

A new species of *Sphenoptera* (subgenus *Chrysoblemma*) from Iran with taxonomic notes on some Palaearctic species of *Sphenoptera* from subgenera *Chrysoblemma*, *Hoplistura* and *Tropeopeltis* (Coleoptera: Buprestidae)

M.G. Volkovitsh & M.Yu. Kalashian

Volkovitsh, M.G. & Kalashian, M.Yu. 2003. A new species of *Sphenoptera* (subgenus *Chrysoblemma*) from Iran with taxonomic notes on some Palaearctic species of *Sphenoptera* from subgenera *Chrysoblemma*, *Hoplistura* and *Tropeopeltis* (Coleoptera: Buprestidae). *Zoosystematica Rossica*, **11**(2), 2002: 331-342.

Sphenoptera (*Chrysoblemma*) *zarudniana* sp. n. from South Iran is described and compared with closely related species. The synonymy is established for the following taxa: *S. (C.) striatipennis* Jakovlev, 1885 (= *potanini* Jakovlev, 1889, *procera* Reitter, 1890, **synn. n.**), *S. (C.) tamaricis* Klug, 1829 (= *asiatica* Gory & Laporte, 1839, *filiformis* Gory & Laporte, 1839, *walteri* Reitter, 1890, *dilotti* Obenberger, 1929, *pseudoignita* Alexeev, 1978, **synn. n.**), *S. (C.) amplicollis* Jakovlev, 1899 (= *phryne* Jakovlev, 1905, *obtusangula* Obenberger, 1927, **synn. n.**), *S. (C.) orichalcea* Pallas, 1781 (= *meyeri* Gebler, 1830, *australis* Gory & Laporte, 1839, *pruinosa* Abeille de Perrin, 1891, *chrysis* Jakovlev, 1899, *ostenta* Jakovlev, 1908, *phoebas* Jakovlev, 1908, *sinkiangensis* Obenberger, 1927, **synn. n.**), *S. (C.) tristicula* Reitter, 1895 (= *elegans* Jakovlev, 1900, **syn. n.**), *S. (C.) tomentosa* Jakovlev, 1886 (= *ahngeri* Jakovlev, 1900, *scintilla* Jakovlev, 1908, **synn. n.**), *S. (C.) punctatissima* Reitter, 1895 (= *venus* Obenberger, 1927, **syn. n.**), *S. (C.) jakowlewi* Reitter, 1895 (= *apta* Jakovlev, 1903, **syn. n.**), *S. (C.) pubescens* Jakovlev, 1886 (= *amniae* Obenberger, 1927, *amudaryensis* Obenberger, 1929, **synn. n.**), *S. (Hoplistura) semenovi* Jakovlev, 1889 (= *reitteri* Jakovlev, 1891, *sagitta* Semenov, 1899, *lamaica* Obenberger, 1920, *jedlickai* Obenberger, 1927, **synn. n.**), *S. balassogloi* Jakovlev, 1885 (= *protracta* Jakovlev, 1885, *flagrans* Semenov, 1895, *morawitzi* Semenov, 1896, *venusta* Jakovlev, 1904, **synn. n.**), *S. (H.) mesopotamica* Marseul, 1865 (= *turkestanica* Jakovlev, 1885, *fulgurans* Obenberger, 1920, *mesopotamica deserti* Obenberger, 1920, *mesopotamica sartica* Obenberger, 1927, *namanganensis* Obenberger, 1927, **synn. n.**), *S. (Tropeopeltis) servistana* Obenberger, 1929 (= *kambyses* Obenberger, 1930, **syn. n.**), *S. (T.) schneideri* Reitter, 1898 (= *lebedevi* Obenberger, 1928, *mujunkumensis* Obenberger, 1928, **synn. n.**). A replacement name, *S. (C.) obenbergeriana* **nom. n.** proposed for the homonym *S. amudaryensis* Obenberger, 1952. Lectotypes are designated for 54 nominal species and 12 infraspecific taxa. Taxonomic, nomenclatural, distributional, and biological notes for many species are given.

M.G. Volkovitsh, Zoological Institute, Russian Academy of Sciences, Universitetskaya nab. 1, St.Petersburg 199034, Russia.

M.Yu. Kalashian, Institute of Zoology, National Academy of Sciences, Republic of Armenia, P. Sevast'yanov str. 7, Yerevan 375014, Armenia.

Introduction

This paper continues the study of Palaearctic *Sphenoptera* Dejean, 1833 (Kalashian, 1990, 1994; Kalashian & Volkovitsh, 1993, 1997; Kalashian & Zykov, 1994; Volkovitsh & Kalashian, 1994, 2001, 2002a, 2002b) based on the extensive materials deposited at the Zoological Institute, St.Petersburg, some other European museums and private collections. Examination of type

specimens of species and infraspecific taxa described by E. Abeille de Perrin, A.A. Alexeev, A. Cobos, F. Faldermann, F. A. von Gebler, J.C.F. Klug, F.L. de Laporte and H.L. Gory, B. Jakovlev, C.G. von Mannerheim, S.A. de Marseul, A. Semenov-Tian-Shanskii, J. Obenberger, and E. Reitter enabled the authors to establish new synonymies and designate the lectotypes for many Palaearctic *Sphenoptera* from the subgenera *Chrysoblemma* Jakovlev, 1889, *Hoplistura*

tura Jakovlev, 1889, and *Tropeopeltis* Jakovlev, 1901. Moreover, three specimens of a new species belonging to the subgenus *Chrysoblemma* were found in the collection of the Zoological Institute; the description of the new species is given below. Lectotypes are designated to fix the use of the names in the course of a taxonomic revision of the group.

The following abbreviations are used in the text: MNB - Museum für Naturkunde an der Humboldt-Universität (Berlin, Germany); MNHN - Muséum National d'Histoire Naturelle (Paris, France); NMP - Národní muzeum v Praze (Prague, Czech Republic); NMW - Naturhistorisches Museum Wien (Vienna, Austria); TMB - Természettudományi Múzeum Budapest (Budapest, Hungary); ZIN - Zoological Institute, Russian Academy of Sciences (St. Petersburg, Russia); ZMH - Zoological Museum, Helsinki University (Helsinki, Finland).

For all the specimens examined, we cite the corresponding labels except for those mentioned below using the following abbreviations: (h) - handwritten text, (p) - printed text, (rus) - in Russian, (red) - on red paper.

Type specimens of taxa described by B.E. Jakovlev are usually supplied with his original labels: one bearing a handwritten scientific name with printed line "B. Jakovlev del." at the bottom, and another, "k. B. Jakovleva" [collection of B. Jakovlev] (p, rus); as a rule, a single type specimen or the first specimen of type series has an additional label "Typus" printed in red on white paper. Type specimens of taxa described by J. Obenberger also have standard labels with handwritten name and printed line "Dr. Obenberger det." at the bottom, and "Type" printed in black on red paper. These labels as well as our labels with type designation (holotype, paratype, lectotype, and paralectotype) are not mentioned in the text.

Sphenoptera (*Chrysoblemma*) *zarudniana* sp. n.
(Figs 1, 2, 5)

Holotype. ♂, Seistan [Iran, Sistan and Baluchestan Prov.], 8-9.VI.[18]98, N. Zarudnyi (h, rus).

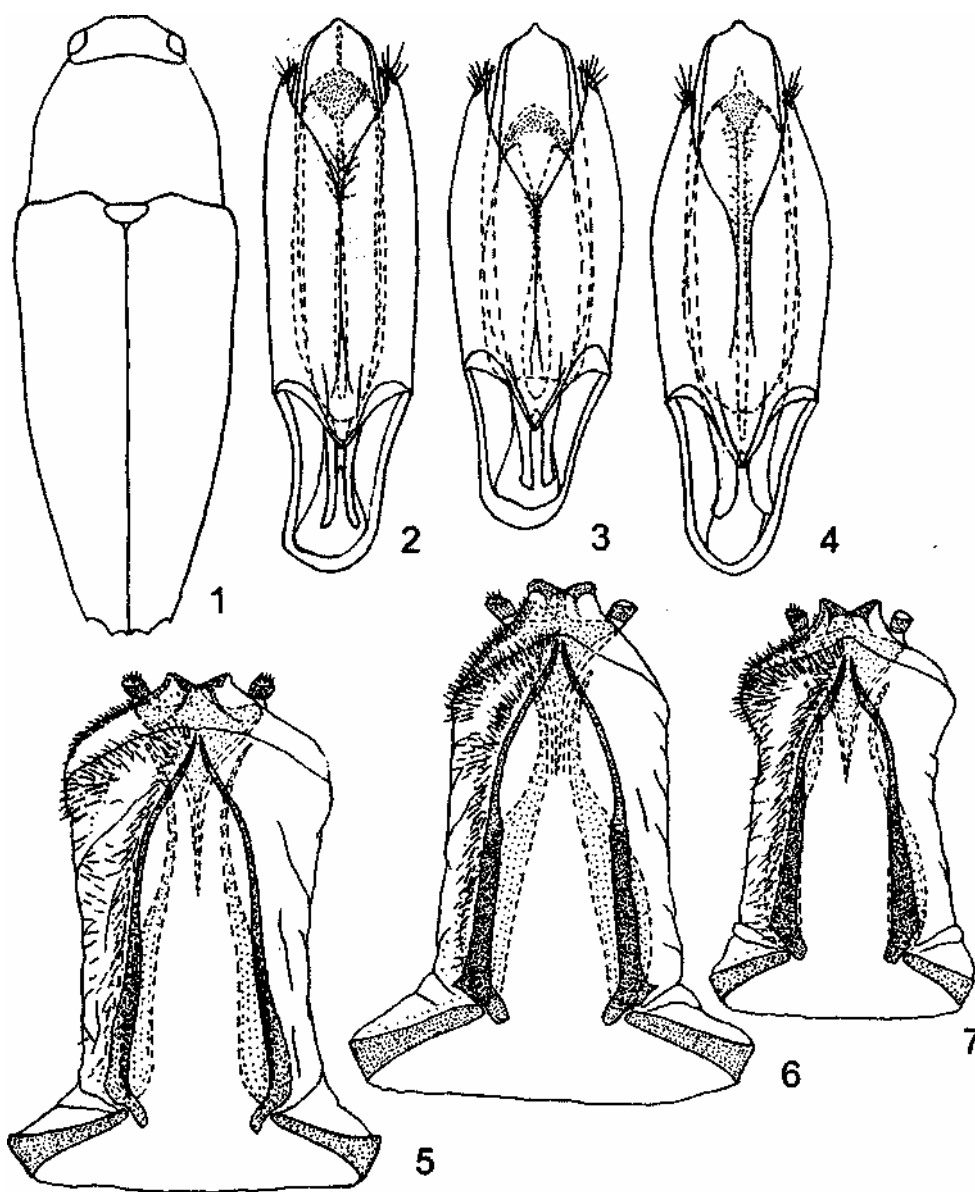
Paratypes. 2 ♀, Kerman, str.[land of] Sargad [Iran, Sistan and Baluchestan Prov.], 24-26.VI.[18]98, N. Zarudnyi (h, rus). Types are deposited at ZIN.

