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Apatophysis Chevrolat, 1860 (Coleoptera: Cerambycidae) of Russia and adjacent regions

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Abstract. Sixteen species of two subgenera are recognized in the territory of the former USSR, Turkey, Mongolia and China. Four species are described as new: *A. vedica* sp. n. (Armenia and north-east Turkey); *A. karsica* sp. n. (north-east Turkey, Kars), *A. kadleci* sp. n. (south-east Turkey) and *A. hotanica* sp. n. (north-west China). All records of *A. caspica* Sem. for Turkey and Armenia were connected with wrong identifications of certain new species. One species *A. margiana* Semenov-Tian-Shanskij et Stshegoleva-Barovskaja (= *A. plavilstshikovi* Miroshnikov, syn. n.) is included in the subgenus *Angustephysis* Pic, 1956, rest. n. (type species: *Apatophysis richteri* Pic, 1956 from south Iran). *A. serricornis* (Gebler, 1843) = *A. tomentosa* (Gebler, 1844) = *A. obtusicollis* Motschulsky, 1860 = *A. mongolica* Semenov, 1901 = *A. kadyrbekovi* Kadlec, 2006, syn. n. *A. caspica* Sem. is recorded for south Zagros Mts. (Iran). Lectotypes are designated for: *A. komarowi* Semenov, 1889; *A. caspica* Semenov, 1901; *A. mongolica* Semenov, 1901; *A. kashgarica* Semenov, 1901; *A. centralis* Semenov, 1901; *A. baeckmanniana* Semenov, 1907; *A. margiana* Semenov-Tian-Shanskij et Stshegoleva-Barovskaja, 1936; *A. anatolica* Heyrovský, 1938; A. *pavlovskii* Plavilstshikov, 1954. Several new valuable distinguishing characters are introduced: very dense short hair brushes of all tibiae (subgen. *Angustephysis*), long femora hair brushes (*A. caspica*-group of species), central hair patches of abdominal sternites (*A. pavlovskii* and *A. serricornis*-group of species).

INTRODUCTION

The present review covers all territory of the former USSR, Mongolia, China and Turkey. The genus *Apatophysis* Chevrolat, 1860 is represented in the region by 16 species of two subgenera. Two previous contemporaneous detailed revisions (Semenov-Tian-Shanskij & Stshegoleva-Barovskaja, 1936; Plavilstshikov, 1936) are renovated with new geographical, morphological and taxonomy data. Newly discovered significant morphological characters (femora and tibiae hair brushes, sternite hair patches) make it possible to arrange natural groups of species and simplify species identification.

All species of the region were regarded up to now as members of the nominative subgenus, but in fact one of them belong to the subgenus *Angustephysis* Pic, 1956, name rest. described from south Iran and never after description accepted as a real subgenus.

Several *Apatophysis* species can live together (sympatric). Type series of certain names include (or could include) different species, so lectotypes designations are desirable.

ABBREVIATIONS OF COLLECTIONS

BMNH British Museum of Natural History, London;
MD Mikhail Danilevsky, Moscow, Russia;
MK Mark Kalashian, Erevan, Armenia;
NMP National Museum, Prague-Kunratice, Czech Republic;
PK Petr Kabátek, Prague, Czech Republic;
SM Sergei Murzin, Moscow, Russia;
SK Stanislav Kadlec, Litvínov, Czech Republic;
ZIN Zoological Institute of Sankt-Petersburg, Russia;
ZMM Zoological Museum of Moscow State University, Russia.

RESULTS

Apatophysis Chevrolat, 1860

Apatophysis Chevrolat, 1860: 304-395; Lacordaire, 1869: 233-234 (in "Tribu Apatophysides"); Heyden, 1880-1881: 192; Ganglbauer, 1882: 686, 719 (in "Subfamilie: Cerambycitae, Hauptgruppe: Lepturini"); Semenov-Tian-Shanskij & Stshegoleva-Barovskaja, 1936: 62 (in Lepturini); Plavilstshikov, 1936: 109 (in Xylosteini, Cerambycinae); Danilevsky, 1979: 827 (in Apatophysinae); 1988: 125 (in Apatophyseinae); Lobanov, Danilevsky & Murzin, 1981: 794 (in Apatophiseini, Apatophyseinae); Švácha et al., 1997: 338 (in Apatophyseinae).
Centrodera, Gressitt, 1951, part. (in Xylosteini, Lepturinae).

Type species: *Apatophysis toxotoides* Chevrolat, 1860 (monobasic) = *Polyarthron barbarum* Lucas, 1858.

The genus belongs to the subfamily Apatophyseinae (close to Cerambycinae) introduced by Danilevsky (1979). The name was formed on the base of a tribal name Apatophysides Lacordaire, 1869. The subfamily also includes a lot of genera from Madagascar (Švácha et al., 1997), which were traditionally attributed to Lepturinae.

The genus is represented in Palaearctic region by three subgenera. One of them - *Protapatophysis* Semenov-Tian-Shanskij et Stshegoleva-Barovskaja, 1936 from north India and Pakistan is not represented in the region covered by present review. The main character of *Protapatophysis* concerns female morphology: posterior coxae are not distant, with narrow sharpened intercoxal process; female abdomen nearly totally covered by elytra. Both males and females in *Protapatophysis* have totally closed anterior coxal cavities (sometimes narrowly opened in certain specimens), while in *Apatophysis* s. str. and in *Angustephysis* anterior coxal cavities are always widely opened. Tarsal pads strongly developed, totally cover tarsi ventrally (specially in anterior tarsi), without shining central stripe; lobes of 3rd tarsal joint never strongly attenuated; but strongly developed tarsi pads and obtuse lobes of 3rd tarsal joint can be observed in certain species of the nominative subgenus.

Remark. The type species of the genus *Apatophysis* was several times (Lobanov et al., 1981; Danilevsky, 1988) wrongly marked as *Leptura serricornis* Gebler, 1843. It was just citation of a wrong note by Gressitt (1951: 48).

Apatophysis (s. str.)

Diagnosis. Body from intermediate size to small, in males usually more or less attenuated posteriorly; pronotal dorsal tubercles usually well developed; elytral pubescence consists of relatively long recumbent setae; pads of all tarsi are represented by two longitudinal portions separated by wide median line; internal surface of all tibiae without dense brushes of short setae; tibiae nearly always straight (only in *A. sieversi* middle and hind tibiae curved), not dilated distally; posterior coxae in females are strongly distant by wide process of abdominal sternite; in females abdomen strongly exposed beyond elytra.

Bionomy. Most of species are connected with desert and hemi-desert landscapes. Only one species of the area - *A. pavlovskii* Plav. - is definitely known as inhabitant of broadleaf forests (Photo 1). *A. sinica* is distributed in mountain humid bush landscapes (Photo 4). All known larvae feed in roots of shrubs and trees. The seasonal activity is rather different in different species. Imagoes of most species are active at the end of summer, in August-September (*A. baeckmanniana*, *A. pavlovskii*), others are active in spring and in the beginning of summer, in April-May (*A. margiana*), but the most common and most numerous in the collections - *A. caspica* was collected from April to August. *A. pavlovskii* and *A. baeckmanniana* are active at night and are easily attracted by light. *A. margina* was collected by me in sandy dunes near Bairam-Ali at the day time. *A. vedica* was regularly collected at light by M. Kalashian (personal message). Many *Apatophysis* species are extreamly rare in collections. Some of them (*A. kashgarica, A. roborowskii, A. hotanica*) are still known by single old type specimens.

Remark. At least 17 species can be attributed now to the nominative subgenus: *A.* (s. str.) *pavlovskii* Plavilstshikov, 1954; *A.* (s. str.) *serricornis* (Gebler, 1843); *A.* (s. str.) *kashgarica* Semenov, 1901; *A.* (s. str.) *roborowskii* Semenov, 1901; *A.* (s. str.) *centralis* Semenov, 1901; *A.* (s. str.) *sinica* Semenov, 1901; *A.* (s. str.) *sieversi* Ganglbauer, 1887; *A. laosensis* Gressitt et Rondon, 1970; *A.* (s. str.) *barbara* (Lucas, 1858); *A.* (s. str.) *caspica* Semenov, 1901; *A.* (s. str.) *vedica* sp. n.; *A.* (s. str.) *karsica* sp. n.; *A.* (s. str.) *kadleci* sp. n.; *A.* (s. str.) *anatolica* Heyrovský, 1938; *A.* (s. str.) *baeckmanniana* Semenov, 1907; *A.* (s. str.) *komarowi* Semenov, 1889; *A. hotanica,* sp. n. *A. laosensis* (Laos, Sithandone Prov., Ile de Khong) is not known to me, but according to the original description it could be provisionally joined to the nominative subgenus.

1. *Apatophysis* (s. str.) *pavlovskii* Plavilstshikov, 1954
(Fig. 1)

Apatophysis pavlovskii Plavilstshikov, 1954: 470 (Tadzhikistan, Gissar ridge, Kondara); Danilevsky, 1979: 821 (female, larvae, pupa); 1988: 128 (larvae); Lobanov et al., 1981: 794.

Type locality (Photo 1). Tadzhikistan, Gissar ridge, Kondara defile, according to the lectotype label (present designation).

Material studied. 1 ♂, lectotype (present designation) with three labels available: (1) “Type”[red]; (2) “Gissar ridge, Kondara defile [1100-1200 m], 9.viii.1953, A. Tzvetaev;

(3) "*Apatophysis pavlovskii* m. N. Plavilstshikov det. 1953" - ZMM; 2 ♂♂, paralectotypes (present designation), each with three labels; (1) "Type"[red], (2) "Gissar ridge, Kondara defile, 9.viii.1953, A. Tzvetaev; (3) "*Apatophysis pavlovskii* m., N. Plavilstshikov det. 1953" - ZMM; 1 ♂, paralectotype (present designation) with same labels - ZIN; 1 ♂, paralectotype (present designation) with 3 labels, (1)"cotypus"[red], (2) ["Gissar ridge, Takob defile, 2100m, 10.viii.1953, A. Tzvetaev leg."] [in Russian], (3)"*Apatophysis pavlovskii* m. i.1954 N. Plavilstshikov det." - ZIN; 13 ♂♂, "Gissar ridge, Kondara defile, 9.viii.1953, A. Tzvetaev - ZMM; 1 ♂, "Gissar ridge, Varzob river, Gushary defile, 19.viii.1953, A. Tzvetaev - ZMM; 1 ♂, "Gissar ridge, Kharingamskoe defile, 12.viii.1958, A. Tzvetaev - ZMM; 2 ♂♂, Tadzhikistan, Gissar ridge, Kondara, 25.viii.1937 and 5.viii.1940, Gussakovsky leg. - ZIN; 1 ♂, same locality, 9.viii.1956, P. Kulinich leg. - ZIN; 1 ♂, same locality, 15.viii.1970, V. Yanushev leg. - SM; 1 ♂, Tadzhikistan, Gissar ridge, Kondara, Kvak, 12.viii.1953 - ZIN; 9 ♂♂, Tadzhikistan, Ramit, 1500m, 8-19.viii.1980, M. Danilevsky leg. - MD, SM; 2 ♂♂, same locality, 12.viii.1980, M. Danilevsky leg. - ZIN; 1 ♀, same locality, soil cell was collected 28.v.1978 in roots of *Ulmus*, imago emerged 14.ix.1978 - MD; 3 ♂♂, Tadzhikistan, Karategin ridge, Sangikar river valley, 1700 m, 2-10.viii.1993, Yu. Shchetkin leg. - MD.

Diagnosis. Body length in males: 13.4-20.5 mm; body width: 4.5-6.9 mm; body length of available female (from mandible apices to posterior margin of the last abdominal tergite) 24.0 m; body width (at humeri): 7.0 mm (the length from mandible apices to elytral apices: 19.5 mm).

Males (Fig. 1a); head about 1.5 times longer than basal width; eyes very big, the distance between dorsal eye lobes about as long as the thickness of 1st antennal joint or less, but sometimes about 1.2 times more; the distance between ventral eye lobes about same or a little longer; antennae long, extend beyond elytral apices by two or three apical joints; 4th antennal joint always distinctly longer than 3rd; usually longer than 1st, or about equal to 1st, but in small specimens can be shorter; 3rd and 4th joints combined about as long as 5th or a little shorter; thorax transverse, usually 1.2-1.5 times shorter than basal width; lateral thoracic tubercles usually short and wide; pronotum with very dense conjugated punctation, covered with very fine recumbent pubescence without erect setae dorsally, with distinct paired lateral convexities, without deep depressions inside each pair; central posterior pronotal convexity present or absent; central smooth posterior area absent; elytra elongated, usually from about 2.2 to 2.3 times longer than wide; with sides hardly converging posteriorly; elytral costae slightly visible or indistinct; elytral pubescence very fine, consisting of very short setae, each setae about as long as width of a puncture; without erect setae; punctation distinct, moderately dense, becoming sparser posteriorly and disappearing near apices; glabrous areas around punctures small but present; episternum of metathorax triangular with sides strongly converging posteriorly; hind and middle femora covered internally with dense recumbent setae a little similar to hair brushes of *A. caspica*; 3rd joint of hind tarsi deeply emarginated to about middle; lobes of 3rd joint of all tarsi strongly attenuated, but never bearing apical spines; all tarsi ventrally with central shining line covered with fine recumbent pubescence; abdominal sternites with dense central hair patches of long erect setae.

