

Longicorn-beetles (Coleoptera, Cerambycidae) collected in South Kazakhstan by an international collecting trip 2024

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Abstract: Totally 20 taxa were collected in South Kazakhstan and South Russia (Kalmykia and Astrakhan region) in May-June 2024. *Vadonia bipunctata kalmykia* (Kalmykia and Astrakhan region) in May-June 2024. *Vadonia bipunctata kalmykia* Danilevsky, **ssp. n.** is described from the Eastern part of Kalmykia Republic of Russia. A single female of very rare *Aromia moschata vetusta* Jankowski, 1934 was collected near Qyzylorda. *Agapanthia (Epopetes) turanica* Plavilstshikov, 1929 is recorded from Karatau Ridge. Several specimens of *Anoplistes jacobsoni* Baeckmann, 1904 were collected along lower Syr-Darya River - much far northwards all known localities. New locality of *Xylotrechus (Turanoclytus) asellus* (Thieme, 1881) was discovered near Karabastau in Chimkent environs.

Introduction

Cerambycidae fauna of Kazakhstan is relatively well investigated. Still up to know each collecting season allows to collect new taxa and discover new localities. Many new data were recently obtained by three persons: V.L. Perepechayenko, A.I. Gubin and O.V. Pak in May - June, 2024. The way of their expedition was started from north Ciscaucasia (Kalmykia) through North and

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Eastern Kazakhstan to Karatau Mountain Ridge in South Kazakhstan. Collected materials were identified by M.L. Danilevsky.

Acronyms of the collections:

AG - collection of A.I. Gubin (Donetsk)

MD - collection of M.L. Danilevsky (Moscow)

OP - collection of O.V. Pak (Donetsk)

VP - collection of V.L. Perepechayenko (Krasnodar Region)

Results

***Vadonia bipunctata kalmykia* Danilevsky, ssp. n.**

Figs 1-4, 13

Type locality (fig. 13): Russia, Republic of Kalmykia, Yashkul'sky distr., Khul'khuta vill. env., 46°19'19"N, 46°22'16"E, h= -18 m.

Description. The new subspecies is very close to *Vadonia b. bipunctata* (Fabricius, 1781) from the eastern part of Orenburg Region by about the same elytral color patterns: elytral suture from yellow to narrowly or widely black, elytral apices from yellow to black, same long pubescence of hind male femora, same pair of tibiae spines. *V. b. kalmykia* Danilevsky, **ssp. n.** is separated from it by very dense dark populations of *Vadonia bipunctata sareptana* Pic, 1941 around Volgograd and differs from the nominative subspecies by several small characters: pronotal and elytral punctation notably rougher; pronotal pubescence longer; basal erect elytral setae much longer and are distributed along anterior elytral two thirds, while basal erect elytral setae in the nominative subspecies much shorter and are distributed along anterior one thirds; ventral body pubescence much longer and denser; body length in males: 9.1-15.8 mm; width: 2.9-4.6 mm; body length in females: 10.0-15.2 mm, width: 3.0-5.0 mm.

Material. Holotype (fig. 1), male, Russia, Republic of Kalmykia, Yashkul'sky distr., Khul'khuta vill. env., 46°19'19"N, 46°22'16"E, h=-18 m, sands, 20.05.2024, A.I. Gubin leg. - MD; 99 paratypes; 3 males, 3 females, with the same label as holotype - MD; 16 males, 16 females with the same label as holotype - AG; 19 males, 15 females, same data as holotype, but V.L. Perepechayenko leg. - VP;

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13 males, 16 females, same data as holotype, but O.V. Pak leg. - OP.

Distribution. Only one population is known: Russia, Republic of Kalmykia, Yashkul'sky distr., Khulkhuta vill. env., 46°19'19"N, 46°22'16"E, h= -18 m (fig. 13).

Bionomy. The beetles were actively flying, feeding and mating on flowers of *Euphorbia seguieriana* Neck. at sands.

Etymology. The subspecies is named according to the location of the type population in Russia - the Republic of Kalmykia.

Remark. *Vadonia bipunctata* (Fabricius, 1781) described from "Siberia" is widely distributed in Eurasia from the south of West Europe to West Siberia through Russia, Caucasus and Northern Kazakhstan. The type locality of the species was accepted (Danilevsky, 2014) as the Eastern part of Orenburg Region of Russia. The species is extremely variable and includes 10 subspecies (Danilevsky, 2020) before. The eleventh is described above.