Description. Body elongate (Fig. 1), 2.8-2.9 times as long as wide in female and 3.0 times, in male, moderately convex transversely and longitudinally. Dorsal surface and antennae coppery-red; frons anteriorly, anterior margin of pronotum and scutellum brightly (in male) or dark (in female) metallic-green; ventral surface and legs dark coppery-green with slight reddish reflection; sides of ventral surface with traces of yellowish wax-like coating. Length 18.5-19.5 mm; width at base of elytra 6.1-7.0 mm.

Head rather broad, slightly narrower than pronotum anteriorly; eyes rather small, moderately convex, slightly projecting outward the head; vertex 2.35-2.40 times as wide as transverse diameter of eye. Clypeus slightly convex, very feebly arcuately concave anteriorly. Frons with almost straight sides, weakly diverging posteriorly, almost flat, elevated only above clypeus, very slightly flattened approximately towards the level of half-length of eyes, with poorly defined carinae posteriorly and inward of antennal fossae; the latter not reaching inner margins of eyes. Vertex with very fine furrow reaching anterior margin of pronotum. Head with moderately coarse macropunctuation, which is finer and denser anteriorly, near the sides of frons and behind the eyes, and coarser and sparser medially; micropunctuation dense, inconspicuous. Frons with short yellowish setae, which are denser laterally and behind eyes and sparser in the middle. Antennae 2.50 times (in male) or 2.15-2.20 times (in female) as long as eye height, serrated from antennomere 4; following antennomeres strongly elongated.

Pronotum narrow, 1.2-1.3 times as wide as long, widest at base being distinctly narrower than humeri; lateral margins of pronotum continuous with those of elytra. Pronotum slightly enlarged posteriorly, its sides very slightly convex in anterior one-half, then almost straight or very feebly incurved towards sharp basal angles. Lateral carinae extending approximately to anterior 1/5 of pronotal length, visible from above approximately up to anterior 1/4. Anterior margin distinctly bisinuate, bordered with thin entire sulcus; basal margin bisinuate, its median projection rather broad and with almost straightly truncated apex. Pronotal disc moderately convex, more or less flattened along the middle; disc covered with very dense, coarse, sometimes confluent macropunctures, which are larger laterally and much smaller, sparser and shallower in the middle; micropunctures dense, superficial but distinct. Pronotal surface with rather dense, very short, inconspicuous yellowish setae. Prosternal process slightly convex, bordered with deep entire sulcus, covered with rather dense coarse punctures on the disc. Scutellum 2.1-2.3 times as wide as long, triangular, with rounded lateral angles, densely micropunctated.

Elytra 2.0-2.2 times as long as wide, widest near humeri; sides nearly parallel at base, then feebly emarginately converging to posterior 2/5 and more abruptly and very, slightly arcuately converging to apex. Elytral apices tridentate, with lateral and sutural teeth acute, narrow and short, and middle one broad. Elytra with distinct entire striae, these latter with hyphen-like punctures on the bottom; intervals slightly convex (laterally



Figs 1-7. *Sphenoptera* (*Chrysoblemma*). 1, 2, 5, *S. zarudniana* sp. n.; 3, 7, *S. striatipennis* Jak.; 4, 6, *S. heroica* Jak. Habitus (1), aedeagus (2-4), ovipositor (5-7).

and distally more distinctly), bearing inconspicuous, very short and sparse setae, with rather sparse, small, superficial macropunctures and dense but inconspicuous micropunctures.

Ventral side of body. Ventral surface with very dense, sometimes confluent punctures, which are

larger and coarser on sternum, becoming shallower and smaller on abdominal sternites, and with rather dense and long yellowish setae which are longer than those on frons. Metacoxae with hind margin very slightly sinuate. Anal sternite slightly irregularly rounded distally in both sexes,

but in male its margin shortly truncated in the middle. Fore tibiae in male strongly, middle ones slightly but distinctly curved distally; those in female almost straight with weakly curved inner margin.

Male. Aedeagus as in Fig. 2.

Female. Ovipositor as in Fig. 5.

Comparison. *S. zarudniana* sp. n. belongs to the group of species characterized by the rather regular punctation of the abdominal sternites which are without smooth shiny plates laterally, and by the pronotum more or less regularly, arcuately enlarged towards sharp basal angles. This group includes the following species: *S. tamarisci* Laporte & Gory, *S. ovata* Alexeev, *S. hammadae* Kalashian & Volkovitch, *S. khnzoriani* Kalashian, *S. hauseri* Reitter, *S. kerzhneri* Volkovitch & Kalashian, *S. striatipennis* Jakovlev, and *S. heroica* Jakovlev. *S. zarudniana* differs from all these species except the last two by the longitudinal antennomeres and larger body size. *S. heroica* (known only from two specimens collected in South Khorasan Province, Iran) and *S. striatipennis* (widely distributed in Middle Asia, recorded also from North Iran, Afghanistan and Mongolia) differ in the wider pronotum (in *S. heroica* 1.35-1.40, in *S. striatipennis*, 1.40-1.60 times as wide as long), macropunctures on the pronotal sides distinctly sparser and less coarse than in the new species. In addition, in *S. striatipennis* the pronotum in posterior half is hardly narrower than the elytral base, lateral margins of pronotum are continuous with those of elytra, and pronotal lateral carinae are stronger and visible from above at least up to the anterior one-third of the pronotal length. The clypeus of *S. heroica* is nearly truncate anteriorly, whereas that of *S. striatipennis* has a rather deep, nearly triangular incision. Moreover, *S. heroica* is larger (23-25 mm in length) and broader (the body length is 2.6-2.7 times its width), its prosternal process is bordered by double irregular rows of very coarse punctures only laterally. *S. striatipennis* differs in the slightly larger eyes and narrower vertex; the latter is 1.95-2.10 times (in male) and 2.05-2.30 times (in female) as wide as the transverse diameter of eye. All the three species differ distinctly in the structure of aedeagus and ovipositor (aedeagus of *S. striatipennis* as in Fig. 3, ovipositor as in Fig. 7; those of *S. heroica*, as in Figs 4 and 6, respectively).

Sphenoptera (Chrysoblemma) striatipennis Jakovlev, 1885

striatipennis Jakovlev, 1885: 132, 1903b: 255 (cat), 258 (key).

potanini Jakovlev, 1889: 86, **syn. n.**

procera Reitter, 1890: 277, **syn. n.**; Jakovlev, 1903b: 254 (as var. of *potanini* Jak.); Obenberger, 1930a: 256 (as var. of *potanini* Jak.).
cyaneoviridis Cobos, 1968: 385; Alexeev, 1975: 147 (as **syn. of potanini** Jak.).

Type material examined. *S. striatipennis* Jak., lectotype (designated here, ZIN): ♂, Obishpa (h, rus)/ *striatipennis* (h); paralectotype (ZIN): ♂, Obishpa (h, rus).

- *S. potanini* Jak., lectotype (designated here, ZIN): ♂, Mong. centr., 1886, G. Potanin (p)/*potanini* (h); paralectotypes (ZIN): 1 ♂, Mong. centr., 1886, G. Potanin (p)/*potanini* (h); 1 ♀, Mong. centr., 1886, G. Potanin (p)/*potanini* (h)/ *Sph. (Chrysoblemma) potanini* B. Jak. Typ. (h), A. Semenov-Tian-Shansky det. (p); 2 ♂, Mong. centr., 1886, G. Potanin (p).

- *S. procera* Reitt., lectotype (designated here, MNHN): ♀, Temirbaba (h)/ *Sphenoptera procera* m., 1890 (h)/ Type (p, red on white paper)/ Museum Paris, Coll. Abeille de Perrin, 1919 (p).

- *S. cyaneoviridis* Cob., holotype (TMB): ♂, Südgobi aimak [Mongolia, Ömnögovii Aimag], 25 km N Somon Bulgan, Schovongin chooloi, 1030, 18-VI.

Remarks. The comparison of type specimens of *S. striatipennis* Jak., *S. potanini* Jak., *S. procera* Reitt., and *S. cyaneoviridis* Cob. and examination of numerous specimens from many locations has shown that in spite of some minute differences mainly in the colour pattern and body shape they undoubtedly belong to the same species.

Distribution. Kazakhstan, Uzbekistan, Turkmenistan, Tadjikistan, N Iran, Mongolia.

Sphenoptera (Chrysoblemma) ignita Reitter, 1895

ignita Reitter, 1895: 33.

aurora Semenov, 1896:249 (syn.: Jakovlev, 1903b: 253).
ignita ab. *monochroa* Obenberger, 1915: 56 (unavailable name).

ignita ab. *chamaeleon* Obenberger, 1929b: 59 (unavailable name).

ignita var. *prasinula* Obenberger, 1937: 91.