Female (Fig. 1b). Head about 1.4 times longer than basal width; the distance between dorsal eye lobes 2.5 times more than thickness of 1st antennal joint; the distance between

ventral eye lobes about 2.9 times more than thickness of 1st antennal joint; antennae shorter, reach posterior elytral third; 4th antennal joint a little longer than 3rd; shorter than 1st; 3rd and 4th joints combined longer than 5th; thorax strongly transverse, about 1.5 times wider than long; lateral thoracic tubercles wide and short; pronotum with very dense irregular punctation, with fine dense pubescence; pronotal sculpture obliterated, nearly indistinct; central smooth posterior area absent; elytra a little widened after middle; about 2 times longer than width at humeri; elytral punctation small, but dense and very distinct, disappearing near apices; with very fine recumbent pubescence, each seta about as long as width of a puncture; without erect hairs; all femora without hair brushes; 3rd joint of hind tarsi emarginated to about middle; lobes of 3rd joint of all tarsi strongly attenuated, but without apical spines; all tarsi ventrally with central shining line covered with fine recumbent pubescence; abdominal sternites with very fine, short, but dense pubescence.

Distribution, Map 6(1-4). The species is an endemic of Tadzhikistan. It is known from Gissar ridge: Kondara [about 25 km N Dushanbe] - type locality, ZMM; Varsob river, Gushary defile [about 15 km N Kondara] - ZMM; Ramit [about 50 km NE Dushanbe] - MD; and Karategin ridge: Sangikar river [northwards Navabad] - MD.

Bionomy. A single species of the subgenus, which lives in broad-leaved mounted forests (at altitude about 1100-1200m above the level of the sea) which consist of *Juglans, Acer, Ulmus, Crataegus* and so on (Photo 1). Larvae in decaying roots, pupae in soil cells. Males are attracted by light at the end of summer. All dated specimens were collected in August. Several specimens were discovered near upper border of the forest zone at about 2200 m.

Remarks. The species is characterized by big size and nearly parallel-sided elytra in males. It is a single Palaearctic species of the subgenus which is connected with broad-leaved forests. Still it can not be separated in a new subgenus, as demonstrates distinct morphological affinities to *A. serricornis*. Males of *A. pavlovskii* have same abdominal hair patches as in *A. serricornis* and with very similar triangular shape of metathorax episterna. Besides 3rd antennal joint in males of *A. pavlovskii* is always distinctly shorter than 4th, though in lesser extent than in *A. serricornis*.

2. *Apatophysis* (s. str.) *serricornis* (Gebler, 1843)

(Fig. 2)

Pachyta serricornis Gebler, 1843: 39 ("in deserto ad lac Alakul")

Toxotus tomentosus Gebler, 1844: 105 ("Ad fl. Ajagus et Tschui").

Pachyta spinicornis Gebler, 1859: 349 (misprint); Kraatz, 1879: 79 (Alakul).

Psilotarsus obtusicollis Motschulsky, 1860: 538 ("steppe orientales des Kirghises"); 1861: 444.

Apatophysis tomentosus, Faust, 1877: 111 (= *Psilotarsus obtusicollis* Motsch. = *Apatophysis toxotoides* Chevr.), part.; Heyden, 1880-1881: 192; Ganglbauer, 1888: 193 [Turkmenistan, " = *Prionus* (*Psilotarsus*) *obtusicollis* Motschulsky"], part.

Apatophysis tomentosa, Plavilstshiov, 1936: 113, 494 (= *obtusicollis* Motsch.), part.; Kostin, 1973: 131, part.

Apatophysis mongolica Semenov, 1901: 28 ("Hab. in Mongolia usque ad Dshungariae oram orientalem: des. Gobi int. Njursu et Dshandshicho jug. Bajtyk-Bogdo; Gutshen; Mongolia sept.-occid."), **syn. n.**; Aurivillius, 1912: 160 („Mongolei"); Plavilstshikov, 1936: 115, 495, part.; Namhaidorzh 1972: 499; 1976: 202; Kostin, 1973: 131, part.; Lobanov et al., 1981: 794, part.; Danilevsky, 1988: 128-129 (larvae); Hua, 2002: 194.

Apatophysis (s. str.) *mongolica,* Semenov-Tian-Shanskij & Stshegoleva-Barovskaja, 1936: 67, 71 (type locality: China, between Niursu and Dzhan-dzhiho, southwards Baityk-Bogdo ridge), part.

Apatophysis (s. str.) *tomentosa,* Semenov-Tian-Shanskij & Stshegoleva-Barovskaja, 1936: 67, 71 (= ?*serricornis* Gebl. = ?*obtusicollis* Motsch.), part.
Centrodera (*Apatophysis*) *serricornis,* Gressitt, 1951: 48-49 (= *tomentosa* Gebl.), part.
Centrodera (*Apatophysis*) *mongolica,* Gressitt, 1951: 48-49, part.
Apatophysis serricornis, Aurivillius, 1912: 160 (= *obtusicollis* Motsch. = *spinicornis* Gebl. = *tomentosa* Gebl.); Plavilstshikov, 1932: 188 („SW Siberia, Heptapotamia"); Heyrovský, 1968: 235 (Mongolia, Kobd aimak, Bulgan); Lobanov et al., 1981: 794, part.; Hua, 2002: 195, part.
Apatophysis kadyrbekovi Kadlec, 2006: 1 ("SE Kazakhstan, r. Ili, env. Borandisu"), **syn. n.**

Type locality. According to the original description the species was described from "lac Alakul"; according to Semenov-Tian-Shanskij & Stshegoleva-Barovskaja (1936: 71) Alakul is the eastern bay of Balkhash lake. Anyway the lake Alakol is situated in about same area.

Material studied. 1 ♂, China, "Ka-tu-hu [or Ka-tu-ku, south Alashan - according to the diary of Kozlov's expedition], 9.vii.1908 [the date published by Semenov-Tian-Shanskij & Stshegoleva-Barovskaja (1936) is 22.vii.1908], Kozlov's exp." - ZIN; 1 ♂, holotype of *Toxotus tomentosus* Gebl. with one label: "*Toxotus tomentosus* Gebl. Ajaucus [Ajaguz]/Schrenk, F." - ZIN; 2 ♂♂, lectotype and paralectotype of *A. mongolica* Sem., present designation, ["Gobi, between Njursu and Dshandshiho, 10.viii.1898, Clemenz][in Russian] - ZIN; 1 ♂, paralectotype (present designation) of *A. mongolica* Sem., ["Gutshen, 13-24.viii.1889, Gr.-Grzhimailo leg."] [in Russian] - ZIN; 1 ♂, paralectotype (present designation) of *A. mongolica* Sem. with three labels: (1 - in bad condition and so, hardly readable)"Mongol. septent., Potanin, E. Mus. Acad. rec.", (2)"*Apatophysis tomentosa* Gebl., et. 5.xi.88", (3)"*Apatophysis mongolica* m. typ. ii.01 A. Semenov det." - ZIN; 1 ♂, ["NW Mongolia, near Uliasutaj, 20.viii.1877, Potanin leg." - ZIN; 1 ♂, Kazakhstan, ["Dzharkent distr., Ily river, Riukbeil leg."] [in Russian] - ZIN; 1 ♂, Kazakhstan, ["Dzharkent distr., Temerlik-Kopaly, 14.viii.1908, Zenkov leg."] [in Russian] - ZIN; 2 ♂♂, "China Turkestan, Barkul, vii.1910, Riukbeil leg."] [in Russian] - ZIN; 1 ♂, China, ["Ordos, right bank of Yellow river, 22-25.v.08, Kozlov's exp."] [in Russian] - ZIN; 1 ♀, China, ["South Alashan, Dolone-Gol river, 13.viiI.08, Kozlov's exp." - ZIN; 1 ♂, ["Central Mongolia, Tzosto, 28.vi-2.viiI.1909, Kozlov's exp."] [in Russian] - ZIN; 1 ♂with three labels, (1) "China Turkestan, Barkul, viii.1910, Riukbeil", (2) "*Apatophysis barkulica* [nomen nudum] typ. m. G. Suvorov det.", (3) "*Apatophysis baeckmanniana* Sem. W.Shawrow det." - MD; 1 ♂, Kazakhstan, Dzharkent env., 14.viii.1936 - SM; 1 ♂, Mongolia, Central Gobi aimak, 1966 (ZMM); 1 ♂, Mongolia, Dornogov [East-Gobi aimak], 5 km NW Tenger-Nur, 25.vi.1971, I. M. Kerzhner, A.F. Emelianov - MD; 1 ♀, same date and locality, M.A. Kozlov leg. - ZIN; 1 ♀, Mongolia, Central Gobi, 1.vii.1956 - SM; 8 ♂♂, Mongolia, South-Gobi aimak, Dzemgin-Gobi, 25 km SSW Khajlastyn-Khuduk, 20-21.vi.1971, I. Kerzhner, A. Emelianov and L. Chorsomzhav leg. - ZIN; 2 ♀♀, Mongolia, East-Gobi aimak, 5 km W Tenger-Nur, 25.vi.1971, M. A. Kozlov and A. Emelianov leg. - ZIN; 1 ♂, Mongolia, Kobd aimak, 20 km SE Altaj, Elkhon, 1200 m, 31.vii.1976, L. Medvedev leg. - SM; 1 ♂, Mongolia, Kobd aimak, 80 km SW Altaj, 1200 m, 1.viii.1976, L. Medvedev leg. - MD; 1 ♂, Kazakhstan, Ily river, 40 km S Panfilov (now Dzharkent), 21.vi.1988, V. Tuzov leg.; 1 ♂, holotype of *A. kadyrbekovi* Kadlec, Kazakhstan, Borandisu env., 29.vii.1994, R. Kadyrbekov leg. - SK; 3 ♂♂, Kazakhstan, Chilik env. (near type locality of *A. kadyrbekovi*), 2.viii.1999 - MD; 1 ♂, Kazakhstan, Alma-Ata reg., Kapchagai, 7.viii.2000 – MD.

Diagnosis. Body length of available males: 11.2-17.0 mm; body width: 3.5-5.6 mm; body length of available females (from mandible apices to posterior margin of the last abdominal tergite) 15.5-20.5 mm; body width: 4.9-6.6 mm. Soft female abdomen (and ovipositor) can be more or less strongly exposed beyond elytral apices; the length of available females from mandible apices to elytral apices: 14.0-18.2 mm. According to Semenov-Tian-Shanskij & Stshegoleva-Barovskaja (1936), maximal body length in males can be 17.5 mm, width - 5.5 mm. The smallest known specimen of *A. serricornis* (described as A. *kadyrbekovi* Kadlec, 2006, Fig. 2d) is 10.8 mm long and 3.6mm wide (Kadlec, 2006).

Males (Figs 2a-2d, 2h); head relatively short, about 1.4-1.5 times longer than basal width; eyes moderately big, the distance between dorsal eye lobes from 1.4 to 1.7 times more than thickness of 1st antennal joint, the distance between ventral eye lobes from small to moderately big from 1.1 to 1.6 times more than thickness of 1st antennal joint (certain Mongolian males); antennae moderately longer than body, usually extend beyond elytral apices by two or three apical joints (that is not depend on the size of specimens); 3rd antennal joint very short (the most important character of the species), usually 1.3-1.7 times longer than wide, sometimes about as long as wide (the holotype of *A. kadyrbekovi*, but also a holotype of *Toxotus tomentosus* and two males from near Kapchagai and Chilik); from 1.8 to 2.3 times shorter than 4th joint; 4th joint usually distinctly longer than 1st, but sometimes about as long as 1st; thorax slightly transverse, usually 1.2-1.3 times shorter than basal width; lateral thoracic tubercles short but well developed, slightly sharpened; pronotum with very dense conjugated punctation, covered with relatively long recumbent pubescence, without erect setae (several erect setae present only laterally), with distinct paired lateral convexities; depressions inside each pair absent; central posterior pronotal convexity usually absent, but sometimes distinct; central smooth posterior area often distinct; elytra from 2.0 to 2.3 (including the holotype of *A. kadyrbekovi*) times longer than wide (small specimens relatively shorter); elytral costae more or less visible, but sometimes indistinct (specially in small specimens); elytral punctation is always relatively rough anteriorly, becoming smaller near middle and indistinct near apices; deep dense punctures usually disappear near middle in Mongolian specimens (this character was accepted by Plavilstshikov as typical for his "*A. tomentosa*"; but in the holotype of *Toxotus tomentosus* elytral punctation is more stretched posteriorly than in any of Mongolian specimens, and not arranged longitudinally), but in Kazakhstan specimens elytral punctation usually more or less distributed along posterior elytral third; no specimens with longitudinally arranged punctation is known to me (this character was proposed for *A. tomentosus* by Plavilstshikov); elytral surface with distinct recumbent pubescence, without erect hairs near scutellum; episternum of metathorax elongated, but triangular, strongly narrowed posteriorly, with converging sides; all femora without hair brushes; 3rd joint of hind tarsi emarginated to about middle or deeper; lobes of 3rd joint of all tarsi strongly attenuated with distinct apical spines; ventral tarsal surface with shining, partly glabrous central line; abdominal sternites with distinct central dense patches of long setae (Fig. 2h).

