus (Figs 4–13). A key to the males of these species is presented below.

A key to males of the *Malthinus flaveolus* (Herbst, 1786) species group of the European part of Russia and the Caucasus

- 1(2). Ultimate abdominal ventrite, in ventral view, not medially incised; ultimate tergite: in lateral view, abruptly bent in the middle; ventral plate of aedeagus with inconspicuous lobes; laterophyses, in ventral view, lyriform, laterally sinuate (Figs 4, 9)
..... *M.* (s. str.) *flaveolus*
- 2(1). Ultimate abdominal ventrite, in ventral view, medially incised; ultimate tergite: in lateral view, not abruptly bent in the middle; ventral plate of aedeagus with prominent lobes; laterophyses, in ventral view almost straight (Figs 5–8, 11–13).
- 3(4). Ultimate abdominal ventrite, in ventral view, with short median incision, ca 5 times shorter than length of the ventrite; ventral plate of aedeagus with relatively narrow lobes (Figs 5, 6, 11, 12)
..... *M.* (s. str.) *pseudoflaveolus*

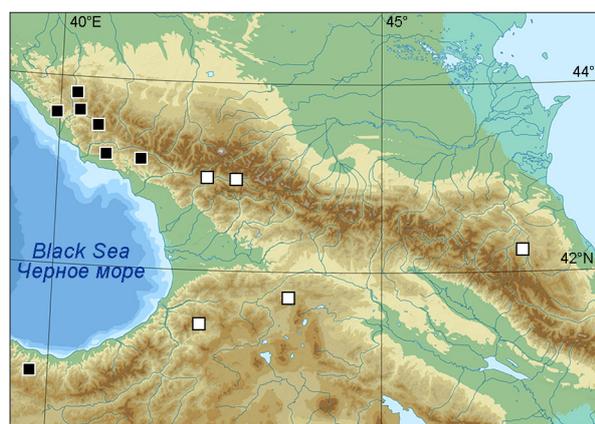


Fig. 14. Distribution of the *Malthinus flaveolus* species group in the Caucasus: white squares – *M. pseudoflaveolus*, black squares – *M. flaveoloides*.

Рис. 14. Распространение группы видов *Malthinus flaveolus* на Кавказе: белые квадраты – *M. pseudoflaveolus*, черные квадраты – *M. flaveoloides*.

4(3). Ultimate abdominal ventrite, in ventral view, with relatively long median incision, only ca 3.3 times shorter than length of the ventrite; ventral plate of aedeagus with relatively wide lobes (Figs 7, 8, 13)
 *M. (s. str.) flaveoloides*

Discussion

The distribution pattern of the two species of *M. flaveolus* species group in the Caucasus is such that *M. pseudoflaveolus* is registered in western and southern Georgia and in Dagestan (Russia), while *M. flaveoloides* is presumably restricted to the Northwestern Caucasus and Abkhazia (Fig. 14). Thus, in the extreme west of the Caucasus there is only one species of the group, *M. flaveoloides*, which occurs both on the northern (Northwestern Caucasus) and southern (Northwestern Caucasus and Abkhazia) macroslopes of the Great Caucasian range. In the central Great Caucasus there is one species, *M. pseudoflaveolus*, found on the southern macroslope of the mountain range. In the east, there is again just one species, the same *M. pseudoflaveolus*, which occurs on the northern macroslope, in Dagestan. Finally, *M. pseudoflaveolus* is also found on the Meskheti range in the Smaller Caucasus, in southern Georgia and Turkish Artvin Province. The occurrence and distribution pattern of species of this group in Armenia, eastern Georgia and Azerbaijan, i.e., in the central and eastern Caucasus and Transcaucasia, as well as the occurrence of *M. pseudoflaveolus* in Turkish Maçka, still need to be verified/defined.

In terms of altitude distribution, *M. flaveoloides* appears to be more flexible: it was collected (judging by the labels with available relevant data) from 420 to 1800 m a.s.l., while *M. pseudoflaveolus* – only from 1300 to 1800 m a.s.l.