Type material examined. *S. ignita* Reitt., lectotype (designated here, TMB): ♀, Turcmenia, Reitter (p, red)/ Paratypus (p), *Sphenoptera ignita* Reitter, 1895 [non-original museum label].

- *S. aurora* Sem., lectotype (designated here, ZIN): ♂, Krasnovodsk [Turkmenistan] (h, rus)/ k. Khristofa (p, rus)/ *Sphenoptera aurora* m., Typ. V.[18]95 (h), A. Semenov det. (p); paralectotypes, 2 ♂ (ZIN), with same labels.

- *S. ignita* ab. *monochroa* Obenb., lectotype (designated here, NMP): ♀, Tschardschui, Buchara occ. [Turkmenistan, Chardzhou]; paralectotypes, 1 ♂, 1 ♀ (NMP), with same labels.

- *S. ignita* ab. *chamaeleon* Obenb., lectotype (designated here, NMP): ♀, Perovsk, Syr-Dar. obl. [Kazakhstan, Kzyl-Orda], VI-VII.916, S. Shell (h, rus).

- *S. ignita* var. *prasinula* Obenb., lectotype (designated here, NMP): ♀, Perovsk, Syr-Dar. obl. [Kazakhstan, Kzyl-Orda], VI-VII.916, S. Shell (h, rus); paralectotypes, 5 ex. (NMP), with same geographical labels.

Remarks. According to Reitter (1895), the type locality of *S. ignita* is "Transkaspien: Aschabad" [**Turkmenistan**, Ashkhabad]. We did not find any other specimens of *S. ignita* Reitt. besides that from TMB which completely fits the Reitter's description but has no original identification label. Another specimen in the same collection bears the following labels: *ignita* m., Sefir-kuh (h, by Reitter)/ Holotypus (p), *Sphenoptera ignita* Reitter, 1895 (h) [non-original museum label]; it belongs to *S. tamaricis* (Klug).

Distribution. ?Transcaucasia (MNHN, Staudinger, 2 ex.), Kazakhstan, Uzbekistan, Turkmenistan, Tadjikistan, Russia (Orenburg Prov.).

Sphenoptera (Chrysoblemma) tamaricis (Klug, 1829)

tamaricis Klug, 1829, no. 30, tab. 2, fig. 4 (*Buprestis*).
asiatica Gory & Laporte, 1839: 36, tab. 9, fig. 55, **syn. n.**
filiformis Gory & Laporte, 1839: 39, tab. 10, fig. 62;
Jakovlev, 1903b: 251 (as *syn. of asiatica* Gory & Laporte); Obenberger, 1930a: 251 (as ?*syn. of asiatica* Gory & Laporte).
walteri Reitter, 1890: 276 (key), 279 (descr.); Kerremans, 1913: 381 (as *syn. of asiatica* Gory & Laporte); Obenberger, 1930a: 289 (as sp., subg. *Hoplistura*).
dilotti Obenberger, 1929b: 60 (as Di-Lotti), **syn. n.**
pseudoignita Alexeev, 1978: 852, **syn. n.**

Type material examined. *S. tamaricis* (Klug), lectotype (designated here, ZMB): ♂, 11848 (p)/ Sinai, Ehrenberg, LXVII. 49.50 (h)/ TYPE (p, red)/ *tamaricis* n., *tamarisci* Ol.*. ms (h)/ *asiatica* Gory Laporte (h)/ *tamaricis* Klug., type! (h) det. Obenberger (p)/ *Sphenoptera (Chrysoblemma) tamaricis* Klug, Lectotype, IV. 1959 (h), A. Descarpentries det. (p)/ a pour synonymes *Sph. asiatica* C. G. ♀ et *Sph. filiformis* C. G. ♂ (h), A. Descarpentries det. (p).

- *S. asiatica* Gory & Lap., lectotype (designated here, MNHN): ♀, *Asiatica* Type Gory, *Distinguenda* Dej. Asie (h, place label)/ *asiatica* ♀ (h, on blue paper).

— *S. filiformis* Gory & Lap., lectotype (designated here, MNHN): ♂. Orient (h)/ *Filiformis* Gory (h)/ Type (h)/ *filiformis* (h, on blue paper)/ ex Musaeo Mniszech (p); paralectotypes (MNHN): 1 ♂, Museum Paris (p), Orient (h)/ Type (p, red on white paper)/ Type de *Sph. filiformis* C. et G (h), A. Descarpentries det. (p); 1 ♂, *filiformis* nobis Orient (h)/ *Sphenopt. tamaricis* Klug (comp. au type le 28.IV.1959) meme sexe = *filiformis* ♂ C.G = *asiatica* C.G (ex d'Olivier) (h), A. Descarpentries det. (p).

- *S. walteri* Reitt., lectotype (designated here, MNHN): ♂, Tachtabazar [**Turkmenistan**, *Mary Prov.*], 18.V.[18]87 (h)/ Turcmenia, Leder, Reitter (p)/ *Sph. walteri* m. (h)/ Type (p, red on white paper)/ Museum Paris, Coll. Abeille de Perrin, 1919 (p).

-- *S. dilotti* Obenb., lectotype (designated here, NMP): ♀, Baghdad, **Iraq**, Dr.Kalalova (p); paralectotypes, 3 ex. (NMP): Bagdad, coll. Kalalova (p).

- *S. pseudoignita* Alex., holotype (ZIN): ♂, Aky-bai [**Turkmenistan**, *Tashauz Prov.*], 5.IV.[19]70, 31, korni polyni [roots of *Artemisia*], 20.VI./ 2/ Pr. Chrys. 1-15 ♂ (h, rus) [leg. N. Krivosheina]; paralectotypes (ZIN): 1 ♂, with same data but 7.IV.[19]70, 38/♀ (sic!); 1 ♀, with same data; 1 ♀, with same data/ 63; 1 ♂, with same data, 10.IV.[19]70, V.[emerged] 30.VIII. / 51 ♂; 1 ♂, Turk-

menia, Aky-bai, 9.IV.[19]71, solyanka [? *Salsola*], 25, 13.28/VII.[19]72 (h,rus); 2 ♂, Turkmen. 931 (p), Kushka [**Turkmenistan**, *Mary Prov.*], 22.V. (h), Yu. Isachov (p); 1 ♀, Mary [**Turkmenistan**], bereg. r. Murgab [shore of Murgab River], 7.VI. 1968, Pirnazarov (h, rus); 1 ♀, Tigrovaya Balka [**Tadjikistan**, Vakhsh River], 20.VI. [19]64, s tamariksa [on *Tamarix*], M. Pripisnova (h, rus).

Remarks. Though A. Descarpentries was the first who established the synonymy of *S. tamaricis* (Klug), *S. asiatica* Gory & Lap., and *S. filiformis* Gory & Lap and designated lectotype for *S. tamaricis*, he did not published these data. Reexamination of type specimens of the above-mentioned species as well as of *S. walteri* Reitt., *S. dilotti* Obenb., and *S. pseudoignita* Alex, has confirmed that all of them are conspecific.

Distribution. Kazakhstan, Uzbekistan, Turkmenistan, Tadjikistan, Kyrgyzstan, Iran, Afghanistan, Iraq, Israel, Egypt (Sinai), Saudi Arabia.

Sphenoptera (Chrysoblemma) amplicollis Jakovlev, 1899

amplicollis Jakovlev, 1899: 292.

phryne Jakovlev, 1905a: 27, **syn. n.**
obtusangula Obenberger, 1927a: 23, **syn. n.**

Type material examined. *S. amplicollis* Jak., lectotype (designated here, ZIN): ♀, Krasnovodsk, Zakasp. obl. [**Turkmenistan**], Khristof (h, rus)/ k. Khristofa (p, rus)/ *Sphenoptera amplicollis* n. sp. (h).

- *S. phryne* Jak., holotype (ZIN): ♀, Zakasp. [Western **Turkmenistan**], Aris (h, rus)/ *phryne* Jak. (h)/ Repetek [**Turkmenistan**, *Chardzhou Prov.*], 30.V.[19]04, Aris (h, rus) (see Note).

- *S. obtusangula* Obenb., lectotype (designated here, NMP): ♂, Transcaspi [Western **Turkmenistan**] (h)/ *Sphenoptera amplicollis* Jak., cum typo compar. (h), Alexeev det (p).

Remarks. The comparison of type specimens of *S. amplicollis* Jak., *S. phryne* Jak. and *S. obtusangula* Obenb. has shown those are conspecific.

Note. The type locality of *S. phryne* (Jakovlev, 1905a) is as follows: "Transcaspienne, malheureusement sans indication de localite plus precise (C. Aris!)". Later Jakovlev (1905b: 235) has written that though this species was described from a single female specimen, he received another specimen from Aris's material with more precise data: "Repetek (30.V.04)". It is obvious that a second geographic label of the holotype which differs from the original one both in design and orthography was added latter.

Distribution. Kazakhstan, Uzbekistan, Turkmenistan, Tadjikistan.