Females (Figs 2f-2g). Head elongated, about 1.3-1.6 times longer than basal width; eyes moderately big, the distance between dorsal eye lobes 1.8-2.0 times more than thickness of 1st antennal joint; the distance between ventral eye lobes 2.1-2.5 times more than thickness of 1st antennal joint; antennae do not reach a little elytral apices; 3rd antennal joint about 1.5 times longer than wide, a little shorter than 1st, 1.7 times shorter than 4th; both combined

a little shorter than 5th; 4th joint longer than 1st; thorax transverse, 1.2 times wider than long; lateral thoracic tubercles short and obtuse; pronotum with fine irregular sculpture, but without distinct punctures, covered with short scattered recumbent setae, with obliterated paired lateral convexities, with shallow depression inside each pair; central posterior pronotal convexity indistinct; central smooth posterior area absent; elytra nearly parallel-sided; covered with very fine recumbent pubescence, without erect setae; about 1.9-2 times longer than width at humeri; elytral punctation distinct to about posterior third, disappear in posterior fourth; all femora without hair brushes; 3rd joint of hind tarsi emarginated to about middle; lobes of 3rd joint of all tarsi strongly attenuated with distinct apical spines; ventral tarsal surface with shining, partly glabrous central line; abdominal sternites with fine regular recumbent pubescence.

Distribution, Map 1. South-east Kazakhstan to the east from Ily river valley; north-east China: Dzhungaria, Alashan, Ordos; south and west parts of the Republic of Mongolia. Known localities are: Kazakhstan: north environs of Alakol lake (type locality of *Pachyta serricornis*); Ajaguz river - the east environs of Balkhash lake (ZIN, type locality of *Toxotus tomentosus?*); Kapchagai environs (MD); Chilik env. (MD); Chilik env., "Borandisu" [Barandaisu, 43˚40'N, 78˚35E] (Kadlec, 2006, as *A. kadyrbekovi*; SK); Dzharkent environs near Ily (SM, ZIN, Semenov-Tian-Shanskij & Stshegoleva-Barovskaja, 1936); Dzharkent distr., "Temerlik-Kopaly" (ZIN); China: Dzhungaria, Guchen (ZIN; Semenov, 1901; Semenov-Tian-Shanskij & Stshegoleva-Barovskaja, 1936); Dzhungaria, Barkul lake (MD, ZIN, Semenov-Tian-Shanskij & Stshegoleva-Barovskaja, 1936); south-east part of Baityk-Bogdo ridge "between Njursu et Dshandshicho" - type locality of *A. mongolica* (ZIN, Semenov, 1901; Semenov-Tian-Shanskij & Stshegoleva-Barovskaja, 1936); Ordos, right bank of Huanhe (or Yellow river) "Tzgan-Tohoi" (ZIN, Semenov-Tian-Shanskij & Stshegoleva-Barovskaja, 1936); south of Alashan ridge, Dolone-gol (ZIN, Semenov-Tian-Shanskij & Stshegoleva-Barovskaja, 1936); "Ka-tu-ku" or "Ka-tu-hu" [south Alashan - according to the diary of Kozlov's expedition (Bianchi, 1916: 89-102)] (ZIN; Semenov-Tian-Shanskij & Stshegoleva-Barovskaja, 1936); Mongolia: Kobd aimak, Elkhon, 20 km SE Altaj (SM, Namhaidorzh, 1972); 80 km SW Altaj - (MD), Dzabkhan aimak: Shuryk near Uliasutai (ZIN; Semenov-Tian-Shanskij & Stshegoleva-Barovskaja, 1936); South-Gobi aimak: Tzosto [south of Gurvan-Saikhan ridge] (ZIN, Semenov-Tian-Shanskij & Stshegoleva-Barovskaja, 1936); Gurvan-Tes (Namhaidorzh, 1972); 20 km WSW Bajan-Dalaj (Namhaidorzh, 1972); Khan-Bogdo somon, 30 km ESE Nomgon (Namhaidorzh, 1976); 25 km S Khan-Bogdo, Mant (Namhaidorzh, 1976); Dzemgijn-Gobi, 25 km SE Hailastyn-Huduk well (ZIN, Namhaidorzh, 1976); East-Gobi aimak: 5 km NW Tenger-Nur lake (MD, ZIN, Namhaidorzh, 1976).

The records for Tchu river valley (as for *A. tomentosus*) by many authors (Plavilstshikov, 1936; Semenov-Tian-Shanskij & Stshegoleva-Barovskaja, 1936; Kostin, 1973) was based on a single phrase from the original description of *Toxotus tomentosus* Gebler, 1844: "Ad fl. Ajagus et Tschui a D. D. Schrenk et Karelin lectus". But the original description seems to be based on a single specimen, and the holotype's label has nothing connected with "Tschui". In XIX century several different species [including *A. caspica*] were often identified as "*A. tomentosa*". But in reality, the occurrence of the species in Tshu river valley (south Betpak-Dala? Mujun-Kumy?) cannot be excluded. Possibly information from Schrenk and Karelin

was connected with specimens of *A. baeckmanniana,* which is distributed in Tchu river valley including Betpak-Dala and Mujunkumy.

The record of the species (as *A. tomentosa*) for "Omsk region" (Plavilstshikov, 1936) can not be regarded as a record for Russia. The corresponding old label must be connected with central regions of Kazakhstan.

Bionomy. The species is connected with desert and semidesert landscapes of different types: it can be sandy dunes (Photo 2) or clay desert (Photo 3). Larvae live in roots of desert shrubs and trees. It is definitely known from roots of *Haloxylon* (Danilevsky, 1988). Imagoes are active from the middle to second half of summer, from June to August.

Remarks. A single available (ZIN) type [according to Semenov-Tian-Shanskij et Stshegoleva-Barovskaja (1936) another syntype was destroyed, but the original description seems to be based on a single specimen] of *Apatophysis tomentosa* (Gebl.) (Fig. 2e) belongs to the species later described as *A. mongolica* Sem. The synonymy was already supposed in the original description and by Plavilstshikov (1936). The main distinguishing character of "*A. tomentosa*" mentioned by Plavilstshikov (1936): elytral punctation distinct only in the anterior elytral half really present in the holotype of *A. tomentosa*, but such situation can be often observed in specimens of *A. mongolica* from different parts of its very big area (and was recorded as typical for *A. mongolica* by Kadlec, 2006), so *A. tomentosa = A. mongolica*, syn. n.

A. mongolica Semenov, 1901 was described on the base of several syntype males from several localities without holotype designation. The locality of the "type" was declared later (Semenov-Tian-Shanskij, Stshegoleva- Barovskaja, 1936) as the area in between Niursu and Dzhan-dzhiho (China southwards Baityk-Bogdo ridge). So, I designated as lectotype of *A. mongolica* Sem. one (Fig. 2b) of two males with the label: ["Gobi, between Njursu and Dshandshiho, 10.viii.1898, Clemenz"] [in Russian] preserved in Zoological Institute (Sankt-Petersburg). Other specimens of type series are designated as paralectotypes.

Only one species of *Apatophysis* is distributed from Central and East Kazakhstan to Mongolian Republic. *A. serricornis* (Gebl.) and *A. obtusicollis* (Motsch.) were described from East Kazakhstan on the base of females (both types are not available). The synonymy *A. serricornis = A. tomentosa = A. obtusicollis* was supposed by Semenov-Tian-Shanskij & Stchegoleva-Barovskaja (1936) and accepted by Gressitt (1951).

Apatophysis kadyrbekovi Kadlec (Fig. 2d) was described from near Borandisu (or Borandaisu near Chilik - 43˚40'N, 78˚35E) - left side of Ily river valley eastwards from Kapchagaj water reserve - on the base of a single small (10.8 mm) male of *A. serricornis* (= *A. mongolica*). *A. serricornis* is very numerous at the locality (I also have specimens just from here) and it is very natural, that the smallest specimen differs a little in body shape (short and wide); other published distinguishing characters are not adequate. According to Kadlec the length of "*A. mongolica"* is 13-17 mm, but I've got a male (also from Chilik) with body length 12.0 mm. Distinct punctation in the posterior elytral half is just a traditional character of *A. mongolica* auct. Elytral punctation limited in the anterior half is the character of the holotype of *A. tomentosus* and was recorded by Plavilstshikov (1936) as the main character of that "species". Third antennal joint of *A. serricornis* (even in big specimens and in the holotype of *Toxotus tomentosus*) is often similar short (as long as wide) as in "*A. kadyrbekovi*". It is clearly seen in the original Photo by Kadlec, that 3rd joint is about twice

longer than 2nd, that is very typical for *A. serricornis.* Small size of the holotype is really exceptional. I do not know another so small specimens of the species.

A. serricornis = *A. tomentosa* = *A. obtusicollis* = *A. mongolica* = *A. kadyrbekovi*, syn. n.

Gressitt (1951: 49) wrongly mentioned two original compositions: "*Leptura serricornis* G., 1843" and "*Leptura tomentosa* G., 1845".

3. *Apatophysis* (s. str.) *roborowskii* Semenov, 1901
(Fig. 3)

Apatophysis roborowskii Semenov, 1901: 29 ("in Mongoliae orâ occidentali: inter Bugas (Chami) and Kara-tjube"); Aurivillius, 1912: 160; Hua, 2002: 195.
Apatophysis (s. str.) *roborovskii,* Semenov-Tian-Shanskij & Stshegoleva-Barovskaja, 1936: 64, 73.
Centrodera (*Apatophysis*) *roborowskii,* Gressit, 1951: 49.

Type locality. North-West China, Xinjiang, between Hami and Kara-tjube [about 70km W Hami], according to the original description.

Material studied. 1 ♂, holotype (the original description was based on a single specimen) with 3 labels: (1) ["between Bugas (Hami) and Kara-tjube, 6-15.ix.95, Robo. and Kozlov leg."] [in Russian], (2) "*Apatophysis roborowskii* m. typ. un. ii.01 A. Semenov det.", (3)"Coll. Semenov-Tian-Shansky" - ZIN.

Diagnosis. Only one male known; it can be just a very strange specimen of *A. serricorni*s, so the validity of the species is very doubtful.

Body length: 14.5 mm; body width: 4.9 mm.

Head large with small eyes, about 1.4 times longer than basal width; the distance between dorsal eye lobes about 2.1 times more than thickness of 1st antennal joint; the distance between ventral eye lobes a little larger; antennae very short, just reaching elytral apices; 3rd joint short, similar to *A. serricornis,* about 1.5 times longer than wide, shorter than 1st joint, about 1.5 times shorter than 4th joint, which is about as long as 1st; 3rd and 4th joints combined about as long as 5th; thorax transverse, about 1.2 times shorter than basal width; lateral thoracic tubercles short and wide; pronotum covered with dense recumbent pubescence, hiding fine punctation, with several deep central dots, without erect setae dorsally, with distinct paired lateral convexities, without deep depressions inside each pair; central posterior pronotal convexity indistinct; central smooth posterior area absent; elytra relatively short, with sides converging posteriorly, about 2 times longer than basal width; each pair of costae slightly visible; elytral recumbent pubescence long and dense, without erect setae; elytral punctation relatively large, distinct in two anterior third, not arranged longitudinally; episternum of metathorax elongated with sides converging posteriorly; femora and tibiae without hair brushes; posterior tibiae strait; 3rd joint of hind tarsi emarginated to about middle; lobes of 3rd joint of all tarsi strongly attenuated with distinct apical spines; ventral tarsal surface with shining, partly glabrous central line; 1st tarsal joint about as long as apical and longer than 2nd and 3rd combined; abdominal sternites with dense central hair patches of long erect setae.

Distribution, Map 2(5). Only type locality known: North-West China, Xinjiang, between Hami and Kara-tjube [about 70 km W Hami].