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References

- Abeille de Perrin E. 1894. Diagnoses de Coléoptères réputés nouveaux. *L'Echange*. 10: 91–94.
- Brancucci M. 1980. Morphologie comparée, évolution et systématique des Cantharidae (Insecta: Coleoptera). *Entomologica Basiliensia*. 5: 215–388.
- Delkeskamp K. 1977. Coleopterorum Catalogus Supplementa. Pars 165, fasc. 1, Editio secunda. Cantharidae. The Hague: W. Junk Publishers. 485 p.
- Escalera M.M. de la. 1913. Un nuevo genero de Malthinido (Cantharidae) de Marruecos. *Boletín de la Real Sociedad Española de Historia Natural*. 13: 322–323.
- Geoffroy M. 1785. [New taxa]. In: Fourcroy A.F. de. *Entomologia parisiensis; sive Catalogus Insectorum quae in Agro Parisiensi reperiuntur; Secundum methodum Geoffraeanam in sectiones, genera et species distributus: cui addita sunt nomina trivialia et fere trexentae novae Species*. Pars prima. Parisiis: Priviligio Academiae. vii + [1] + 231 p.
- Des Gozis M. 1886. Recherche de l'espèce typique de quelques anciens genres, rectification synonymiques, et notes diverses. Montluçon: Herbin. 36 p.
- Herbst J.F.G. 1786. Erste Mantisze zum Kritisches Verzeichniss der ersten Klasse meiner Insektsammlung. *Archiv der Insectengeschichte (Zurich: J.C. Fuessly)*. 7–8: 153–182.
- Kazantsev S.V. 2001. New taxa of soldier-beetles (Coleoptera, Cantharidae) from Central Asia and the Caucasus. *Zoologicheskii zhurnal*. 80(9): 1076–1082 (in Russian).
- Kazantsev S.V. 2022. Elektronnyy opredelitel' zhukov-myagkotelok (Coleoptera, Cantharidae) evropeyskoy chasti Rossii i Severnogo Kavkaza [Digital identification key to soldier beetles (Coleoptera, Cantharidae) of the European part of Russia and the Northern Caucasus]. Livny: Mukhametov G.B. 110 p. (in Russian).
- Kazantsev S.V. 2024. A review of *Malthinus* Latreille, 1806 of the Caucasus (Coleoptera: Cantharidae), with description of a new species and notes on distribution of the genus in the region. *Euroasian Entomological Journal*. 23(3): 145–154. DOI: 10.15298/euroasentj.23.03.07
- Kazantsev S.V. 2025a. Two new species of the genus *Malthinus* Latreille, 1805 from Georgia (Coleoptera: Cantharidae). *Caucasian Entomological Bulletin*. 21(1): 9–13. DOI: 10.5281/zenodo.14720673
- Kazantsev S.V. 2025b. A new species of *Malthinus* Latreille, 1805 of the *M. biguttatus* group from the Eastern Caucasus, with description of the female of *M. kaszabi* Wittmer, 1974 (Coleoptera: Cantharidae). *Russian Entomological Journal*. 34(1): 76–81. DOI: 10.15298/ruentj.34.1.07
- Kazantsev S.V. 2025c. First record of the subgenus *Indomalthinus* (Coleoptera: Cantharidae: *Malthinus*) east of Himalayas with description of a new species. *Far East Entomologist*. 522: 22–28. DOI: 10.25221/fee.522.3
- Kazantsev S.V., Brancucci M. 2007. Cantharidae. In: Catalogue of Palaearctic Coleoptera. Vol. 4. Elateroidea – Derodontoidea – Bostrichoidea – Lymexyloidea – Cleroidea – Cucujoidea. Stenstrup: Apollo Books: 234–298.
- Kopetz A. 2015. Zur Kenntnis der Gattungen *Malthinus* Latreille, 1806 und *Pakabsidia* Wittmer, 1978 (Insecta: Coleoptera: Cantharidae) im Himalaya. In: Biodiversität und Naturschutz im Himalaya. Band 5. Erfurt: Verein der Freunde & Förderer des Naturkundemuseums Erfurt e.V.: 393–404.
- Latreille P.A. 1805. Genera Crustaceorum et Insectorum secundum ordinem naturalem in familiis disposita, iconibus exemplisque plurimis explicata. V. 1. Parisiis et Argentorati: Amand Koenig. XVIII + 302 p. + 16 pls.
- Marsham T. 1802. *Entomologia Britannica, sistens Insecta Britanniae indigena, secundum Methodum Linnaeanam disposita. Ordo I. Coleoptera*. London: Wilks & Taylor. 547 p.
- Motschulsky V. 1853. Malthinides. *Etudes entomologiques*. 1(1852): 1–15.
- Motschulsky V. 1860. Insectes des Indes orientale, et de contrées analogues. *Etudes entomologiques*. 8: 25–118.
- Olivier A.G. 1790. *Entomologie, ou histoire naturelle des insectes, avec leurs caractères génériques et spécifiques, leur description, leur synonymie et leur figure enluminée. Coléoptères. Tome second*. Paris: de Baudouin. 485 p. + 63 pls. DOI: 10.5962/bhl.title.61905
- Pic M. 1906. Etude synoptique sur les "*Malthinus*" Latr. de France (suite). *L'Echange*. 22(255): 22–24, 30–32.

- Pic M. 1913. Notes diverses, descriptions et diagnoses. *L'Echange*. 29: 97–98.
- Sergeeva E.V., Stolbov V.A., Kazantsev S.V., Lomakin D.E. 2024. Beetle fauna of the superfamily Cantharoidea (Coleoptera) of Tyumen Oblast, Russia. *Amurian Zoological Journal*. 16(1): 190–205 (in Russian). DOI: 10.33910/2686-9519-2024-16-1-190-205
- Švihla V. 1990. Notes on Cantharidae (Coleoptera) from the western Palaearctic region, with description of new species. *Acta Entomologica Bohemoslovaca*. 87: 195–203.
- Švihla V. 1997. Contribution to the knowledge of the subfamily Malthinae (Coleoptera: Cantharidae) from the Western Palaearctic. *Časopis Národního muzea. Řada přírodovědná*. 166(1–4): 123–126.
- Wittmer W. 1974. Zur Kenntnis der Gattung *Malthinus* Latr. II. (Col. Cantharidae). *Entomologische Arbeiten aus dem Museum G. Frey Tutzing bei München*. 25: 358–427.
- Wittmer W. 1992. Die Malthinae (Coleoptera Cantharidae) des Caucasus. *Russian Entomological Journal*. 1(1): 17–35.

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