Sphenoptera (Chrysoblemma) orichalcea (Pallas, 1781)

orichalcea Pallas, 1781: 75, tab. D, fig. 17 (*Buprestis*); Kerremans, 1913: 358.
fossulata Zoubkoff, 1829: 157 (*Buprestis*) (non Gebler, 1825); Mannerheim, 1837: 96 (as *syn. of karelini* Fald.) (syn.: Kerremans, 1913: 358).

meyeri Gebl., 1830:76 (*Buprestis*), **syn. n.**; Jakovlev, 1908c: 512 (subg. *Chilostetha*); Obenberger, 1926: 211 (subg. *Chrysoblemma*); 1927a: 26 (as var. of *S. baigarumi* Obenberger, nom. nud.); 1930a: 256 (as ssp. of *orichalcea* Pall.).

karelini Faldermann, 1833: 46, tab. 2, fig. 4 (*Buprestis*); Jakovlev, 1903a: 35; 1903b: 253 (syn.: Kerremans, 1913:358).

cupraria Mannerheim, 1837: 96; Jakovlev, 1903a: 35; 1903b: 253,254 (as syn. of *karelini* Fald.); Obenberger, 1930a: 255 (as var. of *orichalcea* Pall.).

australis Gory & Laporte, 1839: 34, tab. 9, fig. 52, **syn. n.**

zoubkoffii Gory, 1841: 312, tab. 52, fig. 307; Jakovlev, 1903a: 35; 1903b: 253 (as syn. of *karelini* Fald.); Obenberger, 1930a: 255 (as *zubkovi* Gory, as var. of *orichalcea*).

impressicollis Motschulsky, 1860: 414 (as replacement name for *S. fossulata* Zoubk., non Gebl.).

aciculata Marseul, 1865:395; Jakovlev, 1903a: 35; 1903b: 253 (as syn. of *karelini* Fald.); Obenberger, 1930a: 256 (as ssp. of *orichalcea*).

solskyi Becker, 1867: 108; Jakovlev, 1903a: 35; 1903b: 253 (as syn. of *karelini* Fald.); Obenberger, 1930a: 255 (as ?var. of *orichalcea*).

cuprea Ballion, 1878: 291; Jakovlev, 1903a: 35; 1903b: 253 (as syn. of *karelini* Fald.).

wilkinsi Jakovlev, 1887: 117; 1903a: 35; 1903b: 254 (as syn. of *karelini* Fald.).

astrachanica Reitter, 1890: 278 (key), 281 (descr.); Jakovlev, 1903a: 35; 1903b: 253 (as syn. of *karelini* Fald.); Obenberger, 1930a: 255 (as var. of *orichalcea* Pall.).

pruinosa Abeille de Perrin, 1891: 267, **syn. n.**; Jakovlev, 1903a: 35; 1903b: 254 (as ?syn. of *karelini* Fald.), 1908a: 257 as ?syn. of *scovitzi* Fald.); Obenberger, 1930a: 256 (as sp.).

karelini var. *bifulgens* Reitter, 1895: 37.

karelini var. *koltzei* Reitter, 1895: 37.

chrysis Jakovlev, 1899a: 293, **syn. n.**; Alexeev, 1975:147 (as ssp. of *orichalcea* Pall.).

ostenta Jakovlev, 1908b: 8 (descr.), 9 (key), **syn. n.**

phoebas Jakovlev, 1908b: 9 (descr.), 10 (key), **syn. n.**

orichalcea var. *kirghisica* Obenberger, 1920: 124.

orichalcea var. *proditiosa* Obenberger, 1920: 124.

baigarumi Obenberger, 1927a: 26 (nom. nud.).

sinkiangensis Obenberger, 1927b: 74, **syn. n.**

subaenea Cobos, 1968: 382 [syn.: Alexeev, 1975: 147 (as *orichalcea chrysis* Jak.)].

Type material examined. *S. meyeri* Gebl., lectotype (designated here, ZIN): ♂, [golden square/ Sibir [Siberia] (p)/ *Meyeri* Gebl., Altai (h)/ *Sph. Meyeri* Gebl., Type (h); paralectotypes, MNHN: 1 ♂, Sibirie (h)/ *Meyeri* Gory (h)/ type (h)/ *meyeri* ♂ (h, on blue paper)/ ex Musaeo Mniszech (p); 1 ♀ *meyeri* 9 (h, on blue paper)/ ex Musaeo Mniszech (p).

- *S. karelini* Fald., lectotype (designated here, ZIN): ♂, [golden square/ Turcom. [**Turkmenistan**] (p, on pink paper)/ *Sph. karelini* Fald., typ. (h, by Jakovlev); paralectotypes: 1 ♀ (ZIN), *karelini* Fald., turcom. (h)/ *Sph. karelini* Fald., typ. (h, by Jakovlev); 1 ♀ (MNHN), *karelini* ♀ (h, place label)/ *karelini* Fald. Type, Turcomanie (h)/ ex Musaeo Mniszech (p); 1 ♂ (MNHN), *karelini* ♂ (h, place label)/ *zubkoffi* (h)/ ex Musaeo Mniszech (p); 1 ♂ (MNHN), *karelini* ♂ (h, place label)/ ex Musaeo Mniszech (p); 1 ex. [sex unknown] (ZMH), Karelin (h)/ Turcomannia(p) [goldensquare/ 138 (p); 1 ex. [sex unknown] (ZMH), Karelin (h)/ Turcomannia (p).

- *S. cupraria* MNHN., lectotype (designated here, ZMH): [sex unknown], [golden square/ Turcomania

[**Turkmenistan**] (p)/ D. Karelin (h)/ 139 (p); 1 paralectotype (ZMH), [sex unknown], Turcomania (p)/ D. Karelin (h)/ 140 (p).

- *S. australis* Gory & Lap., lectotype (designated here, MNHN): ♂, *australis* Gory, Type, Australie (h, place label)/ *australis* ♂ Austr. (h, on blue paper).

- *S. zoubkoffii* Gory, lectotype (designated here, MNHN): ♀, *Zubkoffi* ♀ (h, place label)/ ex Musaeo Mniszech (p)/ *zubkovii* Gory, Type, Turcomanie [**Turkmenistan**] (h)/ Type (p, red); paralectotypes: 1 ♂ (MNHN), *Zubkoffi* ♂ (h, place label)/ ex Musaeo Mniszech (p); 1 ♂ (ZIN), [golden square/ Turcom. (p, on pink paper)/ *zubkovii* Dej., Gory, Turcom., Type (h)/ *Sphenoptera zubkovi* Gory, typ. (h)/ *Sph. karelini* Fld (h), B. Jakowlew det. (p); 1 ♂ (ZIN), [golden square/ Turcom. (p, on pink paper)/ *Sphenoptera zubkovi* Gory, typ. (h)/ *Sph. karelini* Fld (h), B. Jakowlew det. (p).

- *S. aciculata* Mars., lectotype (designated here, MNHN): ♂, Turcomanie (h)/ *aciculata* ♂ (h, place label)/ ex Musaeo Mniszech (p)/ Type (p, red)/ *aciculata* Mars. (h).

- *S. wilkinsi* Jak., lectotype (designated here, ZIN): ♂, ushch. Talki [canyon of Talka River] (h, rus)/ K. Janovskii (h, rus)/ v. *Wilkinsi* Jak., 1887 (h).

- *S. astrachanica* Reitt., lectotype (designated here, MNHN): ♂, Astrachan [**Russia**, Astrakhan] (p)/ *Sph. astrachanica* m. (h)/ Museum Paris, Coll. Abeille de Perrin, 1919 (p)/ Type (p, red on white paper).

- *S. pruinosa* Ab., lectotype (designated here, MNHN): ♀, *pruinosa* Ab. (h, place label)/ Rus. mer. [Southern **Russia**] (h)/ Museum Paris, Coll. Abeille de Perrin, 1919 (p)/ Type (p, red on white paper).

- *S. karelini* var. *bifulgens* Reitt., lectotype (MNHN): ♂, Alexandergeb. [**Kyrgyzstan**, Kyrgyz Range] (h)/ *Sph. karelini* v. *bifulgens* m. (h)/ Museum Paris, Coll. Abeille de Perrin, 1919 (p)/ Type (p, red on white paper).

- *S. karelini* var. *koltzei* Reitt., lectotype (designated here, TMB): [sex unknown], Alexander Gebirge [**Kyrgyzstan**, Kyrgyz Range] (h)/ coll. Reitter (p)/ *karelini* v. *koltzei* m. (h)/ Holotype (p) *Sphenoptera karelini* v. *koltzei* Reitt., 1886 (h) (specimen without head and pronotum).

- *S. chrysis* Jak., holotype (ZIN): ♂, Tsagan-derisu, 2. VI. [18]77, Potanin (h, rus).

- *S. ostenta* Jak., holotype (ZIN): ♀, Vernenskii uyezd [**Kazakhstan**, *Almaty Prov.*], oz. [lake] Sassyk-kul', 20. VI. 1907, V. Nedzvetskii (p, rus)/ *ostenta* (h).

- *S. phoebas* Jak., holotype (ZIN): ♀, Vernenskii uyezd [**Kazakhstan**, *Almaty Prov.*], ozero [lake] Kara-Kul', 24. VI. 1907, V. Nedzvetskii (p)/ *phoebas* (h).

- *S. orichalcea* var. *kirghisica* Obenb., lectotype (designated here, NMP): ♂, Kirg. Steppe, R. mer. (h); 1 paralectotype, ♀, with same data (NMP).

- *S. orichalcea* var. *proditiosa* Obenb., lectotype (designated here, NMP): [sex unknown], Dsungaria, Borocho-ro Gb. [Northern **China**], coll. Hauser, 6.05 (p).

- *S. sinkiangensis* Obenb., lectotype (designated here, NMP): ♂, Gutschen, Sinkiang [Northern China]; paralectotypes, 5 ♂, 3 ♀ (NMP), with same data; 1 paralectotype (TMB): ♀, with same labels + coll. Apt. Odon (p)/ Paratypus (p) *Sphenoptera sinkiangensis* Obenb.

- *S. subaenea* Cobos, holotype (TMB): ♀, Chovd aimak [**Mongolia**, Hovd Aimag], 3 km N Somon Uenc, im Tal Uenc gol [river], 1450 m.

Remarks. *S. orichalcea* is one of the most polytypic species in colour pattern, size and proportions even among the extremely variable genus *Sphenoptera*. Such variability was a reason why it has been frequently redescribed under different names and a number of infraspecific

forms have been established. Moreover, Jakovlev placed *S. meyeri* Gebl. and *S. karelini* Fald. in different subgenera. Examination of extensive materials from many sites throughout wide geographical range and field observations have shown that different forms may be collected in the same location on different plants. For example, specimens collected on *Atraphaxis* (Polygonaceae) were usually large, robust, and brightly metallic-green ("f. *typica*"); those collected on *Caragana* (Fabaceae) were much slenderer, dull black and almost without metallic reflection ("S. *meyeri*"); specimens collected on different Chenopodiaceae were much smaller, slenderer, and usually dull coppery in colour ("var. *koltzei*"). The genital structures of these specimens are almost identical, with intermediate forms occurring. We suppose that they represent different ecological forms rather than subspecies; this phenomenon is quite common among buprestids (Acmaeoderini, Agrilini). The synonymy of several forms has been established by Jakovlev (with *S. karelini* Fald.) and Kerremans (with *S. orichalcea* Pall.). Some other names are synonymized here on a basis of the study of type specimens.