Bionomy. A single known specimen was collected in desert area at the end of summer.

Remark. The described specimen can be just a peculiar specimen of *A. serricornis*, which is rather common in the area. Anyway it differs from all numerous known males of *A. serricornis* by many characters: big head, small eyes, short antennae, not longer than body.

4. *Apatophysis* (s. str.) *kashgarica* Semenov, 1901
(Fig. 4)

Apatophysis kashgarica Semenov, 1901: 29 ("Kashgaria merid.: ad fl. Jarkend-darja"); Aurivillius, 1912: 160; Hua, 2002: 194.
Apatophysis (s. str.) *kashgarica,* Semenov-Tian-Shanskij & Stshegoleva-Barovskaja, 1936: 65, 72.
Centrodera (*Apatophysis*) *kashgarica,* Gressit, 1951: 49.

Type locality. North-West China, Xinjiang, SW Kashgaria, Jarkend-darja river (Yarkant He), according to the original description.

Material studied. 1 ♂, lectotype (present designation) with 3 labels: (1) ["S Kashg., Jarkend-darja, 22.vi.-15.vii.1889, Pevtzov leg."] [in Russian], (2)"*Apatophysis kashgarica* m. typ. ii.01 A. Semenov det.", (3)"Coll. Semenov-Tian-Shansky" - ZIN; 1 ♂, paralectotype (present designation) with 3 labels: (1) ["S Kashg., Jarkend-darja, 22.vi.-15.vii.1889, Pevtzov leg."] [in Russian], (2)"*Apatophysis kashgarica* m. typ. ii.01 A. Semenov det.", (3)"Coll. Semenov-Tian-Shansky" - ZIN.

Diagnosis. Only two males available. The species is close to *A. serricornis* (Gebl.).

Body length: 11.4-15.0 mm; body width: 3.7-4.9 mm; according to the original description (published on the base of 3 syntype males) body length: 11.6-15 mm.

Head 1.3-1.6 times longer than basal width; the distance between dorsal eye lobes 1.5-1.7 times more than thickness of 1st antennal joint; the distance between ventral eye lobes distinctly longer, from 1.2 to 1.3 times more than the distance between dorsal eye lobes; antennae relatively short, extend beyond elytral apices by two apical joints; 3rd joint short, but relatively longer than in *A. serricornis,* about 1.4-1.6 times shorter than 4th joint, which is 1.1-1.2 times longer than 1st; 3rd and 4th joints combined about as long as 5th; or about 1.1 times shorter; thorax transverse, 1.1-1.2 times shorter than basal width; lateral thoracic tubercles short and wide; pronotum covered with dense recumbent pubescence, hiding fine punctation, with several deep central dots, without erect setae dorsally, with distinct paired lateral convexities, without deep depressions inside each pair; central posterior pronotal convexity small or indistinct; central smooth posterior area absent; elytra relatively short, with sides strongly converging posteriorly, about 2.2 times longer than basal width; elytral costae indistinct; elytral recumbent pubescence long and dense, with small glabrous areas around setae bases, without erect setae; elytral punctation more or less distinct to about elytral apices, distinctly arranged in longitudinal lines; episternum of metathorax elongated with sides hardly converging posteriorly; femora and tibiae without hair brushes; posterior tibiae strait; 3rd joint of hind tarsi emarginated to about middle; lobes of 3rd joint of all tarsi strongly attenuated with distinct apical spines; ventral tarsal surface with shining, partly glabrous central line; 1st tarsal joint about as long as apical and much longer than 2nd and 3rd combined; abdominal sternites with dense central hair patches of long erect setae.

Distribution, Map 2(1). Only type locality known: North-West China, Xinjiang, SW Kashgaria, Jarkend-darja river (Yarkant He).

Bionomy. A single known locality is situated in dry foothills. Imagoes are active in the middle of summer.

Remark. The species is close to *A. serricornis* because of well developed long setae patches of abdominal sternites, but differs by many important characters; in *A. serricornis* 3rd antennal joint never so long, dorsal pubescence distinctly shorter and finer, elytral punctation never longitudinally arranged, prothorax wider with usually sharp lateral tubercles, antennae usually longer; the distance between male dorsal eye lobes in *A. kashgarica* shorter than the distance between ventral eye lobes; in *A. serricornis* it is longer.

5. *Apatophysis* (s. str.) *centralis* Semenov, 1901
(Fig. 5)

Apatophysis centralis Semenov, 1901: 32 ("curs. super. fl. Pakhpu; Kok-jar Tochtachon; curs. super. fl. Kul-jar"); Aurivillius, 1912: 160; Hua, 2002: 194 ("China: Xinjiang, Sichuan; Laos, Kashmir, Former USSR").
Apatophysis (s. str.) *centralis,* Semenov-Tian-Shanskij & Stshegoleva-Barovskaja, 1936: 65, 81.
Centrodera (*Apatophysis*) *centralis,* Gressit, 1951: 48, 49.

Type locality. North-West China, Xinjiang, West Kashgaria, upper level of Pachpu river, according to the lectotype (present designation) label.

Material studied. 1 ♂, lectotype (present designation) with 3 labels: (1) ["upper level of Pakhpu river, 14-27.vii.1890, Grombchevsky leg."] [in Russian], (2)"*Apatophysis centralis* m. typ. ii.01 A. Semenov det.", (3)"Coll. Semenov-Tian-Shansky" - ZIN; 1 ♂, paralectotype (present designation) with same 3 labels - ZIN; 1 ♀, paralectotype (present designation) with 2 labels: ["upper level of Kul-jar river, 27.vii-3.viii.1890, Grombzhevsky leg."] [in Russian], (2)"*Apatophysis centralis* m. typ. ii.01 A. Semenov det.", (3)"Coll. Semenov-Tian-Shansky" - ZIN; 1 ♂, paralectotype (present designation) with 2 labels: (1) ["Kok-Jar, China Turk., 15.vii.1890, Grombzhevsky leg."] [in Russian], (2)"Coll. Semenov-Tian-Shansky" - MD; 1 ♂with 2 labels: (1) ["upper level of Pakhpu river, 14-27.vii.1890, Grombchevsky leg."] [in Russian], (2)"*Apatophysis centralis* Sem., N. Plavilstshikov det." - ZMM; 3 ♀♀, each with two labels: (1) ["Ak-Su river, China Turkestan, vi.1910, Rjukbejl leg."] [in Russian], (2)"Coll. Semenov-Tian-Shansky" - ZIN; 1 ♂, "Ost-Turkestan, Aksu, 1067 m, v.1903, Coll. Hauser" - NMP.

Diagnosis. Body length of available males: 11.2.0-13.1 mm, width: 2.4-4.1 mm; body length of available females (from mandible apices to posterior margin of the last abdominal tergite): 14.1-19.0 mm, width: 3.9-5.6 mm. Soft female abdomen can be more or less strongly exposed beyond elytral apices; the length of available females from mandible apices to elytral apices: 11.2-16.8 mm.
According to the original description (published on the base of 9 syntype males and 3 female syntypes) body length in males: 9.5-15.0 mm, in females: 14-17.4 mm.

Males (Fig. 5a). Head about 1.6-1.7 times longer than basal width; the distance between dorsal eye lobes about 1.8-2 times more than thickness of 1st antennal joint; the distance

between ventral eye lobes a little less; antennae relatively short, extend beyond elytral apices by one apical joint; 3rd joint elongated, about as long as 4th, each shorter than 1st in 1.3-1.5 times; 3rd and 4th joints combined about 1.1-1.2 times shorter than 5th; thorax transverse, about 1.3 times shorter than basal width; lateral thoracic tubercles very short and wide; pronotum covered with long dense recumbent pubescence, hiding fine punctation, without erect setae dorsally, with small paired lateral convexities, without deep depressions inside each pair; central posterior pronotal convexity small; central smooth posterior area absent; elytra relatively short, with sides converging posteriorly, about 2.2-2.3 times longer than basal width; elytral costae slightly visible; elytral recumbent pubescence long and dense, without glabrous areas around setae bases, without erect setae, totally hiding fine elytral punctation; episternum of metathorax elongated with sides hardly converging posteriorly; femora and tibiae without hair brushes; posterior tibiae strait; lobes of 3rd joint of all tarsi sharp, but not attenuated, without spines; 3rd joint with very shallow apical emargination; ventral tarsal surface with shining, central line covered with fine recumbent pubescence; 1st tarsal joint about as long as apical, shorter than 2nd and 3rd combined; abdominal sternites with small central hair patches.

Females (Fig. 5b). Head elongated, about 1.3-1.6 times longer than basal width; eyes moderately big, the distance between dorsal eye lobes 2.7-3.2 times more than thickness of 1st antennal joint; the distance between ventral eye lobes about 1.6 times more than between dorsal; antennae short, reaching apical elytral forth; 3rd and 4th antennal joints about equal in length, each much shorter than 1st, which is much shorter than 5th; 3rd and 4th joints combined about 1.1 times shorter than 5th; thorax transverse, about 1.3 times wider than long; lateral thoracic tubercles small, obtuse, sometimes indistinct; pronotal convexities poorly developed, pronotum covered with short scattered recumbent setae, with only fine punctation; central smooth posterior area absent; elytra nearly parallel sided, covered with very fine recumbent pubescence, without erect setae; about 1.9 times longer than width at humeri; with distinct costae, elytral punctation nearly indistinct; all femora without hair brushes; 1st tarsal joint about as long as apical, shorter than 2nd and 3rd combined; lobes of 3rd joint of hind tarsi acute, but not attenuated, without apical spine; 3rd joint with very shallow apical emargination; abdominal sternites with fine regular recumbent pubescence.

Distribution, Map 2(2-3). North-West China, three localities in North-West Kashgaria were published in the original description: upper level of Pakhpu river; Kok-jar and Tochtachon; upper level of Kul-jar river; Ak-Su river - ZIN. The record for Sichuan by Hua Li-Zhong (2002) looks wrong; his records for Laos, Kashmir and former USSR are unbelievable.

Bionomy. According to available labels the species must be connected with mountain landscapes. Imagoes are active in summer.

Remark. The species is close to *A. serricornis*-group of species because of the presence of hair patches in abdominal sternites, but here hair patches are small, consist of short setae, so *A. centralis* connects *A. serricornis*-group of species with other *Apatophysis* s. str. It differs from all other species of the group by small 3rd and 4th antennal joints of similar length; by indistinct elytral punctation because of dense pubescence; by shallow emargination of 3rd joint of hind tarsi with shortened lobes.

6. *Apatophysis* (s. str.) *sinica* Semenov, 1901
(Fig. 6)

Apatophysis sinica Semenov, 1901: 30 ("China prov. Se-tshuan: ad urb. Tsa-gu-tin (Tsa-ku-ting = Li-fan-fu)"); Aurivillius, 1912: 160; Hua, 2002: 194 ("China: Hebei, Shandong, Jiangxi, Sichuan").
Apatophysis (s. str.) *sinica,* Semenov-Tian-Shanskij & Stshegoleva-Barovskaja, 1936: 66, 82 (Li-fa-fu).
Centrodera (*Apatophysis*) *sinica,* Gressitt, 1951: 48, 50 - „Szechuan (Weichou), Kiangsi (Kuling), Hopei (Peiping)".

Type locality. China, Sichuan prov., Weizhou (= Li-fan-fu, northwards Chengdu, middle level of Min Jiang river, 31˚29'N, 103˚35'E), according to the original description.

Material studied. 1 ♂, holotype (the original description was based on a single specimen) with 3 labels: (1) ["environs Li-Fan-Fu, 17.viii.1893, Potanin leg."] [in Russian], (2) "*Apatophysis sinica* m. typ. un. ii.01 A. Semenow det.", (3)"Coll. Semenov-Tian-Shansky" - ZIN; 6 ♂♂, "China, Sichuan prov., Tonghua, 20 km W Wenchuan, h=1800 m, 7-9.viii.2002, S. Murzin, I. Shokhin leg. - MS.

Diagnosis. Only males are known; body length: 15.0-21.0 mm; body width: 4.8-6.8 mm.