An annotated list of collected materials:

Mesoprionus angustatus (Jakovlev, 1887) - S Kazakhstan, Jambyl reg., Talas distr., 60 km N Bestam vill., Moiyunkum Desert, 44°22'55"N, 71°03'24"E, shrub desert, h=353 m, 07.06.2024, by light; 1 male (AG), A.I. Gubin leg.; 1 male (VP), V.L. Perepechayenko leg.

Psilotarsus hirticollis nudicollis Danilevsky, 2000 - S Kazakhstan, Turkistan reg., Baydibek distr., NW Karatau Mt. R., 6 km NE Terekty vill., Boralday riv. canyon (fig. 12), 42°52'14"N, 69°49'51"E, h=511 m, 06.06.2024, V.L. Perepechayenko leg. 1 female early in the morning on the surface of the earth.

- S Kazakhstan, Jambyl reg., Jualy distr., 6.5 km NW Karabastau vill., Bilikol lake, 42°58'22"N, 70°45'29"E, h=439 m, 06.06.2024 (fig.7); 7 males, 1 female (AG), A.I. Gubin leg.; 3 males (VP), V.L. Perepechayenko. leg. Beetles were collected around 17-18:00 on the border of reed-covered swampy areas near the lake and open burnt steppe. Males were actively flying from the steppe towards the lake. First, a female was found on the ground and 5 males next to her. Another 5 males were caught in flight. Around 18:00, the flight stopped.

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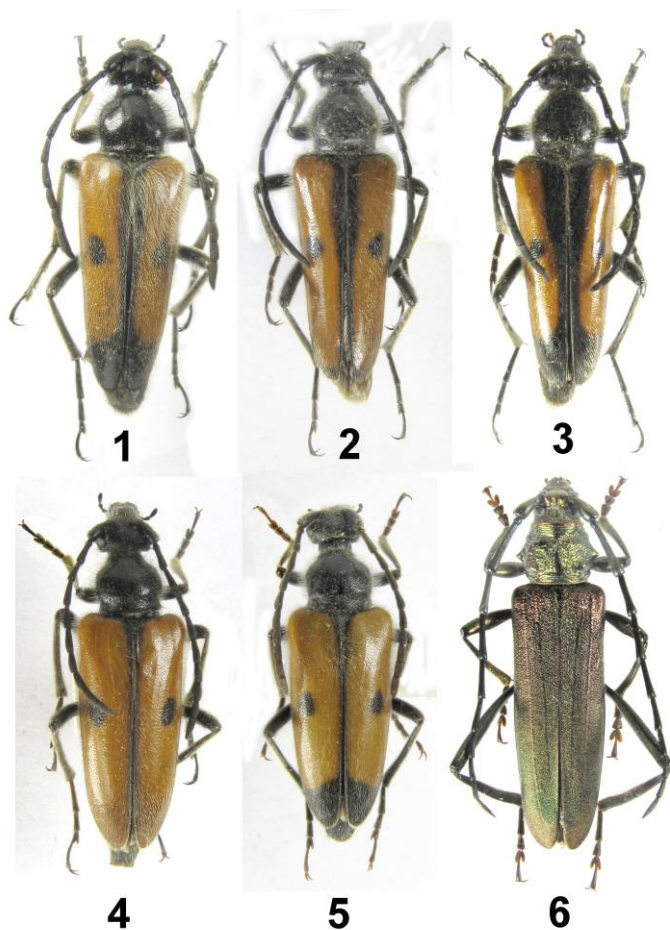
An attempt to catch them by light on the night of 16-17.06.2024 was unsuccessful.

Vadonia bipunctata kalmykia Danilevsky, **ssp. n.** (figs. 1-4, 13) - Russia, Republic of Kalmykia, Yashkul'sky distr., Khulkhuta vill. env., 46°19'19"N, 46°22'16"E, h= -18 m, sands, 20.05.2024; 16 males, 14 females (AG), A.I. Gubin leg.; 13 males, 16 females (OP), O.V. Pak leg.; 19 males, 15 females (VP, MD), V.L. Perepechayenko leg. The beetles were actively flying, feeding and mating.