Note. The type locality of *S. australis* Gory & Lap., "Nouvelle-Hollande", is obviously erroneous.

Distribution. Russia: South-East of European part, South-West Siberia; ?Armenia (Obenberger, 1930a: 254), Kyrgyzstan, Kazakhstan, Turkmenistan, Uzbekistan, Tadjikistan, Northern China, Mongolia.

Sphenoptera (Chrysoblemma) tristicula Reitter, 1895

tristicula Reitter, 1895: 38.

elegans Jakovlev, 1900: 433, **syn. n.**

Type material examined. *S. tristicula* Reitt, lectotype (designated here, MNHN): ♂, Caucasus, Araxesthal [Araks Valley], Leder, Reitter (p)/ *Sphenoptera tristicula* m., 1895 (h)/ Type (p, red on white paper)/ Museum Paris, Coll. Abeille de Perrin, 1919 (p).

- *S. elegans* Jak., lectotype (designated here, ZIN): ♀, Eriwan [Armenia, Yerevan], Korb, 1898 (p)/ Reitter (p)/ Typus (p)/ *elegans* (h); 1 paralectotype (ZIN): ♀, Eriwan, Korb, 1898 (p); 1 paralectotype (NMP): ♂, Eriwan, Korb, 98 (h)/ Reitt., 236 (p).

Remarks. Up to now, *S. tristicula* Reitt. remained unknown to the specialists. Examination of the type specimen has revealed that this name is a senior synonym of *S. elegans* Jak.

Distribution. Georgia, Armenia, Azerbaijan, Turkey.

Sphenoptera (Chrysoblemma) hauseri Reitter, 1895

hauseri Reitter, 1895: 34.

hauseri ab. *expectanda* Obenberger, 1920: 122 (unavailable name).

Type material examined. *S. hauseri* Reitt., lectotype (designated here, NMW): [sex unknown], Afganist. Kuschke [Afghanistan, ?Kushk] (p)/ Collect. Hauser (p)/ *Sphenoptera hauseri* Rtt., n. sp. (h, by Reitter)/ Typus (p, red).

- *S. hauseri* ab. *expectanda* Obenb., lectotype (designated here, NMP): [sex unknown], Transcasp. Dortkuju [Turkmenistan], 1900, coll. Hauser (p); 1 paralectotype (NMP): [sex unknown], with same data.

Additional material examined. 2 ex. (MNHN): 1 ♂, *Sphenoptera hauseri* m., Tian-Schan (h, Reitter)/ Type (p, red on white paper)/ Museum Paris, Coll. Abeille de Perrin, 1919 (p); 1 ex., [sex unknown], Afghanistan, Kuschke [?Kushk], Coll. Hauser, 1896 (p); 1 ex. (TMB): [sex unknown], Tian-Schan (h)/ *S. Hauseri* m. Tian-Schan (h, Reitter)/ *Hauseri* Reitter (h), Coll. Reitter (p).

Note. The type locality and collector of *S. hauseri* (Reitter, 1895) are as follows: "Sefirkuh, nordlich von Herat, Hauser". Original Hauser's labels with such locality are absent from all the collections examined. The label "Afghanistan, Kuschke" most closely corresponds to the type locality given in the description, and it is quite possible that Reitter received more precise information from the collector himself (as it was in the case of the type locality "Ordubad" in Reitter's descriptions: type specimens of all the species described from this locality bear a label "Caucasus, Araxesthal, Leder-Reitter (p)" without more precise data). We suppose that the specimen from NMW is a syntype, and it is designated here as the lectotype.

Distribution. Kazakhstan, Uzbekistan, Turkmenistan, Tadjikistan, Iran, Afghanistan.

Sphenoptera (Chrysoblemma) tomentosa Jakovlev, 1886

tomentosa Jakovlev, 1886: 101.

ahngeri Jakovlev, 1900: 441, **syn. n.**

ver Semenov in litt. (see Jakovlev, 1900:441) (nom. nud.).

scintilla Jakovlev, 1908b: 10 (descr.), 11 (key), **syn. n.**

ahngeri ab. *chrysestes* Obenberger, 1927a: 24 (unavailable name).

Type material examined. *S. tomentosa* Jak., lectotype (designated here, ZIN): ♀, Samgart (h, rus)/ Type (p)/ *tomentosa* (h).

- *S. ahngeri* Jak., lectotype (designated here, ZIN): ♂, Zakaspiisk. obl. [Turkmenistan], K. Anger, 95 (p, rus)/ coll. Acad. (h)/ *Ahngeri* Jak. (h).

- *S. scintilla* Jak., lectotype (designated here, ZIN): ♀, st. [station] Farab, Zakasp. obi. [Turkmenistan, Amu-Darya River] (h, rus)/ Type (p)/ 12.VI.05 (h)/ *scintilla* m. (h).

- *S. ahngeri* ab. *chrysestes* Obenb., lectotype (NMP): [sex unknown], Turkmenia, Ashabad.

Remarks. Comparison of type specimens of *S. tomentosa* Jak., *S. ahngeri* Jak. and *S. scintilla* Jak. and examination of series from many locations has shown that in spite of some minute differences mainly in the colour pattern and body shape they undoubtedly belong to the same species.

Note. In the original description of *S. tomentosa* (Jakovlev, 1886), the type locality and collector are as follows: "Tourkestan: Samguare, M.W. Balassoglo".

Distribution. Kazakhstan, Uzbekistan, Turkmenistan, Tadjikistan.

Sphenoptera (Chrysoblemma) punctatissima
Reitter, 1895

punctatissima Reitter, 1895: 41.

eos Semenov, 1896: 254 (syn: Jakovlev, 1903b: 254).
venus Obenberger, 1927: 25, **syn. n.**

ab. *chrysoprasina* Obenberger, 1920: 122 (unavailable name).

Type material examined. *S. eos* Sem., lectotype (designated here, ZIN): ♀, Dort-Kuju [Turkmenistan], 4.VI. [18]89, A. Semenow (h) / *Sphenopt. eos* m., ♀, typ., VIII.96 (h), A. Semenow det. (p); paralectotype, ♀ (ZIN), with same data.

- *S. venus* Obenb., lectotype (designated here, NMP): ♂, Transkasp., Dorkuju, 4.1900, Coll. Hauser (p) / *Sphenoptera pubescens* Jak., cum typo compare, (h), Alexeev det. (p).

- *S. punctatissima* ab. *chrysoprasina* Obenb., lectotype (designated here, NMP): ♂, Afghanistan, Kuschke [Kushk] (h); 1 paralectotype, ♂ (NMP), with same data.

Additional material examined. *S. punctatissima* Reitt., 6 ex. (MNHN): 1 ♀, *Sphenoptera punctatissima* m., Tian-Sclian (h, by Reitter) / Type (p, red on white paper) / Museum Paris, Coll. Abeille de Pen-in, 1919 (p); 1 ♀, Tr. Casp. Gr. Balchan [Turkmenistan, Krasnovodsk Prov.] (p) / Paratype (p, red) / *punctatissima* Rtt. (h); 4 ♂, Afghanistan, Kuschke [Kushk], Coll. Hauser 1896 (p); 2 ex. (NMP), with same data.

Remarks. The synonymy of *S. punctatissima* Reitt. and *S. eos* Sem. has been first established by Jakovlev, who probably examined Reitter's type specimens. The examination of type specimens of *S. eos* Sem. and *S. venus* Obenb. and large series of *S. punctatissima* Reitt. including specimens with original Reitter's labels proved all of them to be conspecific.

Note. As in the case of *S. hauseri* Reitt., the type locality and collector of *S. punctatissima* Reitt. is as follows: "Sefir Kuh, nordlich von Herat, Hauser". As mentioned above, the label "Afghanistan, Kuschke" most closely corresponds to the type locality, but all the specimens bearing Hauser's labels in all the collections examined are dated 1896, and thus, they can not be syntypes.

Distribution. Kazakhstan, Uzbekistan, Turkmenistan, Tadjikistan, Afghanistan.

Sphenoptera (Chrysoblemma) pubescens Jakovlev, 1886

pubescens Jakovlev, 1886: 100.

anniae Obenberger 1927a: 26, **syn. n.**
amudarjensis Obenberger, 1929a: 13, **syn. n.**

Type material examined. *S. pubescens* Jak., lectotype (designated here, ZIN): ♀, Turkestan (p) / Grumm. (h) / *pubescens* Jak. (h).

- *S. anniae* Obenb., lectotype (designated here, NMP): ♂, Syr Darja [Syr-Darya River] (p) / Inv. 26269 / *Sphenoptera pubescens* Jak. cum typo comp. (h), Alexeev det. (p); paralectotypes, 2 ♀ (NMP), with same data but Inv. 26268 & 26270.

— *S. amudarjensis* Obenb., lectotype (designated here, NMP): ♂, Amu Darja [Amu-Darya River] (h).

Remarks. The synonymy of *S. anniae* Obenb. with *S. pubescens* Jak. has been first established by A. Alexeev who has not published his data; the reexamination of the type specimen of this species as well as those of *S. pubescens* Jak. and *S. amudarjensis* Obenb. has revealed those are conspecific.

Note. Obenberger (1929, 1952) described two different species with the same type locality "Amu Darja" under the name *S. amudarjensis*. Both descriptions correspond to species of the *punctatissima-pubescens* group. The above-mentioned type specimen most fits the earlier description (Obenberger, 1929) as it has green body, while the species described latter (Obenberger, 1952) has coppery coloration.