Head about 1.5-1.6 times longer than basal width; in big specimens temples relatively longer; the distance between dorsal eye lobes about 1.3-1.6 times more than thickness of 1st antennal joint; the distance between ventral eye lobes is about same; antennae from relatively short to rather long, extend beyond elytral apices from one to three apical joints; 3rd joint long, a little longer, or a little shorter, than equal 1st and 4th joints; 4th joint 1.5-1.8 times shorter than 5th; thorax transverse, 1.1-1.2 times shorter than basal width; lateral thoracic tubercles short and obtuse (as in holotype), or a little longer and sharper; pronotum covered with dense recumbent pubescence, not hiding fine punctation, without deep dots, without erect setae dorsally, with distinct paired lateral convexities, with distinct depressions inside each pair; central posterior pronotal convexity indistinct; central smooth posterior area absent; elytra relatively long, dull, with sides slightly converging posteriorly, about 2.1-2.3 times longer than basal width; elytral costae indistinct; elytral recumbent pubescence very short, not hiding elytral sculpture; erect setae absent; elytral punctation moderately large, very distinct in three anterior forths, not arranged longitudinally; episternum of metathorax elongated with sides converging posteriorly; femora and tibiae without distinct hair brushes, but with dense short internal pubescence; posterior tibiae strait; lobes of 3rd joint of all tarsi relatively short, more or less obtuse, without apical spines; 3rd joint emarginated in about apical half or third; tarsal pads strongly developed (similar to *Protapatophysis*), ventral side of 2nd-3rd joints of anterior tarsi totally covered by pads, without central line; 1st tarsal joint much longer than apical, but shorter than 2nd and 3rd combined; abdominal sternites with dense recumbent pubescence, without central hair patches of long erect setae and without any erect setae at all.

Distribution, Map 2(9-10). Central China; several specimens available from Sichuan province: Wenchuan (= Weizhou) environs, about 31˚29'N, 103˚35'E (type locality) and Tonghua environs, 31˚34'N, 103˚25'E, about 20km westwards Wenchuan - MS; two localities were published by Gressitt (1951): "Kiangsi (Kuling), Hopei (Peiping)".

Bionomy . According to S. Murzin (pers. comm.) the species inhabits high mountain humid bush landscapes (Photo 4) at about 1800 m above the level of the sea. Imagoes are active at the end of summer (August). Males can be attracted by light.

Remark. *A. sinica* Sem. was regarded to be close to *A. sieversi* Ganglb. by Semenov-Tian-Shanskij & Stshegoleva-Barovskaja (1936). In fact both species have no femora setae brushes, no sternite setae patches, both have relatively long 3rd antennal joint; similar short elytral pubescence without erect setae and similar primal (big) elytral punctation; but *A.sinica* has dense long pronotal pubescence, dull (not shining) elytra with indistinct costae; straight, not dentated tibiae of all legs; densely pubescent abdomen.

A. sinica Sem. seems to be close to the species of another subgenus - *Protapatophysis* Semenov-Tian-Shanskij & Stshegoleva-Barovskaja 1936 because of big size, relatively parallel-sided body, total absence of sternite erect setae, special short elytral pubescence and distinct punctation; besides *A. sinica* is connected with high mountains, that is especially typical for the species of *Protapatophysis*. Semenov-Tian-Shanskij & Stshegoleva-Barovskaja (1936) supposed females of *A.sinica* with approached coxae - the main character of *Protapatophysis* Still all known males of *Protapatophysis* (including numerous specimens of not described taxa from North Pakistan) have closed anterior coxal cavities; very distinct, sharp lateral thoracic spines, sometimes long and curved backwards, while in *A.* (s. str.) *sinica* thoracic spines absent and thoracic tubercles short, obliterated.

7. *Apatophysis* (s. str.) *sieversi* Ganglbauer, 1887
(Fig. 7)

Apatophysis sieversi Ganglbauer, 1887: 21 ("Peking"); Aurivillius, 1912: 160; Hua, 2002: 194 ("Beijing").
Apatophysis (s. str.) *sieversi*, Semenov-Tian-Shanskij & Stshegoleva-Barovskaja, 1936: 66,69,83 (Pekin environs; north China, Tzkhiao Shan-Sy).
Centrodera (*Apatophysis*) *sieversi*, Gressitt, 1951: 48, 50 - „Hopei (Peiping)".
Apatophysis sinica, Wang, 2003: 61 (Liaoning Peninsula).

Type locality. China, Beijing environs (according to the original description).

Material studied. 1 ♂, holotype (the original description was based on a single male) with three labels: (1)"Peking (Herz)", (2)"103"[red], (3)"*Apatophysis sieversi* Gyll. Typ", (4)"Sievers!"[red] - ZIN; 1 ♂, "Peking, Westberge, Exp. Stötzner" - ZMM.

Diagnosis. Only males are known; body length of available two males: 18.3-18.5 mm; body width: 5.8-6.0 mm. According Wang Zhicheng (2003, for his "*A. sinica*") body length in males: 13-19 mm, width: 3.5-6.2 mm.

Head about 1.6-1.8 times longer than basal width; the distance between dorsal eye lobes about 1.6 times more than thickness of 1st antennal joint; the distance between ventral eye lobes about 1.3 times more than the distance between dorsal eye lobes; antennae moderately long, extend beyond elytral apices by about two apical joints; 3rd joint long, about as long as 1st and about 1.2 times longer than 4th; 3rd and 4th joint combined about 1.2 times longer than 5th; thorax transverse, 1.2-1.3 times shorter than basal width; lateral thoracic tubercles big, though obtuse; pronotum with very short, fine, recumbent or semierect setae, without long

setae; pronotal punctation very dense with irregular conjugated punctures; lateral convexities distinct, without depressions inside each pair; central posterior pronotal convexity indistinct; central smooth posterior area absent; elytra relatively long 2.1-2.2 times longer than basal width; elytral costae distinct; elytral recumbent pubescence very fine and short, nearly indistinct; erect setae absent; elytral punctation moderately large, very distinct in three anterior forth, not arranged longitudinally; episternum of metathorax moderately elongated with parallel sides near middle; femora and tibiae without hair brushes; middle and hind femora with very narrow internal margin in basal half and here granulated and with small spines - unique character in the genus; middle and hind tibiae strongly curved, finely dentated along inner margin; lobes of 3rd joint of all tarsi relatively short, more or less obtuse, without apical spines; tarsal pads strongly developed (similar to *Protapatophysis*), ventral side of 2nd-3rd joints of anterior tarsi totally covered by pads, with central line slightly visible; 3rd joint is emarginated in about apical forth; 1st tarsal joint much longer than apical, and about as long as 2nd and 3rd combined; abdominal sternites shining, with fine recumbent pubescence, and several longer semierect setae, but without central hair patches of long setae.

Distribution, Map 2(6-8). North East China; the species was traditionally known only from near Beijing: "Pekin environs" (type locality) or "Westberge" (ZMM) and Tzkhiao Shan-Sy[?] (Semenov-Tian-Shanskij & Stshegoleva-Barovskaja, 1936). Recently it was recorded (Wang, 2003, as "*A. sinica"*) from Liaoning Peninsula (north part of the peninsula and Dalian environs).

Bionomy. A pair of males from Liaoning Peninsula was collected in July.

Remark. One more male was studied by Semenov-Tian-Shanskij & Stshegoleva-Barovskaja (1936) "north China, Tzkhiao Shan-Sy, 3-16.vii.1916, Yu Vasiliev leg.") in the collection of Zoological Institute, Sankt-Petersburg. This specimen was not found by me.

A. sieversi Ganglb. looks to be close to *A. sinica* Sem. Both species have no femora setae brushes, no sternite setae patches, both have relatively long 3rd antennal joint; similar short elytral pubescence without erect setae and similar primal (big) elytral punctation; but *A. sieversi* has very short indistinct pronotal pubescence, shining elytra with distinct costae; strongly curved middle and hind tibiae, dentated internally; sparsely pubescent abdomen.

Two males of *A. sieversi* (as "*A. sinica*", a pair of males was designated as male and female) were figured by Wang Zhicheng (2003).

8. *Apatophysis* (s. str.) *caspica* Semenov, 1901
(Fig. 8)

Apatophysis tomentosus, Faust, 1877: 111 (= *Psilotarsus obtusicollis* Motsch. = *Apatophysis toxotoides* Chevr.), part.

Apatophysis tomentosa, Ganglbauer, 1888: 193 [Turkmenistan, "= *Prionus* (*Psilotarsus*) *obtusicollis* Motschulsky"], part.

Apatophysis caspica Semenov, 1901: 31 („prov. Transcaspicâ": „Balchan Majus", „Kizil-arvat", „Sumbar", „Tedzhen", „Bairam-ali", „Kelet-kaja", „fl. Kushka"; „in Transcaucasiâ orientali": „Derbent", „fl. Rubas pr. Derbent", „Eldar - ora orient. prov. Tiflisiensis"), part.; Aurivillius, 1912: 160; Plavilstshikov, 1936: 116-117, 496 part.; 1948: 26, part.; Villiers, 1967b: 346; Lobanov et al., 1981: 794, part.; Danilevsky & Miroshnikov, 1985: 99-100, part.; Danilevsky, 1988: 128-129 (larvae), part.; Danilevsky, 2006: 2-4, part.

Apatophysis (s. str.) *caspica*, Semenov-Tian-Shanskij & Stshegoleva-Barovskaja, 1936: 65, 75.

Type locality. Turkmenistan, Tedzhen (according to present lectotype designation).

Material studied. 1 ♂, lectotype (present designation) with three labels: (1) [”Tedzhen [Turkmenistan], 20.v.1989 Semenov”] [in Russian], (2)”*Apatophysis caspica* m. typ. ii.01, A.Semenow det.”, (3)”Coll. Semenow-Tian-Shansky” - ZIN; 1 ♂, paralectotype (present designation) with four labels: (1) [“Derbent, A.V. Komarov”] [in Russian], (2)”*Apatophys. tomentos*.-v. *thoxoides*.”, (3)”*Apatophysis caspica* m. typ. ii.01, A.Semenow det.”, (4)”Coll. Semenov-Tian-Shansky” - ZIN; 1 ♀, paralectotype (present designation) with four labels: (1)”fl. Rubas [about 20 km S Derbent]”, (2)”Faust!”, (3)”*Apatophysis caspica* m. typ. ii.01, A. Semenow det.”, (4)”Coll. Semenov-Tian-Shansky” - ZIN; 2 ♂♂, “fl. Rubas” - ZIN; 1 ♂, “Derbent” - ZIN; 2 ♂♂, Talysh, Lenkoran, Khristof - ZIN; 1 ♂, Azerbajdzhan, Karadonly [about 10 km SW Imishli] - ZMM; 1 ♂, same locality, 20.vi.1911, P. Shmidt leg. - MD; 1 ♂, same locality, vii.1913 - ZMM; 1 ♂, 1 ♀, ?Azerbajdzhan, “Transcaucas., distr. Samuch, vall. fl. Cyri [Kura?], *Salsola*, 3.vi., A. Bogačev leg.” - ZMM; 1 ♂, Azerbajdzhan, “Evlakh, 8.viii.1931, A. Bogačev” - ZMM; 1 ♂, same locality, 20.vi.1931” - ZMM; 5 ♂♂, Azerbajdzhan, “Geok-Tapa, Caucasus, A. Schelkownikow” - ZMM; 2 ♂♂, “Geok-Tapa, vi.08” - ZMM; 1 ♂, “Geok-Tapa, distr. Aresh, 28.iv.1913” - ZMM; 1 male, “Aresh” - ZMM; 1 ♂, “Aresh (Caucasus), ex Schelkownikow”, “Caucase, J. Clermont” - BMNH; 1 ♂, “Kaukasus, Kr. Aresch, E.Koenig” - ZMM; 3 ♂♂, Azerbajdzhan, “St. v. f. Aljat, ad lit. mer. Casp., 16.vi.1912” - ZMM; 14 ♂♂, Azebajdzhan, “Adzhikabul, 23.v.1907” - ZMM; 5 ♂♂, “Prov. Bakensis, Fl. Kura, Karabagly, 14.vi.1932, A. Menstshikow” - ZMM; 2 ♂♂, “Güsulu, distr. Šuša, 24.vii.1915” - ZMM; 2 ♂♂, “Azerbajdzhan, Adžikent, 24.vii.14” - ZMM; 3 ♂♂, Azerbajdzhan, “Geokchaj distr., Ahtachi, 3-15.vi.1907” - ZMM; 7 ♂♂, Azerbajdzhan, “Steppa Mugan, prov. Baku, vi-vii.1913” - ZMM; 1 ♂, “Transcauc., Elisavetpol [now Giandzha], Vostriakov leg. - ZMM; 1 ♂, Azerbaidzhan, “Kreis Nucha [Nukha, now Sheki], E.Koenig” - ZMM; 2 ♂♂, “Transcasp.” - ZMM; 1 ♂, Turkmenistan, “Tedzhen 10.iv.1919” - ZMM; 1 ♂, “Transcasp., Tedzhen, vi.1892” - ZMM; 1 ♂, Turkmenistan, “Ashkhabad” - ZMM; 2 ♂♂, “Frans-Caspi G., Turkmenien, E. König” - ZMM; 1 ♂, Turkmenistan, Geok-Tepe, 31.v.1901 G. Sumakov leg. - MD; 2 ♂♂, Dagestan, Kumtorkale, 14.vii.1926, Riabov leg. - ZIN; 1 ♂, Kzyl-Orda distr., Solo-Tjube [about 50km SE Kzyl-Orda], 18.viii.1928, Mishchenko leg. - ZIN; 1 ♂, Dagestan, Kapchugaj, 21.vi.1931 - ZIN; 1 ♂, Turkmenistan, Tedzhen, 26.v.1967 - MD; 1 ♂, Turkmenistan, Kyzyl-Arvat, 30.v.1974, S. Aksentjev leg. - MD; 2 ♂♂, “Afghanistan, Kuschke, Coll. Hauser, 1896” - BMNH; 1 ♂, “Afghanist. Kuschke” - MD; 1 ♂, Turkmenistan, Bairam-Ali, viii.1975 - MD; 1 ♂, „Transcaspia reg., Bairam-Ali, 2.viii.1922“ - ZMM; 1 ♂, same locality - ZMM; 1 ♂, same locality, 27.v.1915, Riabov leg. - ZMM; 2 ♂♂, same locality, 14.viii.1975, A. Bogachev - ZMM; 1 ♂, Turkmenistan, Chuli, 10.v.1936 - MD; 2 ♂♂, Turkmenistan, „Iolotan, 29.v.1952 and 15.viii.1952“ - ZMM; 1 ♀, Kazakhstan, “Mangyshlak, Usak well, 16.viii.1958 A.Erlanger leg.” - ZIN; 4 ♂♂, 1 ♀, “Persia, Jarjarm [?], 1-ix-1958”, “Oxford North, Khorassan Exped., B.M. 1958-657” - BMNH; 1 ♂, Turkmenistan, Chuli, 26.vi.1966 - SM; 1 ♂, Azerbajdzhan, Varvara (about 8 km NW Evlakh), 14-17.vii.1982, S. Alexeev leg. - SM; 1 ♂, Azerbajdzhan, 60km S Baku, Aljat, 13-16.vi.1983, V. Kubáň leg. - BMNH; 1 ♂, Turkmenistan, Dushak (about 50km SW Tedzhen), 28.5.1990, D. Tishechkin leg. - SM.