Vadonia bipunctata aralensis Danilevsky, 2019 (fig. 5) - W Kazakhstan, Aktobe reg., Shalkar distr., 7 km SE Shalkar town, Bolshie Barsuki desert, 47°47'27"N, 59°41'57"E, h=190 m, 26.05.2024; 1 female (AG), A.I. Gubin leg. on the flowers of *Euphorbia seguieriana* Neck. on the sand. Extremely rare taxon; one male and 3 females were known before. First record of the taxon after original description from near Aralsk (46°30'N, 61°54'E). Male (holotype) of *V. b. aralensis* strongly differs from all other subspecies by red antennae, legs and abdomen, relatively short body.

Pseudovadonia livida (Fabricius, 1777) - Russia, Astrakhan reg., Krasnoyarsky distr., 8 km NE Dosang vill. env., 46°55'24"N, 47°53'35"E, left bank of Akhtuba riv., 22.05.2024; 1 female (VP), V.L. Perepechayenko leg.

Neoplocaederus scapularis (Fischer von Waldheim, 1821) - S Kazakhstan, Jambyl reg., Moiynkum distr., 20 km W Baytal vill., Moiynkum Desert, 44°35'22"N, 71°52'55"E, h=294 m, shrub desert, 08.06.2024; 1 male, 1 female (VP), V.L. Perepechayenko leg.; 5 males, 1 female (AG), A.I. Gubin leg. Beetles were caught sitting on the stems of *Ferula foetida* (Bunge) Regel.



Figs. 1-4 *Vadonia bipunctata kalmykia* ssp. n.: 1 - male, holotype, S Russia, Republic of Kalmykia, Yashkulsky distr., Khulkhuta vill. env., 46°19'19"N, 46°22'16"E, h= -18 m, sands, 20.05.2024, A.I. Gubin leg.; 2-3 - males, paratypes with the same label; 4 - female, paratype with the same label (photos by M.L. Danilevsky).

Fig. 5. *Vadonia bipunctata aralensis* Danilevsky, 2019: female, W Kazakhstan, Aktobe reg., Shalkar distr., 7 km SE Shalkar town, Bolshie Barsuki desert, 47°47'27"N, 59°41'57"E, h=190 m, 26.05.2024, A.I. Gubin leg. (photo by M.L. Danilevsky).

Fig. 6. *Aromia moschata vetusta* Jankowski, 1934: female, S Kazakhstan, Qyzylorda reg., 5 km SW Zhosaly, 45°27'15"N, 64°3'22"E, h=100 m, 28.05.2024, V.L. Perepechayenko leg. (photo by M.L. Danilevsky).

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Anoplistes jacobsoni Baeckmann, 1904 (fig. 9) - S Kazakhstan, Qyzylorda reg., Shieli distr., 6 km SE Tartogay vill., right bank of Syr Darya riv., sandy tugai, 44°24'00"N, 66°16'46"E, h=140 m; 31.05.2024; 1 male (AG), A.I. Gubin leg. The beetle was caught during the day at about 16-17:00, sitting on a bush of *Halimodendron halodendron* Pall.; flying beetles were also observed.

- S Kazakhstan, Qyzylorda reg., S env. of Kazalinsk, right bank of Syr Darya riv., tugai forest, 45°44'31"N, 62°05'29"E, h=66 m, 18.06.2024; 1 male, 1 female (AG), A.I. Gubin leg.; 1 male, 3 females, O.V. Pak leg.; 5 ex. (VP, MD), V.L. Perepechayenko leg. Beetles were caught in the morning sitting on the leaves of *Halimodendron halodendron* Pall.

Aromia moschata vetusta Jankowski, 1934 (figs 6, 14) - S Kazakhstan, Qyzylorda reg., 5km SW Zhosaly, 45°27'15"N, 64°3'22"E, h=100 m, 28.05.2024, V.L. Perepechayenko leg.; 1 female (MD). The beetle was observed on the branch of *Elaeagnus angustifolia* L. It is extremely rare subspecies also known from Karatau Ridge. A few specimens only are known. Body, elytra, legs and antennae dark-bronze; pronotum lighter, greenish-goldish; red pronotal elements hardly visible, nearly indistinct; available female anteriorly with two small reddish areas shines through faintly.

Aromia moschata malukhini Danilevsky, 2019 - Russia, Astrakhan reg., Krasnoyarsky distr., 8 km NE Dosang vill. env., 46°55'24"N, 47°53'35"E, left bank of Akhtuba riv., 25.06.2024; 14 males, 14 females (VP), V.L. Perepechayenko leg.; 12 males, 10 females (OP), O.V. Pak leg. Beetles were observed on old trees of *Salix* sp.