Distribution. Kazakhstan, Turkmenistan, Tadjikistan.

Sphenoptera (Chrysoblemma) obenbergeriana
nom. n.

amudarjensis Obenberger, 1952: 2, nom. praeocc., non Obenberger, 1929a: 13.

Remarks. We did not find the type specimen of this species whose identity remain unknown; in either case its name was preoccupied by *S. amudarjensis* Obenberger, 1929 (see above).

Sphenoptera (Chrysoblemma) glasunovi Jakovlev, 1903

glasunovi Jakovlev, 1903b: 265 (key), 273 (descr.)

Type material examined. *S. glasunovi* Jak., lectotype (designated here, ZIN): ♀, r. Nerduali [Iran, Khorasan Prov., Nerduali River], I.VI.[18]93, Glazunov (h, rus) / *Chrysoblemma glasunovi* sp.n.?, A. S. II.[18]95 (h) / *glasunovi* Jak. (h).

Distribution. Iran.

Sphenoptera (Chrysoblemma) jakowlewi Reitter, 1895

jakowlewi Reitter, 1895: 39.
apta Jakovlev, 1903b: 251 (cat.), 266 (key), 274 (descr.), **syn. n.**

Type material examined. *S. jakowlewi* Reitt., lectotype (designated here, MNHN): ♀, Caucasus, Araxesthal [Araks Valley], Leder, Reitter (p) / *Sph. jakowlewi* m. 1895 / Type (p, red on white paper) / Museum Paris, Coll. Abeille de Perrin, 1919 (p).

- *S. apta* Jak., lectotype (designated here, ZIN): ♀, Rtt. 126 (h)/ Caucasus, Araxesthal [Araks Valley], Leder, Reitter (p).

Remarks. Type specimens of *S. jakowlewi* Reitt. and *S. apta* Jak. probably originate from the same series and are undoubtedly conspecific.

Distribution. Armenia, Azerbaijan (Nakhichevan Autonomous Republic).

Sphenoptera (Chrysoblemma) araxidis Reitter, 1890

araxidis Reitter, 1890: 278 (key), 282 (descr.).
araxis Fauvel, 1895: 111 (unjustified emendation).

Type material examined. *S. araxidis* Reitt., lectotype (designated here, MNHN): ♀, Caucasus, Araxesthal [Araks Valley], Leder, Reitter (p)/ *Sph. araxidis* m./ Type (p, red on white paper)/ Museum Paris, Coll. Abeille de Perrin, 1919 (p)/ *araxidis* Reitt. (h).

Distribution. Up to now, this species is known only from its type locality, Ordubad (Nakhichevan Autonomous Republic, Azerbaijan).

Sphenoptera (Hoplística) semenovi Jakovlev, 1889

semenovi Jakovlev, 1889: 85 (as *Ssemenowi*: see Volkovitsh & Kalashian, 1994: 103).
prosternalis Reitter, 1890: 276 (key), 279 (descr.) (nom. praecoc., non Jakovlev, 1885: 130).
reitteri Jakovlev, 1891: 139, **syn. n.**; Reitter, 1891: 257 (as syn. of *jewlachensis* Reitt.); Obenberger, 1930a: 257 (as sp., subg. *Chrysoblemma*).
jewlachensis Reitter, 1891: 257 (nom. nud.); Semenov, 1899: 651 (as syn. of *reitteri* Jak.).
sagitta Semenov, 1899: 651 (*Hoplandrocneme*) [syn.: Kerremans, 1913: 383 (as *Ssemenovi* Jak.)]; Obenberger, 1930a: 284 (as sp.).
lamaica Obenberger, 1920: 126, **syn. n.**
jedlickai Obenberger, 1927c: 168 (key), 187 (descr.), **syn. n.**

Type material examined. *S. semenovi* Jak., lectotype (designated here, ZIN): ♂, Mong. centr., 1886, G Potanin (p)/ *Sph. semenovi* Jak., typ., H. [18]99 (h), A. Semenow det. (p)/ Type (p)/ *semenovi* Jak. (h); paralectotypes (ZIN): 1 ♂, 1 ♀, with same data.

- *S. prosternalis* Reitt., lectotype (designated here, MNHN): ♂, *jewlachensis* Rtt. (place label)/ Jewlach, Caucasus [Azerbaijan, Yevlakh] (h)/ *Sph. prosternalis* m., 1890 (h)/ Type (p, red on white paper)/ Museum Paris, Coll. Abeille de Perrin, 1919 (p); paralectotype (MNHN): ♀, Jewlach, Caucasus (h)/ *Reitteri* Jak. Typ. (h)/ Type (p, red on white paper)/ Museum Paris, Coll. Abeille de Perrin, 1919 (p); paralectotype (TMB): ♂, Jewlach (h)/ *Jewlachensis* m., Type (h)/ Reitter (h)/ Holotypus (p) *Sphenoptera jewlachensis* Reitt. (h)/ *Sphenoptera (Hoplística) semenovi* Jak., 987 (h) Volkovitsh det. (p).

- *S. reitteri* Jak., lectotype (designated here, ZIN): ♂ *Reitteri* m., Caucasus (h)/ Type (p)/ *Reitteri* Jak. (h).

- *S. sagitta* Sem., lectotype (designated here, ZIN): ♂, Afganist, Kuschke [Afghanistan, ?Kushk] (p)/ 425 (p)/ *Sphenoptera semenovi* Rtt. (h)/ *Sphen. sagitta* m., ♂, Typ., II.[18]99 (h), A. Semenow det. (p); 3 paralectotypes (ZIN): 1 ♂, with same data; 1 ♂, 19 (h)/ Rost. 96, *Sphenoptera mesopotamica*, Pentschdalai (h)/ *Sphen. sagitta* m., ♂,

Typ., II.[18]99(h), A. Semenow det. (p); 1 ♂, 18 (h)/ Rost. *Sphenoptera mesopotamica* Mars. Pentschdali (Transcasp.) (h)/ *Sphen. sagitta* m., ♂, Typ., II.[18]99 (h), A. Semenow det. (p).

- *S. jedlickai* Obenb., lectotype (designated here, NMP): ♂, Luristan, Choremad [Iran, Lorestan Prov.] (h).

- *S. lamaica* Obenb., holotype (NMP): [sex unknown], Perowsk, Syr-Darja [Kazakhstan, Kzyl-Orda], coll. Winkler (p)/ Inv. 26279/ *Sphenoptera semenovi* Jak., cum typo comp. (h), Alexeev det. (p).

Remarks. The comparison of type specimens of the above-mentioned species and examination of large series from many locations has shown, that in spite of some minute differences mainly in the body shape and sculpture, these specimens undoubtedly belong to the same species.

Note. Reitter (1891: 257) mentioned *S. jewlachensis* Reitter, 1890 as a senior synonym of *S. reitteri* Jakovlev, 1891 and referred to its description as "Reitt. Entom. Nachr. 1890, pag. 279". However, there is only the description of *S. prosternalis* on this page. Neither Reitter postulated anywhere that *S. jewlachensis* was a replacement name and, in such a way, it is a nomen nudum. Obenberger (1930a: 284) mentioned *S. semenovi* Kerremans, 1913: 383, non Jakovlev, 1889 [sic!] as a junior synonym of *S. sagitta* Sem. though Kerremans (1913: 383) only copied Jakovlev's original description of *S. semenovi*.

Distribution. Azerbaijan, Kazakhstan, Turkmenistan, Tadjikistan, Uzbekistan, Iran, Afghanistan, Mongolia.

Sphenoptera (Hoplística) balassogloi Jakovlev, 1885

balassogloi Jakovlev, 1885: 131.
protracta Jakovlev, 1885: 133, **syn. n.**
flagrans Semenov, 1895: 348, **syn. n.**
morawitzi Semenov, 1896: 248, **syn. n.**
venusta Jakovlev, 1904: 309, **syn. n.**

Type material examined. *S. balassogloi* Jak., lectotype (designated here, ZIN): ♂, Chinaz [Uzbekistan] (h, rus)/ Oshanin (h)/ *balassogloi* m. (h); 1 paralectotype (ZIN): ♀, Chinaz (h, rus)/ *balassogloi* m. (h).

- *S. protracta* Jak., lectotype (designated here, ZIN): ♀, Taschkent [Uzbekistan] (p)/ *protracta* m. (h)/ Type (p).

- *S. flagrans* Sem., holotype (ZIN): ♂, oz. [lake] Kul'chak, 13.IV.93, Trotsina (p, rus)/ *Sphenoptera flagrans* m., typ. un., VII.[18]96 (h), A. Semenow det. (p)/ *flagrans* Sem. (h).

- *S. morawitzi* Sem., holotype (ZIN): ♂, Chikishlyar [Turkmenistan, KrasnovodskProv., Chekishler], Pomerantsev (h, rus)/ *Sphenoptera morawitzi* m., Typ. un., ♂, VII.[18]96 (h), A. Semenow det. (p)/ *morawitzi* Sem. (h).

- *S. venusta* Jak., lectotype (designated here, ZIN): ♂, Yevlach [Azerbaijan, Yevlakh], 12.VI.[19]04 (h, rus)/ *venusta* (h)/ Type (p); 19 paralectotypes (ZIN): 8 ♂, 9 ♀, with same data; 1 ♂, 1 ♀, Caucas, Evlach [Azerbaijan, Yevlakh] (h)/ Winowski (h).

Remarks. The comparison of type specimens of the above-mentioned species and examination of large series from many locations has shown

that in spite of some minute differences mainly in the body shape and sculpture these specimens undoubtedly belong to the same species.

Distribution. ?Georgia, Armenia, Azerbaijan, Kazakhstan, Turkmenistan, Tadjikistan, Uzbekistan, Iran, Iraq, Turkey, Afghanistan.