Diagnosis. Body length of available males: 9.5-17.0 mm; body width: 3.0-5.6 mm; body length of available females (from mandible apices to posterior margin of the last abdominal tergite) 17.0-18.8 mm; body width: 5.0-5.7 mm. Soft female abdomen can be more or less strongly exposed beyond elytral apices; the length of available females from mandible apices to elytral apices: 13.0-15.0 mm.

Males (Figs 8a-8d, 8f); head relatively short, about 1.4-1.6 times longer than basal width; eyes moderately big, the distance between dorsal eye lobes usually from 1.5 to 2.0 times more than thickness of 1st antennal joint, but sometimes about same, the distance between ventral eye lobes rather big usually 1.1-1.7 times more than thickness of 1st antennal joint, always less than the distance between dorsal eye lobes; antennae moderately longer than body, usually extend beyond elytral apices by two apical joints; 4th antennal joint about as long as 3rd (usually a little longer, but sometimes in small specimens a little shorter); each shorter than 1st, both combined shorter than 5th (or sometimes longer); pubescence of 5th - 6th antennal joints hardly visible; thorax slightly transverse, usually 1.1-1.2 times shorter than basal width, but sometimes about as long as basal width; lateral thoracic tubercles very distinct; pronotum with very dense conjugated punctation, covered with relatively long recumbent pubescence and scattered erect setae, with distinct paired lateral convexities; sometimes with deep depression inside each pair; central posterior pronotal convexity usually absent, but sometimes distinct; central smooth posterior area never distinct; elytra about 2.0 or 2.1 times longer than wide (small specimens relatively longer); elytral costae from hardly visible to indistinct; primary (big) punctation from very rough and dense, distinct up to elytral apices (Fig. 8b), to rather fine, becoming much sparser posteriorly, indistinct near elytral middle (Fig. 8c); secondary punctation always distinct; covered with distinct recumbent pubescence, totally without erect hairs, or with several erect setae near scutellum, or with numerous erect setae on anterior elytral half; episternum of metathorax elongated with nearly parallel sides at middle; all femora (specially posterior) with very dense brushes of long semi-erect setae (Fig. 8f); femora brushes usually bear scattered long erect setae, but sometimes not; sometimes femora brushes short and very rare nearly indistinct; 3rd joint of all tarsi emarginated to about middle or to anterior border of posterior third; lobes of 3rd joint of hind tarsi slightly attenuated, acute, without spines; all tarsi ventrally with central shining line covered with dense semierect pubescence, sometimes central pubescence is so dense that central line nearly indistinct; abdominal sternites without central hair patches, but usually with dense recumbent pubescence and numerous erect setae.

Females (Fig. 8e). Head wide, from 1.1 to 1.2 times longer than basal width; eyes moderately big, the distance between dorsal eye lobes 2.4-2.5 times more than thickness of 1st antennal joint; the distance between ventral eye lobes 3.3-3.8 times more than thickness of 1st antennal joint; antennae do not reach a little elytral apices; 4th antennal joint as long as 3rd; each shorter than 1st, both combined longer than 5th; thorax transverse, 1.4 or 1.1 (Samush) times wider than long; lateral thoracic tubercles short and obtuse; pronotum with very dense conjugated punctation, covered with short scattered recumbent pubescence, with obliterated paired lateral convexities; central posterior pronotal convexity absent or nearly indistinct; central smooth posterior area absent; shallow depression on each side between lateral convexities distinct; elytra nearly parallel sided, slightly widened near middle; about 1.7 or 1.8 times longer than width at humeri; elytral punctation rough and dense (Samush) or scattered and

shallow, nearly indistinct (Mangyshlak); several scattered erect setae present anteriorly; all femora without hair brushes; 3rd joint of hind tarsi emarginated to anterior border of posterior third; lobes of 3rd joint of hind tarsi moderately attenuated; abdominal sternites glabrous.

Distribution, Map 3(1-35), Map 4(1-17). South Russia - Dagestan, Derbent environs (ZIN, Semenov, 1901; Semenov-Tian-Shanskij & Stshegoleva-Barovskaja, 1936); Dagestan, Rubas river, about 20 km S Derbent - (ZIN, Semenov, 1901; Semenov-Tian-Shanskij & Stshegoleva-Barovskaja, 1936); Dagestan, Kumtorkale, about 20 km westwards Makhachkala - ZIN; East Georgia - Eldar Steppe, Iory river valley (Semenov, 1901; Semenov-Tian-Shanskij & Stshegoleva-Barovskaja, 1936); Azerbaijdzhan - Giandzha env. - ZMM; Geokchaj env. - ZMM; Sheki env. (before Nuha) - ZMM; Aljat [about 70 km southwards Baku along Caspian coast] - ZMM, BMNH; Geok-Tapa [= Aresh, now Agdash] - ZMM; Semenov-Tian-Shanskij & Stshegoleva-Barovskaja, 1936; Eldar steppe, Iory river valley (Semenov, 1901; Semenov-Tian-Shanskij & Stshegoleva-Barovskaja, 1936); Adzhikabul[?] - ZMM; Samush[?] - MD, ZMM; Milskaja steppe, "Sary-su lake" [now Aggel lake about 10 km eastwards Agdzhabedi] (Semenov-Tian-Shanskij, Stshegoleva-Barovskaja, 1936); Karadonly in Arax river valley [about 10 km southwards Imishli] (Semenov-Tian-Shanskij & Stshegoleva-Barovskaja, 1936), MD, ZMM; Evlakh - ZMM, SM; Mugan Steppe - ZMM; Lenkoran - ZIN; Adzhikend [20 km S Giandzha] - ZMM; Karabagly [between Ali-Bairamly and Saliany] - ZMM; Giuzulu, Shusha env. - ZMM; Kazakhstan **-** west part of the country (Danilevsky, 1988); Mangyshlak peninsula, Usak well - ZIN; Solo-Tjube, about 50 km SE Kzyl-Orda (ZIN); Turkmenistan - Ashkhabad env. - ZMM; Geok-Tepe - MD; Tedzhen, lectotype locality (Semenov, 1901; Semenov-Tian-Shanskij & Stshegoleva-Barovskaja, 1936), ZIN, ZMM, MD; Dushak, 50 km SW Tedzhen) - SM; Kyzyl-Arvat (Semenov, 1901; Semenov-Tian-Shanskij & Stshegoleva-Barovskaja, 1936); Imam-Baba (Semenov-Tian-Shanskij & Stshegoleva-Barovskaja, 1936); Bairam-Ali (Semenov, 1901; Semenov-Tian-Shanskij & Stshegoleva-Barovskaja, 1936) - ZMM, MD; Merv (Semenov-Tian-Shanskij & Stshegoleva-Barovskaja, 1936); Chuli - MD, SM; Bolshoj Balkhan Mt. (Semenov, 1901; Semenov-Tian-Shanskij & Stshegoleva-Barovskaja, 1936); Sumbar river (Semenov, 1901; Semenov-Tian-Shanskij & Stshegoleva-Barovskaja, 1936); Iolotan - ZMM; Kushka (Semenov, 1901; Semenov-Tian-Shanskij & Stshegoleva-Barovskaja, 1936), MD; Afghanistan - north-west part of the country, Kushka env .- (Semenov, 1901; Semenov-Tian-Shanskij & Stshegoleva-Barovskaja, 1936), MD, BMNH; Iran - Elburs ridge (Plavilstshikov, 1936); Ajerb-Moghan [?] (Villiers, 1967b); Tariki Rud [?Tarik Rud, 37˚08'N, 49˚52'E] (Villiers, 1967b); Jarjarm [?], Khorasan (Villiers, 1967b), BMNH; Feshahr (Villiers, 1967b); Fars prov., 71 km SE Shiraz, 3.vii.1965, J. W. Neal leg. - MD.

The species must also occur in the south part of Uzbekistan, but no specimens are available from the area and no records are published. The area of *A. capsica* shown in the map by Semenov-Tian-Shanskij & Stshegoleva-Barovskaja (1936: 90) penetrates just to Amu-Darja River - the western border of Uzbekistan. The record for south-west of Aral sea (Plavilstshikov, 1936) was published without any comments and can be connected with *A. baeckmanniana,* known from nearby. Anyway three males of *A. baeckmanniana* from south-east environs of Aral Sea preserved now in Plavilstshikov's collection were identified by Plavilstshikov as *A. caspica.*

Bionomy. Biologically the species is similar to *A. serricornis*. It is also connected with desert and semidesert landscapes of different types, but in warmer areas. It can be sandy dunes or clay desert (Photo 5). Larvae in roots of desert shrubs and trees. It is definitely known from roots of *Haloxylon, Kalidium, Ephedra, Salsola* (Danilevsky, 1988). Imagoes are active from the end of May to August.

Remarks. Traditionally populations from Armenia as well as certain populations from Turkey were attributed to *A. caspica*; in fact all Armenian and Turkey specimens can be easily distinguished from *A. caspica* by a lot of small, but constant characters. *A. caspica* is in general more robust, elytra more attenuated posteriorly, usually with indistinct costae; abdomen with dense pubescence of recumbent and erect setae.

A. caspica was never recorded before for South-East Zagros ridge. It inhabits the region sympatrically with a representative of another subgenera *A*. (*Angustephysis*) *farsicola* Sama.

The record of *Apatophysis caspica* for Jordan (Sama et al., 2002), as well as "*Apatophysis* sp. (*cf. caspica* Semenov, 1901)" for Syria (Rejzek et al., 2003) were evidently connected with new species.

My wrong record (Danilevsky, 2006) of *A. caspica* for Ajvadzh (Tadzhikistan, Pjandzh valley) was based on a specimen, which now is attributed by me to *A. komarowi*.

A. caspica demonstrates a very big degree of individual variability, which can not be interpreted geographically. Specimens from one locality can have very rough elytral punctation distinct to elytral apices (Fig. 8b) or be with very fine primary punctation nearly indistinct already at shoulders (Fig. 8c); elytral erect setae can be rather numerous along whole elytral length or rather rare, nearly totally absent; femora brushes can be longer or shorter, with or without long erect setae, but very rare nearly indistinct. I can not find any differences between *A. caspica* from Azerbajdzhan and from "Transcaspia".

Only a series from Dagestan is a little geographically determinated. All 7 known to me males (9.5-15.7 mm) do not have real femora brushes. All femora internally with rather dense recumbent pubescence, still denser than in other *Apatophysis* species, which do not belong to "*caspica*-group"; and in two males internal femora pubescence is not special at all. All other characters of specimens from Dagestan are very typical for *A. caspica*. Similar situation can be observed in two males from Lenkoran.

A paralectotype of "*A. caspica* Sem." from Kelet-Kaja (Turkmenistan) is *A. margiana* Sem.