Echinocerus floralis floralis (Pallas, 1773) - S Kazakhstan, Turkistan reg., Sozak distr., 5 km W Kyzylkol vill., Kyzylkol lake, 43°46'36"N, 69°30'37"E, h=337 m, 04.06.2024; 3 ex. (AG), A.I. Gubin leg. The beetles were collected during the day while sitting on the branches of *Tamarix ramosissima* Ledeb.

- W Kazakhstan, Aktobe reg., Yrgyz distr., 9 km E Kurylys vill.,

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48°37'27"N 60°51'12"E, h=116 m, sands, 19.06.2024; 1 ex. (AG), A.I. Gubin leg. The beetle was collected during the day sitting on the flowers of *Achillea* sp.

- S Kazakhstan, Jambyl reg., Merki distr., 4,5 km S Akermen vill., 43°00'17"N, 73°27'55"E, h=625 m, 15.06.2024; 2 ex. (AG), A.I. Gubin leg. The beetles were collected during the day sitting on the flowers of *Achillea* sp.

Cleroclytus semirufus collaris Jakovlev, 1885 - S Kazakhstan, Turkistan reg., Karatau Mts., 18 km N Shakpak vill., 43°21'58"N, 69°21'24"E, h=700 m, 23.04.2023; 1 female (OP), O. Pak leg.

Xylotrechus (Turanoclytus) asellus (Thieme, 1881) (photo 10) - S Kazakhstan, Jambyl reg., Jually distr., 6.5 km NW Karabastau vill., Bilikol lake, 42°58'22"N, 70°45'29"E, h=439 m, 06.06.2024, 11 males, 6 females (AG), A.I. Gubin leg.; 12 ex. (OP), O.V. Pak leg.; 10 ex. (VP, MD), V.L. Perepechayenko leg. The beetles were collected during the day on the trunks and branches of old trees *Elaeagnus angustifolia* L., they were actively running, flying and mating, some females were hiding under the bark.

- S Kazakhstan, Jambyl reg., Jambyl distr., 2 km S Karakemer vill., 43°03'55"N, 71°05'12"E, h=491 m, 07.06.2024, 1 female (AG), A.I. Gubin leg. The beetle was collected during the day on the trunk of old *Elaeagnus angustifolia* L.
- S Kazakhstan, Almaty reg., Balkhash distr., 4 km N Baribaev vill., Kunaev bridge env., left bank of Ili riv., 44°57'47"N, 75°46'47"E, h=378 m, tugai, 13.06.2024, 1 female (AG), A.I. Gubin leg.; 1 male, 1 female (OP), O.V. Pak leg.; 4 ex. (VP), V.L. Perepechayenko leg. The beetles were collected during the day on the trunks and branches of old trees *Elaeagnus angustifolia* L.
- S Kazakhstan, Qyzylorda reg., Shieli distr., 6 km SE Tartogay vill., right bank of Syr Darya riv., sandy tugai, 44°24'00"N, 66°16'46"E, h=140 m, 17.06.2024, 2 females (AG), A.I. Gubin leg. The beetles were collected during the day on the trunks and branches of old trees *Elaeagnus angustifolia* L.

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- W Kazakhstan, Aktobe reg., Temir distr., 5.5 km N Temir vill., 49°11'08"N, 57°06'12"E, h=226 m, 20.06.2024, 1 female (OP), O.V. Pak leg. The beetle was collected during the day on the trunk of old *Elaeagnus angustifolia* L.

Xylotrechus (Turanoclytus) namanganensis (Heyden, 1885) – S Kazakhstan, Jambyl reg., 4.5 km S Akermen, 43°00'17"N, 73°27'55"E, h=625 m, 15.6.2024; 1 male (AG) - A.I. Gubin leg.

Chlorophorus faldermanni (Faldermann, 1837) - S Kazakhstan, Qyzylorda reg., Shieli distr., 6 km SE Tartogay vill., right bank of Syr Darya riv., sandy tugai, 44°24'00"N, 66°16'46"E, h=140 m, 17.06.2024, 1 female (AG), A.I. Gubin leg. The beetle was observed during the day on the leaves of *Elaeagnus angustifolia* L.