Sphenoptera (Hoplistura) mesopotamica Marseul, 1865

mesopotamica Marseul, 1865: 389.

fairmairei Marseul, 1865: 528 (syn.: Jakovlev, 1901: 53). *pelletii* Mulsant & Key, 1866: 87 (syn.: Jakovlev, 1901: 54). *turkestanica* Jakovlev, 1885: 133, **syn. n.**

fulgurans Obenberger, 1920: 128, **syn. n.**
mesopotamica ssp. *deserti* Obenberger, 1920: 129, **syn. n.**
mesopotamica ssp. *sartica* Obenberger, 1927c: 171, **syn. n.**
namanganensis Obenberger, 1927c: 176, **syn. n.**
monstrosella Obenberger, 1920: 129; 1930a: 274 (nom. nud.).

Type material examined. *S. mesopotamica* Mars., lectotype (designated here, MNHN): ♀, *mesopotamica* Koll., Ab.65.II.89. Mesop. (place label)/*Sphenopt. mesopotamica* Koll., Mesopot. [unreadable] (h, round yellow label)/ *mesopotamica*, Mésopotamie (h).

- *S. fairmairei* Mars., lectotype (designated here, MNHN): ♂, *Fairmairei* Mars., Ab.II.66.528. Syr. (place label)/ *Sphenoptera Fairmairei*, Kis aole T [unreadable] 68 (h, round, yellow label)/ Kis aole (h)/ *Sphenopt. Fairmairei* (h).

- *S. turkestanica* Jak., lectotype (designated here, ZIN): ♂, Chinaz [Uzbekistan] (h, rus)/ Oshantin (h)/ *turkestanica* [sic!] (h)/ Type (p).

- *S. fulgurans* Obenb., lectotype (designated here, NMP): ♂, Perowsk, Syr-Darja [Kazakhstan, Kzyl-Orda], coll. Winkler (p)/ Inv. 26278; 1 paralectotype, ♀, with same data + *Sphenoptera mesopotamica* Mars, (h), Alexeev det. (p).

- *S. mesopotamica deserti* Obenb., lectotype (designated here, NMP): ♀, Afghanistan, Kuschke [?Kushk], Coll. Hauser, 1898 (p); 2 paralectotypes (NMP): 1 ♀, with same data; 1 ♂, Transcasp., Merw [Turkmenistan, Mary], 5.1900, Coll. Hauser (p).

- *S. mesopotamica sartica* Obenb., lectotype (designated here, NMP): ♀, Samarkand [Uzbekistan] (h); 2 paralectotypes (NMP) [sex unknown]: Turkistan (h).

- *S. namanganensis* Obenb., lectotype (designated here, NMP): ♂, Namangan, Turkistan [Uzbekistan] (p).

Remarks. The study of large series of this widely-distributed species has shown that it does not form any geographic races and some minute differences in the coloration and body shape between the type specimens examined are only the manifestation of individual variability.

Distribution. Georgia, Armenia, Azerbaijan, Kazakhstan, Turkmenistan, Tadjikistan, Uzbekistan, Iran, Iraq, Turkey, Afghanistan.

Sphenoptera (Tropeopeltis) servistana Obenberger, 1930

servistana Obenberger, 1929b: 60.

kambyses Obenberger, 1930b: 104, **syn. n.**

Type material examined. *S. servistana* Obenb., lectotype (designated here, NMP): ♀, Persia: Servistan [Iran, Fars Prov., Sarvistan] (h).

- *S. kambyses* Obenb., lectotype (designated here, NMP): ♀, Bagdad [Iraq], coll. Kalalova (p).

Remarks. The comparison of type specimens of *S. servistana* Obenb. and *S. kambyses* Obenb. has shown that they are conspecific. *S. kambyses* is recorded as a serious pest of fruit-growing in the Kopetdagh area (Zykov & Goncharenko, 1990).

Distribution. Turkmenistan, Iran, Iraq.

Sphenoptera (Tropeopeltis) schneideri Reitter, 1898

schneideri Reitter, 1898: 11.

lebedevi Obenberger, 1928: 18, **syn. n.**
mujunkumensis Obenberger, 1928: 19, **syn. n.**

Type material examined. *S. schneideri* Reitt., lectotype (designated here, ZIN): ♀, *Schneideri* m., Buchara [Uzbekistan] (h, by Reitter)/ Type (p)/ *schneideri* Rtt. (h)/ *Trop. schneideri* Rtt., type (h) (p, rus).

— *S. lebedevi* Obenb., lectotype (designated here, NMP): ♀, Transcaspia (in Latin), Chardzhui [Turkmenistan, Chardzhou] (rus), 18.V.[19]27 (h)/ *Sphenoptera schneideri* Rtt., cum typo comp. (h), Alexeev del. (p)/ Inv. 26280 (p).

- *S. mujunkumensis* Obenb., lectotype (designated here, NMP): ♂, Mujuncum, Syr Darja [Kazakhstan, Muyunkum Desert, Syr-Darya River] (h)/ Inv. 26281 (p)/ *Sphenoptera schneideri* Rtt., var. (h), Alexeev det. (p).

Remarks. The examination of type specimens of the above-mentioned species as well as series of specimens from several localities in Middle Asia has shown all they are conspecific.

Distribution. Kazakhstan, Turkmenistan, Uzbekistan.

Acknowledgements

We would like to thank Dr. I.M. Kerzhner (ZIN) for consultations on nomenclatural problems, Dr. A.V. Alexeev (Orehovo-Zuevo, Russia) for his valuable consultations on *Sphenoptera* synonymy, Drs. S. Bily (NMP), O. Merkl (TMB), M. Uhlig (NMB), H. Silberberg (ZMH), and Prof. J. J. Menier (MNHN) for the loan of *Sphenoptera* type specimens for this study. Our special thanks to A.K. Chistyakova (ZIN) for her great assistance in organizing and maintenance of the *Sphenoptera* collection. The study was partly supported by the Russian Foundation for Basic Research (grant no. 01-04-49641) and the Ministry of Science and Technology of the Russian Federation (grant no. 01-03-16).

References

- Abeille de Perrin, E.** 1891. Contribution aux Buprestides paléarctiques (Coleoptera). *Rev. d'Entomol.*, Caën, **10**: 257-288.
- Alexeev, A.V.** 1978. New species of buprestid beetles (Coleoptera, Buprestidae) from Middle Asia. *Entomol Obozr.*, **57**(4): 846-854.
- Ballion, E.** 1878. Verzeichniss der im Kreise von Kuldsha gesammelten Kafer. *Bull. Soc. Imp. natur. Moscow*, **53**: 253-389.
- Becker, A.** 1867. Noch einige mittheilungen tber Astrachaner und Sareptaer Pflanzen und Insekten. *Bull. Soc. Imp. natur. Moscow*, **40**(1): 104-115.