9. *Apatophysis* (s. str.) *vedica* sp. n.
(Fig. 9)

Apatophysis caspica, Plavilstshikov, 1936: 116-117 ("Erevan env."), part.; 1948: 26 ("Arax valley"); Villiers, 1967: 18 ("Igdir Reynhanli"; "S.E. slopes of Ararat"), part.; Lobanov et al., 1981: 794, part.; Danilevsky & Miroshnikov, 1985: 99-100 ("Erevan env., Vedy"), part.; Danilevsky, 1988: 128-129, part.; 2006: 2-4, part.; Özdikmen & Turgut, 2006: 202, part.

Type locality. South Armenia, Vedy environs, Goravan, 39˚54'N, 44˚45'E.

Type material. 1 ♂, holotype, Armenia, Vedy environs, Goravan, 39˚54'N, 44˚45'E, 1000m, 18.viii.1996, M. Kalashian leg. - MD; 65 ♂♂ and 1 ♀, paratypes: 2 ♂♂ with same

label - MD; 12 ♂♂ with same label - MK; 2 males with same label - SM; 2 males, 2 km N Surenavan, 39˚48'N, 44˚48'E, 12-13.vii.2007, M. Kalashian leg. - MD; 15 males with same label - MK; 6 ♂♂, Armenia, Hatsavan of Abovian distr., 5.vii.1996, M. Kalashian leg. - MK; 2 ♂♂ from same locality, 13-14.vii.1996 - MD; 12 ♂♂, Armenia, Vedy environs, Goravan, 1000m, 18.viii.1996, M. Kalashian leg. - MK; 3 ♂♂ with same label - MD, SM; 3 ♂♂, Armenia, "Transcaucasia, Darachichag [now Tzakhkadzor], vi.1935" - ZMM; 2 ♂♂, "Armenia, Mt. Alagez [= Aragatz], Inakliu [now Antarut], vi.1935" - ZMM; 2 ♂♂, "Turkey: Kars, SE Slopes of Ararat, 31.viii.1960, 2,400', Gulchard & Harvey, B.M.1960-364", one of them with second label: "*Apatophysis caspica* Sem., A.Villiers det., 1966" - BMNH; 1 ♂, "Turkey: Kars, Ararat, Kara Su Spring, 2,400', 28.viii.1960, Gulchard & Harvey, B.M.1960-364" - BMNH; 1 ♂, "Turkey: Kars, Igdir, Peynhanli, 6.ix.1960, 2,400', Gulchard & Harvey, B.M.1960-364" - BMNH; 1 ♀, Armenia, "Caucasus, Erevan, Maljushenco" - ZMM.

Diagnosis. Body length of males: 11.5-18.0 mm; body width: 3.6-5.7 mm; body length of available female (from mandible apices to posterior margin of the last abdominal tergite) 23.0 mm; body width: 6.0 mm (the length from mandible apices to elytral apices: 17.0 mm).

Males (Figs 9a-9b, 9d); head about 1.4-1.7 times longer than basal width; eyes moderately big, the distance between dorsal eye lobes 1.2-1.7 times more than thickness of 1st antennal joint; the distance between ventral eye lobes very small from a little less than the distance between dorsal eye lobes to about 1.5 times less; antennae moderately longer than body, usually extend beyond elytral apices by two (or two and a half) apical joints; 4th antennal joint more (usually) or less longer than 3rd; usually much shorter than 1st, but sometimes about equal; both 3rd and 4th combined more or less shorter than 5th, often in 1.3 times shorter, but sometimes about equal; pubescence of 5th- 6th antennal joints indistinct; thorax slightly transverse, usually 1.1-1.2 times shorter than basal width; lateral thoracic tubercles very distinct, often a little sharpened, but sometimes (in small specimens) short and obtuse; pronotum usually with relatively sparse punctation in the middle, often smooth shining area present here; pronotal recumbent pubescence rather sparse, several scattered erect setae present; paired lateral convexities distinct; sometimes with deep depression inside each pair; central posterior pronotal convexity usually present; elytra from about 2.1 to 2.3 times longer than wide; elytral costae hardly visible; primary (bigger) punctation never rough, shallow and relatively sparse, usually becoming indistinct in posterior third or fourth; secondary (small) punctures very fine; elytral recumbent pubescence relatively short, moderately dense; several long erect setae scattered near scutellum; episternum of metathorax elongated with nearly parallel sides at middle; all femora (specially posterior) with very dense brushes of moderately long semi-erect setae; 3rd joint of hind tarsi moderately emarginated to about anterior border of posterior third; 4th joint of all tarsi emarginated to about middle or to anterior border of posterior third; lobes of 3rd joint of hind tarsi slightly attenuated, acute, without spines; all tarsi ventrally with central shining line covered with dense semierect pubescence, sometimes central pubescence is so dense that central line nearly indistinct; abdominal sternites without central hair patches; abdomen with relatively sparse recumbent pubescence and numerous erect setae.

Female (Fig. 9c). Head longer, about 1.5 times longer than basal width; eyes larger, the distance between dorsal eye lobes 2 times more than thickness of 1st antennal joint; the distance between ventral eye lobes 2.4 times more than thickness of 1st antennal joint; antennae shorter, reach posterior elytral forth; 4th antennal joint as long as 3rd; each shorter

than 1st, both combined longer than 5th; thorax transverse, 1.1 times wider than long; lateral thoracic tubercles relatively long; pronotum with fine punctation, with indistinct pubescence, with obliterated paired lateral convexities; shallow depression inside each pair distinct; central posterior pronotal convexity absent; central smooth posterior area absent; shallow depression on each side between lateral convexities distinct; elytra nearly parallel sided, slightly widened near middle; about 1.8 times longer than width at humeri; with scattered erect setae anteriorly; elytral punctation relatively dense but shallow, indistinct near apices; with scattered erect setae anteriorly; all femora without hair brushes; 3rd joint of hind tarsi emarginated to anterior border of posterior third; lobes of 3rd joint of hind tarsi moderately attenuated; abdominal sternites glabrous.

Distribution, Map 4(36-42). South of Armenia - Vedy environs, Goravan, 39˚54'N, 44˚45'E (type locality, MD, MK, SM); 2 km N Surenavan, 39˚48'N, 44˚48'E (MD, MK); Hatsavan of Abovian distr. (MD); Alagez Mt., Antarut (ZMM), Tzakhkadzor (ZMM); North-east Turkey - Igdir, Peynhanli (Villiers, 1967a, as *A. caspica* from "Reynhanli"; BMNH); SE slope of Ararat Mt (Villiers, 1967a, as *A. caspica;* BMNH); Ararat Mt., Kara Su Spring (BMNH).

Bionomy. Type locality is represented by fixed sands in Goravan eastwards Vedy (Photo 6). According to M. Kalashian (pers. comm.) the species occurs in clay desert near Surenavan. According to available labels the species is also distributed in dry bush mountain landscapes. Larvae were collected in roots of *Salsola* by M. Kalashian (Danilevsky, 1988).

Remark. The new taxon is characterized first of all by relatively smooth pronotum with sparse punctation; by fine recumbent elytral pubescence; by sparse abdomen pubescence with numerous erect setae.

Only two populations are well represented in my materials: the typical one (sands near Vedy) and from near Surenavan (clay desert). Specimens from Surenavan environs are bigger, darker, with much more distinct elytral punctation.

10. *Apatophysis* (s. str.) *karsica* sp. n.

(Fig. 10)

Apatophysis caspica, Özdikmen & Turgut, 2006: 202, part.

Type locality. Turkey - south-east part of Kars province, Kaçkar Dağı.

Type material. 1 ♂, holotype, "Turkey b.-or. Yusufeli, Parkal, Kackar Mt., 30.viii.1997, Borovka lg. - coll. M. Rejzek; 1 ♂, paratype, "Turkey b.-or., Kaçkar Dağı, 2400 m, Yaylalar (prov. Artvin)[same locality?], 12.vii.1999, P. Vitek leg. - coll. P. Kabátek; 1 ♂, paratype, "Sarigel-Parhali, 8.vii.1993, M. Šárovec leg." - coll. M. Šárovec;

Diagnosis. Body length in males: 15.0-17.7 mm; body width: 4.5-5.4 mm; females unknown.

Males (Fig. 10); head about 1.5-1.7 times longer than basal width; eyes moderately big, the distance between dorsal eye lobes 1.5-1.7 times more than thickness of 1st antennal joint; the distance between ventral eye lobes about same, just a little more; antennae relatively long, extend beyond elytral apices by two (or two and a half) apical joints; 4th antennal joint

as long as 3rd or a little longer; each shorter than 1st, both combined as long as 5th (or a little longer); thorax slightly transverse, usually 1.1-1.2 times shorter than basal width; lateral thoracic tubercles distinct, but short, obtuse, more or less obliterated; pronotum with very dense rough punctation, punctures are usually partly fused, conjugated near middle; central smooth area absent; covered with moderately long recumbent or semierect pubescence and scattered erect setae, with distinct paired lateral convexities; sometimes with deep depression inside each pair; central posterior pronotal convexity indistinct; elytra from about 2.1 to 2.2 times longer than wide; elytral costae indistinct; punctation relatively rough, distinctly double; primary (big) punctures becoming indistinct in about posterior fifth; secondary (small) punctures in interspaces very rough; elytral recumbent pubescence relatively strong, anteriorly semierect, moderately dense, several long erect setae scattered near scutellum; episternum of metathorax elongated with nearly parallel sides at middle; all femora (specially posterior) with very dense brushes of moderately long semi-erect setae; 3rd joint of all tarsi moderately emarginated to about anterior border of posterior third; lobes of 3rd joint of all tarsi slightly attenuated without spines; all tarsi ventrally with central shining line covered with dense semierect pubescence; abdominal sternites without central hair patches; abdomen with rather dense recumbent pubescence and a few erect setae.

Distribution, Map 3(43), Map 4(43). Turkey - south-east part of Kars province, Kaçkar Dağı.

Bionomy. The species is connected with dry mountain landscapes.

Remarks. The new species differs from all other species of "*caspica*-group" (which is characterized by femora hair brushes) by rough elytral pubescence with semierect setae anteriorly; pubescence of 5th-6th antennal joints very distinct (Fig. 10c); all *Apatophysis* of Anatolia usually have regular punctated pronotum in the middle, sometimes with smooth central area, but never with conjugated punctures as in *A. karsica* sp. n.

11. *Apatophysis* (s. str.) *kadleci* sp. n.
(Fig. 11)

Type locality. Turkey **-** Namrun, prov. Içel.

Type material. 1 ♂, holotype, "SO Turkey [Içel], M.v.1970, Namrun, Tarsus, leg. Bernhauer D." - SK; 2 ♂♂, paratypes with same label - SK.

Diagnosis. Body length in males: 11.3-17.5 mm; body width: 3.4-5.6 mm; females unknown.

Males (Fig. 11); head about 1.5-1.6 times longer than basal width; eyes moderately big, the distance between dorsal eye lobes about 1.7 times more than thickness of 1st antennal joint; the distance between ventral eye lobes rather big similar to *A. anatolica*: about 1.1 times more than the distance between dorsal eye lobes; antennae relatively long, extend beyond elytral apices by about two apical joints; 4th antennal joint about 1.3-1.4 times longer than 3rd and a little shorter than 1st; 3rd and 4th combined distinctly shorter, than 5th; pubescence of 5th - 6th antennal joints indistinct; thorax slightly transverse, about 1.1 times shorter than basal width, or as long as wide (in small specimen); lateral thoracic tubercles distinct, slightly sharpened, or very short, nearly

indistinct; pronotum with very dense regular punctation, punctures are not conjugated; central smooth area absent; covered with moderately long dense recumbent pubescence and scattered erect setae, with distinct paired lateral convexities; with distinct depression inside each pair; central posterior pronotal convexity small; elytral sides slightly converging posteriorly, nearly parallel; elytra about 2.1 to 2.3 times longer than wide; elytral costae slightly pronounced; primary elytral punctation relatively small, distinct to about posterior elytral fifth; secondary (small) punctures very fine; elytral recumbent pubescence relatively short, moderately dense; several long erect setae scattered near scutellum; episternum of metathorax elongated with nearly parallel sides at middle; all femora (specially posterior) with very dense brushes of moderately long semi-erect setae; 3rd joint of hind tarsi moderately emarginated to about anterior border of posterior third; lobes of 3rd joint of all tarsi moderately attenuated, without spines; all tarsi ventrally with central shining line covered with dense semierect pubescence, sometimes central pubescence is so dense that central line nearly indistinct; abdominal sternites without central hair patches; abdomen with rather dense recumbent pubescence and scattered erect setae.

Distribution, Map 5(6). Turkey **-** Namrun, prov. Içel (coll. S. Kadlec).

Bionomy. The species is connected with dry mountain landscapes.

Remark. The new species differs from all other species of "*caspica*-group" by relatively parallel-sided elytra.