- S Kazakhstan, Qyzylorda reg., Kazaly distr., S env. of Kazalinsk, right bank of Syr Darya riv., 45°44'31"N, 62°05'29"E, h=66 m, tugai, 18.06.2024, 1 male, 1 female (AG), A.I. Gubin leg.; 1 female (OP), O.V. Pak leg. The beetles were observed during the day on the leaves of *Elaeagnus angustifolia* L.

Phytoecia pustulata murina (Marseul, 1870) - Russia, Republic of Kalmykia, 8 km E Elista, 46°18'52"N, 44°23'02"E, h=149 m, 20.05.2024; 1 male, 1 female (AG), A.I. Gubin leg. swipping the grass.

Agapanthia violacea (Fabricius, 1775) - Russia, Astrakhan reg., Krasnoyarsky distr., 8 km NE Dosang vill. env., 46°55'24"N, 47°53'35"E, left bank of Akhtuba riv., 22.05.2024; 1 female (VP), V.L. Perepechayenko leg.

Agapanthia soror Kraatz, 1882 - S Kazakhstan, Jambyl reg., Talas distr., NW Karatau Mt. R., 7.5 km S Karaoi vill., 43°13'02"N, 70°04'42"E, h=908 m, 05.06.2024; 2 males, 2 females, (VP, MD), V.L. Perepechayenko leg.; 8 males, 7 females (AG), A.I. Gubin leg.; 3 males, 2 females (OP), O.V. Pak leg. The beetles were collected during the day on the stems of *Prangos pabularia* Lindl. and in flight, actively flying and mating.

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- S Kazakhstan, Turkistan reg., Baydibek distr., 5 km N Shajan vill., 43°04'49"N, 69°23'45"E, h=393 m, 05.06.2024, 1 male (AG), A.I. Gubin leg. The beetle was caught in flight during the day in thickets of *Alcea nudiflora* (Lindl.) Boiss.
- S Kazakhstan, Turkistan reg., Baydibek distr., NW Karatau Mt. R., 4 km E Turakty vill., 42°51'48"N, 69°46'27"E, h=590 m, 06.06.2024, 1 female (AG), A.I. Gubin leg.
- S Kazakhstan, Jambyl reg., Jualy distr., 6.5 km NW Karabastau vill., Bilikol lake, 42°58'22"N, 70°45'29"E, h=439 m, 06.06.2024; 1 male (AG), A.I. Gubin leg.
- S Kazakhstan, Almaty reg., Jambyl distr., 12.5 km W Kenen vill., Chu-Ili Mt. R., 43°25'57"N, 74°54'56"E, h=1017 m, 15.06.2024; 1 female (AG), A.I. Gubin leg. The beetle caught during the day on the stem of *Prangos pabularia* Lindl.

Agapanthia dahli dahli (Richter, 1820) - Russia, Astrakhan reg., Krasnoyarsky distr., Zaykovka vill. env., 46°35'01"N, 48°18'01"E, h= -22 m, 22.05.2024, stem of *Carduus* sp.; 1 female (AG), A.I. Gubin leg.

- Russia, Astrakhan reg., Krasnoyarsky distr., 8 km NE Dosang vill. env., 46°55'24"N, 47°53'35"E, left bank of Akhtuba riv., 22.05.2024; 1 male (VP), V.L. Perepechayenko leg.
- W Kazakhstan, Aktobe reg., Temir distr., Sagashili (Pokrovka) vill. env., 49°18'50"N, 57°02'33"E, h= 242 m, Temir riv. bank, 25.05.2024; 5 males, 3 females (AG), A.I. Gubin leg.; 1 male, 1 female (VP), V.L. Perepechayenko leg.
- S Kazakhstan, Turkistan reg., Sozak distr., NW Karatau Mt. R., 10 km E Taskomirsai vill., 43°27'02"N, 69°23'35"E, h=757 m, 05.06.2024, stems of *Carduus* sp.; 2 males, 1 female (AG), A.I. Gubin leg.

Agapanthia dahli alexandris Pic, 1901 - S Kazakhstan, Jambyl reg., Talas distr., NW Karatau Mt. R., 7.5 km S Karaoi vill., 43°13'02"N, 70°04'42"E, h=908 m (fig. 11), stems of *Alcea nudiflora* (Lindl.) Boiss., 05.06.2024; 3 females (AG), A.I. Gubin leg.; 3 males, 3 females (OP), O.V. Pak leg.