- Cobos, A.** 1968. Ergebnisse der zoologischen Forschungen von Dr. Z. Kaszab in der Mongolei. No. 171 (Col. Buprestidae). *EOS, Rev. Espan. Entomol.*, 43(3-4), 1967: 357-411.
- Faldermann, F.** 1833. Species novae Coleopterorum Mongoliae et Sibiriae. *Bull. Soc. Imp. natur. Moscow*, 6: 46-72.
- Gebler, F.A. von.** 1825. Coleoptera Sibiriae species novae descriptae. *Hummel, Essais*, 4: 42-57.
- Gebler, F.A. von.** 1830. Bemerkungen fiber die Insecten Sibiriens, vorzuglich des Altai. *Ledebours Reise*, 2(3), 1829: 1-228.
- Gory, H.L.** 1841. *Histoire naturelle et iconographie des insectes Coleopteres. Supplement aux buprestides*, vol. 4, livr. 43-52. Paris.
- Gory, H.L. & de Laporte, F.L.** 1839. *Histoire naturelle et iconographie des insectes Coleopteres. Monographie des buprestides*. Vol. 2, livr. 25-35. Genera: *Anthaxia, Evagora, Sphenoptera, Cratomerus, Sponsor, Cisseis, Castalia, Poecilnonta, Zemina, Stenogaster, Pseudagrilus, Amorphosoma, Eumerus, Coraebus, Ethon, Brachys*. Paris.
- Jakovlev, B.E.** 1885. Description de quelques nouvelles espèces du genre *Sphenoptera* Sol. *Horae Soc. entomol. Ross.*, 19: 130-134.
- Jakovlev, B.E.** 1886. Descriptions d'espèces nouvelles ou peu connues du genre *Sphenoptera* Sol. des régions paléarctiques. *Horae Soc. entomol. Ross.*, 20: 82-103.
- Jakovlev, B.E.** 1887. Descriptions d'espèces nouvelles du genre *Sphenoptera* Sol. *Rev. d'Entomol.*, Caën, 6: 110-118.
- Jakovlev, B.E.** 1889. Insecta a cl. G.N. Potanin in China et in Mongolia novissime lecta. III. Genus *Sphenoptera* Sol. *Horae Soc. entomol. Ross.*, 23: 83-87.
- Jakovlev, B.E.** 1891. Description d'espèces nouvelles du genre *Sphenoptera* Sol. de la faune paléarctiques. *Horae Soc. entomol. Ross.*, 25: 129-140.
- Jakovlev, B.E.** 1899a. Nouvelles espèces du genre *Sphenoptera* Sol. *Ann. Mus. zool. Acad. Imp. Sci. St. Pétersbourg*, 4: 292-296.
- Jakovlev, B.E.** 1899b. Nouvelles espèces du genre *Sphenoptera* Sol. *Horae Soc. entomol. Ross.*, 34(1-2), 1899(1900): 96-107.
- Jakovlev, B.E.** 1900. Etudes sur les espèces du genre *Sphenoptera* Sol. (Coleoptera, Buprestidae). I-IV. *Horae Soc. entomol. Ross.*, 34(3-4): 398-447, 498-508.
- Jakovlev, B.E.** 1901. Notes coléoptérologiques. I. 1-4. *Russ. entomol. Obozr.*, 1: 50-54.
- Jakovlev, B.E.** 1903a. Notes coléoptérologiques. III. 8. *Sphenoptera karelini* Fald. *Russ. entomol. Obozr.*, 3: 33-35.
- Jakovlev, B.E.** 1903b. Revision sur les *Sphenoptera* paléarctiques du sous-genre *Chrysoblemma* B. Jak. (Coleoptera, Buprestidae). *Horae Soc. entomol. Ross.*, 36: 248-277.
- Jakovlev, B.E.** 1904. Description d'une nouvelle *Sphenoptera* (s.-g. *Hoplandrocneme* Sem.) de la Transcaucasie (Coleoptera: Buprestidae). *Russ. entomol. Obozr.*, 4: 309-310.
- Jakovlev, B.E.** 1905a. Quatre nouvelles espèces du genre *Sphenoptera* Sol. (Coleoptera, Buprestidae). *Russ. entomol. Obozr.*, 5: 27-32.
- Jakovlev, B.E.** 1905b. Notes. *Russ. entomol. Obozr.*, 5: 236-237.
- Jakovlev, B.E.** 1908a. Notes on synonymy (Coleoptera, Buprestidae). *Russ. entomol. Obozr.*, 7: 255-257.
- Jakovlev, B.E.** 1908b. New species of *Sphenoptera* (*Chrysoblemma*) from Russia (Coleoptera, Buprestidae). *Russ. entomol. Obozr.*, 8: 8-11.
- Jakovlev, B.E.** 1908c. Review of Palaeartic species of *Sphenoptera*, subgenus *Chilostetha* B. Jak. (Coleoptera, Buprestidae). *Horae Soc. entomol. Ross.*, 38: 507-524.
- Kalashian, M.Y.** 1990. *Sphenoptera khosrovica* sp. nov. - a new species of buprestid beetles from Armenia (Coleoptera, Buprestidae). *Dokl. Akad. Nauk Arm. SSR*, 90(5): 229-231.
- Kalashian, M.Yu.** 1994. Two new species of *Sphenoptera* Solier, 1833 (Coleoptera, Buprestidae) from Turkmenistan and Armenia. *Russ. entomol. J.*, 3(3-4): 81-84.
- Kalashian, M.Y. & Volkovitsh, M.G.** 1993. A new species of the buprestid genus *Sphenoptera* Solier (Coleoptera, Buprestidae) from South Kazakhstan. *Dokl. Akad. Nauk Arm.*, 94(1): 54-58.
- Kalashian, M.Y. & Volkovitsh, M.G.** 1997. Two new species of the buprestid genus *Sphenoptera* Solier (Coleoptera, Buprestidae) from Middle Asia and Kazakhstan. *Entomol. Obozr.*, 76(2): 357-362.
- Kalashian, M.Y. & Zykov, I.E.** 1994. A new species of buprestid genus *Sphenoptera* (Coleoptera, Buprestidae) from Transcaucasia. *Zool. Zh.*, 73(10): 134-140.
- Kerremans, C.** 1913. *Monographie des buprestides*. Vol. 6, livr. 1-19(1912-1913): 1-594.
- Klug, J.C.F.** 1829. *Symbolae physicae seu icones et descriptiones insectorum quae ex itinere per Africam borealem et Asiam occidentalem Friderici Guilelmi Hemprich et Christiani Godofredi Ehrenberg, studio novae aut illustratae redierunt*. Decas prima. Berlin: Folie 1, Berolini ex officina Academica.
- Mannerheim, C.G. von.** 1837. Enumeration des Buprestides, et description de quelques nouvelles espèces de cette tribu de la famille des Sternoxes, de la collection de M. Le Comte Mannerheim. *Bull. Soc. Imp. Natur. Moscow*, 8: 1-126.
- Marseul, S.A.** 1865. Monographie des buprestides d'Europe, du nord de l'Afrique et de l'Asie. *L'Abeille*, 2: 1-540.
- Motschulsky, V.I.** 1860. Coléoptères rapportes en 1859 par M. Sévertsev des steppes méridionales des Kirghises et énumérés. *Bull. Acad. Imp. Sci. Saint-Petersbourg*, 2: 513-544.
- Mulsant, E. & Rey, C.** 1866. Description d'une espèce nouvelle de Coléoptères. *Ann. Soc. Linn. Lyon (nouv. Sér.)*, 13: 87-88.
- Obenberger, J.** 1915. Über neue oder wenig bekannte Sphenopteren (Coleoptera - Buprestidae). *Entomol. Bl.*, 11(1-3): 51-56.
- Obenberger, J.** 1920. Studien über die Buprestidengattung *Sphenoptera* Latr. I. *Arch. Naturg.*, 85A(3), 1919: 101-138.
- Obenberger, J.** 1926. Das Sphenopterensubgenus *Chilostetha* B. Jak. (Col. Bupr.). *Coleopt. Centralbl.*, 1: 183-212.
- Obenberger, J.** 1927a. De Sphenopterarum subgenere *Chrysoblemma* B. Jak. (Col. Buprestidae). *Acta Soc. entomol. Českoslov.*, 24: 20-28.
- Obenberger, J.** 1927b. De novis Buprestidarum regionis palaearticae speciebus X. *Acta Soc. entomol. Českoslov.*, 24: 70-77.
- Obenberger, J.** 1927c. Die Sphenopterensubgenera *Hoplatura* B. Jak. und *Tropeopeltis* B. Jak. (Col.-Bupr.). *Coleopt. Centralbl.*, 2: 151-201.
- Obenberger, J.** 1928. Buprestidarum supplementa palaeartica I. *Acta Soc. entomol. Českoslov.*, 25: 16-21.
- Obenberger, J.** 1929a. Buprestidarum supplementa palaeartica IV. *Acta Soc. entomol. Českoslov.*, 26: 9-14.
- Obenberger, J.** 1929b. Buprestidarum supplementa palaeartica V. *Acta Soc. entomol. Českoslov.*, 26: 59-63.

- Obenberger, J.** 1930a. Buprestidae II. In: Junk, W. & Schenkling, S. (Eds.) *Coleopterorum Catalogus*, **111**: 213-568.
- Obenberger, J.** 1930b. Buprestidarum supplementa palaeartica VI. *Acta Soc. entomol. Cechoslov.*, **27**: 102-115.
- Obenberger, J.** 1937. Nová palaeartická *Sphenoptera* (Bupr.). *Acta Soc. Entomol. Cechoslov.*, **34**: 91.
- Obenberger, J.** 1952. De subgeneris *Chrysoblemma* B. Jak. generis *Sphenoptera* Sol. speciebus novis (Col. Buprestidae). *Acta entomol. Mus. natur. Prague*, **26**, no. 350(1948-1950): 1-5.
- Pallas, P.S.** 1781. *Icones Insectorum praesertim Russiae Sibiriaeque peculiarium, quae collegit et descriptionibus illustravit*. Erlangae: Walther. 104 p.
- Reitter, E.** 1890. Übersicht der trispinosen *Sphenoptera*-Arten aus Europa und dem Kaukasus. *Entomol. Nachr.*, **16**: 276-283.
- Reitter, E.** 1891. Coleopterologische Notizen. XLII. *Wien. entomol. Z.*, **10**: 256-257.
- Reitter, E.** 1895. Übersicht der trispinosen *Sphenoptera*-Arten (*Oplistura* und *Chrysoblemma*) aus der palaearktischen Fauna. *Wien. entomol. Z.*, **14**: 32-42.
- Reitter, E.** 1898. Eine Decade neuer Coleopteren aus der Buchara. *Wien. entomol. Z.*, **17**: 10-16.
- Semenov, A.** 1895. Coleoptera Asiatica nova. VI. *Horae Soc. entomol. Ross.*, **29** (1894-1895): 336-362.
- Semenov, A.** 1896. Coleoptera Asiatica nova. VII. *Horae Soc. entomol. Ross.*, **30** (1895-1896): 238-259.
- Semenov, A.** 1899. Coleoptera asiatica nova. VIII. *Horae Soc. entomol. Ross.*, **32**: 632-656.
- Volkovitch, M.G. & Kalashian, M.Y.** 1994. A new subgenus and species of *Sphenoptera* from Uzbekistan with taxonomic and nomenclatural notes on the genus *Sphenoptera* (Coleoptera: Buprestidae). *Zoosyst. Ross.*, **3**(1): 99-104.
- Volkovitch, M.G. & Kalashian, M.Yu.** 2001. A new species and new subspecies of *Sphenoptera* (subgenus *Chrysoblemma*) from Central Asia and Pakistan with taxonomic notes on *S. (C.) scovitzii* Faldermann and *S. (C.) tamarisci* Gory & Laporte and synonymy of two other species of *Sphenoptera* (Coleoptera: Buprestidae). *Zoosyst. Ross.*, **9**(1), 2000: 195-202.
- Volkovitch, M.G. & Kalashian, M.Yu.** 2002a. Type species designations for *Sphenoptera* Dejean and *Rhapidochila* Jakovlev (Coleoptera: Buprestidae). *Zoosyst. Ross.*, **11**(1): 166.
- Volkovitch, M.G. & Kalashian, M.Yu.** 2002b. Lectotype designations in the genus *Sphenoptera* Dejean (Coleoptera: Buprestidae). *Zoosyst. Ross.*, **11**(1): 170.
- Zoubkoff, B.** 1829. Notice sur un nouveau genre et quelques nouvelles espèces des Coléoptères. *Bull. Soc. Imp. natur. Moscow*, **1**: 147-168.
- Zykov, I.E. & Goncharenko, N.V.** 1990. To the study of mass breeding area of the buprestid beetle *Sphenoptera (Tropeopeltis) kambyses* Obenb. (Coleoptera, Buprestidae) in foothills of the Kopetdagh. In: Kataev, O.A. & Kasparyan, D.R. (Eds.). *Uspekhi entomologii v SSSR: lesnaya entomologiya. Mater. X s'yezda Vses. entomol. obshch., 11-15 sentyabrya 1989*. [Advances in entomology in the USSR: forest entomology. Mater. X Congr. All-Union entomol. Soc., 11-15 Sept. 1989]: 47-48. Leningrad.

Received 20 January 2003