- S Kazakhstan, Turkistan reg., NW Karatau Mt. R., Kentau distr., 5 km S Ashysay vill., Ashysay canyon, 43°30'47"N,

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68°52'21"E, h=750 m, mountain meadows, 03.06.2024,
1 female (OP), O.V. Pak leg.

- S Kazakhstan, Jambyl reg., Jualy distr., 6.5 km NW Karabastau vill., Bilikol lake, 42°58'22"N, 70°45'29"E, h= 439 m, 06.06.2024; 1 male (AG), A.I. Gubin leg.
- S Kazakhstan, Turkistan reg., Baydibek distr., 5 km N Shajan vill., 43°04'49"N, 69°23'45"E, h=393 m, stem of *Alcea nudiflora* (Lindl.) Boiss. 05.06.2024; 1 male, A.I. Gubin leg.

Agapanthia turanica Plavilstshikov, 1929 - S Kazakhstan, Jambyl reg., Talas distr., NW Karatau Mt. R., 7.5 km S Karaoi vill., 43°13'02"N, 70°04'42"E, h=908 m, 05.06.2024; 2 males, 4 females, (VP, MD), V.L. Perepechayenko leg.



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Fig. 7. *Psilotarsus hirticollis nudicollis* Danilevsky, 2000: female, S Kazakhstan, Jambyl reg., Jualy distr., 6.5 km NW Karabastau vill., Bilikol lake, 42°58'22"N, 70°45'29"E, h=439 m, 06.06.2024, photo by A.I. Gubin.

Fig. 8. *Vadonia bipunctata kalmykia* Danilevsky, **ssp. n.**: male and female, Russia, Republic of Kalmykia, Yashkul'sky distr., Khulkhuta vill. env., 46°19'19"N, 46°22'16"E, h= -18 m, sands, photo by A.I. Gubin.

Fig. 9. *Anoplistes jacobsoni* Baeckmann, 1904: male, W Kazakhstan, env. of Kazalinsk, right bank of Syr Darya riv., tugai forest, 45°44'31"N, 62°05'29"E, h=66 m, 18.06.2024, photo by A.I. Gubin.

Fig. 10. *Xylotrechus (Turanoclytus) asellus* (Thieme, 1881): male and female, S Kazakhstan, Jambyl reg., Jualy distr., 6.5 km NW Karabastau vill., Bilikol lake, 42°58'22"N, 70°45'29"E, h=439 m, 06.06.2024, photo by A.I. Gubin.

Fig. 11. S Kazakhstan, Jambyl reg., Talas distr., NW Karatau Mt. R., 7.5 km S Karaoi vill., 43°13'02"N, 70°04'42"E, h=908 m - locality of *Agapanthia dahli alexandris* - photo by A.I. Gubin.

Fig. 12. S Kazakhstan, Turkistan reg., Baydibek distr., NW Karatau Mt. R., 6 km NE Terekty vill., Boralday riv. canyon, 42°52'14"N, 69°49'51"E, h=511 m, locality of *Psilotarsus hirticollis nudicollis*, photo by A.I. Gubin.

Fig. 13. S Russia, Republic of Kalmykia, Yashkul'sky distr., Khulkhuta vill. env., 46°19'19"N, 46°22'16"E, h= -18 m, sands, type locality of *Vadonia bipunctata kalmykia* Danilevsky, **ssp. n.** photo by A.I. Gubin.

Fig. 14. S Kazakhstan, Qyzylorda reg., 5 km SW Zhosaly, 45°27'15"N, 64°3'22"E, h=100 m, locality of *Aromia moschata vetusta*, photo by A.I. Gubin.

REFERENCES

- Danilevsky M.L. 2014. Longicorn beetles (Coleoptera, Cerambycoidea) of Russia and adjacent countries. Part 1. IAE, Moscow, 522 pp. [in Russian]
- Danilevsky M.L. 2020 (ed.). Catalogue of Palaearctic Coleoptera, vol. 6 (1), Chrysomeloidea I (Vesperidae, Disteniidae, Cerambycidae). Revised and updated edition. Leiden / Boston: Brill, i-xxii, 1-712.
- Fabricius J.C. 1781. Species insectorum exhibens eorum differentias specificas, synonyma auctorum, loca natalia, metamorphosis, adiectis observationibus. Tome I. Hamburgi et Kilonii: Carol Ernest Bohni, viii + 552 pp.
- Pic M. 1941. Opuscula martialis II.- L'Échange, Revue Linnéenne. Numéro Spécial. 2: 1-16.

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