12. *Apatophysis* (s. str.) *anatolica* Heyrovský, 1938
(Fig. 12)

Apathophysis [sic!] *anatolica* Heyrovský, 1938: 93 ("Ak-Shehir").
Apatophysis caspica, Demelt, 1967: 106 ("Tuz Göli, Nordufer"), part.; Özdikmen & Turgut, 2006: 202, part.
Apatophysis anatolica, Adlbauer, 1992: 489 (Der Esekil, Tuz Gölü); Özdikmen & Demir, 2006: 159 (Konya, Karapinar); Özdikmen & Turgut, 2006: 202, part.

Type locality. Turkey **-** Ak-Shehir, prov. Konya.

Material studied. 1 ♂, lectotype, present designation, three labels available: (1) "Asia min. c., Akschechir-Tsch., 16.-31.viii.29, Coll. Wagner", (2) "Holotypus", (3) "*Apatophysis anatolica* m. typ. Dr. L. Heyrovský det." - NMP; 1 ♂, paralectotype, present designation, with three labels: (1)"Asia min. c., Akschechir-Tsch., 16.-31.vii.29, Coll. Wagner", (2)"TYPUS", (3) "*Apatophysis anatolica* m., Det. Dr. Heyrovský" - ZIN; 1 ♂, paralectotype, present designation, with same geographical label - MD.

Diagnosis. Body length of males (females unknown): 13.5-16.5 mm; body width: 4.4-5.2 mm.

Males (Fig. 12): head about 1.5-1.6 times longer than basal width; eyes moderately big, the distance between dorsal eye lobes 1.6-1.7 times more than thickness of 1st antennal joint, the distance between ventral eye lobes about same; antennae moderately longer than body, extend beyond elytral apices by two apical joints; 4th antennal joint a little longer than 3rd, or about the same and much shorter than 1st; both 3rd and 4th combined a little shorter than 5th;

pubescence of 5th-6th antennal joints hardly visible; thorax slightly transverse, usually 1.1-1.2 times shorter than basal width; lateral thoracic tubercles distinct, but short and obtuse; pronotum usually with relatively sparse punctation in the middle, smooth shining area can be slightly pronounced; pronotal recumbent pubescence relatively sparse, a few erect setae present; paired lateral convexities distinct; depressions inside each pair can be well developed; central posterior pronotal convexity usually present; elytra about 2.0-2.1 times longer than wide; elytral costae slightly visible; primary (bigger) punctation fine and relatively sparse, becoming indistinct in posterior third; secondary (small) punctures very fine; elytral recumbent pubescence relatively short, moderately dense; several long erect setae scattered near scutellum; episternum of metathorax elongated with nearly parallel sides at middle; all femora (specially posterior) with very dense brushes of moderately long semi-erect setae; 3rd joint of hind tarsi moderately emarginated to about anterior border of posterior third; lobes of 3rd joint of all tarsi moderately attenuated, without spines; all tarsi ventrally with central shining line covered with dense semierect pubescence, central pubescence can be so dense that central line nearly indistinct; abdominal sternites without central hair patches; abdomen with relatively sparse recumbent pubescence and numerous erect setae.

Distribution, Map 5(1-5). Turkey - Ak-Shehir, Konya (type lokality); Karapinar, Konya (Özdikmen, Demir, 2006); Tuz Gölü, north bank (Demelt, 1967, as *A. caspica*); Tuz Gölü, Eskil, Aksaray (Adlbauer, 1992).

Bionomy. According to available labels the species is connected with dry foothills as well as with sandy deserts.

Remarks. According to the original description the type series includes 3 ♂♂, 13-15 mm long. Now one male syntype (16.4 mm long) is preserved in NMP with 3 labels: (1) "Asia min. c., Akschechir-Tsch., 16.-31.viii.29, Coll. Wagner", (2) "Holotypus", (3) "*Apatophysis anatolica* m. typ. Dr. L. Heyrovský det." This specimen is designated by me now as lectotype. A male from Zoological Institute, St.-Petersburg (15.3 mm), as well as a male (13.5 mm long) in my collection (each with same geographical label as in lectotype) are designated by me as paralectotypes.

The species is characterized by relatively short body attenuated posteriorly - similar to *A. caspica*, but with more distinct elytral costae, finer elytral punctation and pubescence, pronotal punctation finer, not so dense, with distinct interspaces; the distance between ventral eye lobes is relatively big.

13. *Apatophysis* (s. str.) *baeckmanniana* Semenov, 1907
(Fig. 13)

Apatophysis baeckmanniana Semenov, 1907: 223 ("stat. Timur, 50 km. ab oppido Turkestan septentrionem versus; dstr. Perovsk: Karamaktshi; Kazalinsk"); Aurivillius, 1912: 160; Plavilstshikov, 1936: 110, 112, 494; Kostin, 1973: 130; Lobanov et al., 1981: 794

Apatophysis (s. str.) *baeckmanniana,* Semenov-Tian-Shanskij & Stshegoleva-Barovskaja, 1936: 66, 68, 78.

Type locality. Kazakhstan, Dzhusaly (Karamakchi of original description), about 30km west-northwards Kzyl-Orda, 45˚30'N, 64˚05'E, locality of lectotype, present designation, about 30km west-northwards Kzyl-Orda.

Material studied. 1 ♂, lectotype (present designation) with 3 labels: (1)"[Turkestan,

Karamakchi, 3.vii.04, Breitfuss]" [in Russian]; (2)"*Apatophysis baeckmanniana* m. typ. xii.01, A. Semenov det."; (3)"coll. Semenov-Tian-Shansky" - ZIN; 6 ♂♂, paralectotypes (present designation), each with same 3 labels - ZIN; 1 ♀, "Syr-Darja, Baigacum, Koshantschikoff, 2.viii.10" - ZIN; 3 ♂♂, "Turkestan env., 6.viii.09 [1909]" - ZIN; 1 ♂, "Guliaevka, Chu river, 20.viii.03 [1903]" - ZIN; 2 ♂♂, "Malye Barsuki, 1.viii" - ZIN; 3 ♂♂, each with two labels: (1) "Aral m. or., Ush-Kuduk well, 15.viii", (2) "*A. caspica* Sem., N.N.Plavilstshikov det." - ZMM; 2 ♂♂, Kazakhstan, "Syr-Darja, Dshulek" - MD; 1 - "Fluss Tschu, S.D., Ak-Kultuk, 21.viii.1907, E. Fischer" - ZIN; 1 ♂ with same label - MD; 1 ♂, Kazakhstan, Taukumy Sands, southwards Balkhash lake, 7.viii.1965, L. Serkova leg. - ZIN; 1 ♂, Kazakhstan, Kara-Kastek [north foothills of Zailijsky Alatau Ridge westwards Alma-Ata], 14.iv.1968, M. Bajtenov leg. - ZIN; 1 ♂, Kazakhstan, Dzhambul [now Taraz] reg., Dzhuvaly distr. [south Karatau ridge], Chokpak env., 15.ix.1986, D. Obydov leg. - MD; 1 ♂, Uzbekistan, Chatkal nat. reserve, 6.viii.1986, A. Kompantzev leg. - MD; 2 ♂♂, Kazakhstan, "Syr-Darja reg., Baigacum [100km SE Kzyl-Orda], 1.ix.1934, Kozhantchikov leg." - MD; 1 ♂, "Syr-Daria, Baigacum, Koshantschikoff" - MD; 8 ♂♂, "Transcaspia, Bajgacum, 22.vi[vii].1912, V. Kozhantchikov" - ZMM; 4 ♂♂, same locality, 25.vii.1910 - ZMM; 2 ♂♂, "Mujunkumy, 25.vii.1907, E. Fischer" - ZMM; 1 ♂, "Betpak-Dala, 1.ix.1934" - ZMM; 1 ♂, "Tzhu river, Chili, 12.viii.1950" - ZMM; 1 ♂, Kazakhstan, "Chimkent reg., Kara-Kengir well, st. Pelz..., 10.vii.1914" - ZMM; 1 ♂, "Orenburg, Tashkent road, Baigakum, 15.viii.1907, A. Glazunov leg" - ZMM; 1 ♂, "Ai-Darja [near Dzhulek], Syr-Darja, A. Kricheldorff" - MD; 1 ♂, Kzyl-Orda reg., Dzhulek env., 14.viii.1907, P. Antropov leg. - SM; 1 ♀, Kazakhstan, East Mojunkume, Guliaevka, 29.vi.1929, P. Okunev leg. - ZIN; 1 ♂, "South Fergana, 15.viii.1957" - MD; 1 ♂, Kazakhstan, Kyzyl-Kumy, 17.vii.1978, A. Kapanov leg. - SM; 12 ♂♂, Kyrgyzstan, Naryn valley, Tashkumyr, 700m, 12-26.vii.1991, M. Danilevsky leg. - MD; 1 ♂, Uzbekistan, Parkent env. (near Tashkent), Nevich, 5.vii.1995, V. Murzin leg. - SM.

Diagnosis. Body length of available males: 10.0-16.0 mm; body width: 3.1-5.0 mm; body length of available females (2 ex) from mandible apices to posterior margin of the last abdominal tergite: 21.9-22.8 mm; body width: 5.8-6.8 mm (the length from mandible apices to elytral apices: 16.5-16.5 mm).

According to Plavilstshikov (1936) body length in females 22-23 mm.

Males (Fig. 13a); head from 1.3 to 1.7 times longer than basal width; eyes moderately big, the distance between dorsal eye lobes 1.5-1.6 times more than thickness of 1st antennal joint; the distance between ventral eye lobes from 1.1 to 1.9 times more than thickness of 1st antennal joint or often equal to it, antennae long, usually extend beyond elytral apices by three apical joints, but sometimes distinctly shorter, extend beyond elytral apices by only 2 apical joints (specimens from Chatkal); 4th antennal joint a little longer or a little shorter than 3rd; the longest about as long as 1st or shorter; both combined usually shorter than 5th, or longer, or about equal; thorax slightly transverse, usually 1.1-1.2 times shorter than basal width; lateral thoracic tubercles short but distinct, a little sharpened, sometimes considerably reduced; pronotum with very dense conjugated punctation, covered with long, usually dense recumbent pubescence without erect setae dorsally, with distinct paired lateral convexities, without deep depressions inside each pair; central posterior pronotal convexity present or absent; central smooth posterior area sometimes distinct; elytra elongated, usually

from about 2.2 to 2.3 times longer than wide, but sometimes (specimen from Chatkal and the smallest specimen from Baigacum - 10.2 mm) elytra shorter - 2.1 times longer than wide; elytral costae distinct or obliterated; punctation moderately fine, often hardly visible because of dense pubescence; indistinct in posterior half; very rare elytral punctation rather distinct to about elytral apices (both males from Chatkal); covered with rather dense long recumbent pubescence, without erect setae; glabrous areas around punctures usually totally absent; episternum of metathorax elongated with nearly parallel sides at middle; all femora without hair brushes; 3rd joint of hind tarsi shallowly emarginated to about anterior border of posterior third or posterior forth; lobes of 3rd joint of all tarsi moderately attenuated, without spines; all tarsi ventrally with central shining line covered with dense recumbent pubescence; abdominal sternites without central hair patches, but with long erect setae along posterior borders.

Females (Fig. 13b), only two specimens available; head about 1.1 times longer than basal width; the distance between dorsal eye lobes 2.5-2.7 times more than thickness of 1st antennal joint; the distance between ventral eye lobes 4.0-4.7 times more than thickness of 1st antennal joint; antennae reach posterior elytral forth; 4th antennal joint as long as 3rd; each shorter than 1st, both combined longer than 5th; thorax transverse, 1.2-1.3 times wider than long; lateral thoracic tubercles short, obtuse; pronotum with fine irregular sculpture, without distinct punctures; with very fine, short, recumbent pubescence; with obliterated paired lateral convexities, which can be well developed with deep depression inside each pair; central posterior pronotal convexity can be distinct; central smooth posterior area hardly visible; elytra regularly oval, widened near middle; about 1.7-1.9 times longer than width at humeri; elytral punctation nearly absent, several very small indistinct punctures are scattered along the whole length; elytral setae totally absent; all femora without hair brushes; 3rd joint of hind tarsi with shallow emargination to anterior border of posterior forth or a little deeper; lobes of 3rd joint of hind tarsi slightly attenuated; abdominal sternites with very short indistinct punctation.

Distribution, Map 6(5-20). Kazakhstan - from north environs of Aral sea along the whole length of Syr-Darja valley to Uzbekistan and Kyrgyzstan, and along south border from about Chimkent to Karatau Ridge, then Mujunkumy, and from Zailijsky Alatau to Balkhash lake; known localities are: Malye Barsuki Sands northwards Aral sea - ZIN; south-east environs of Aral sea, Ush-Kuduk well - ZMM; Kazalinsk (Semenov-Tian-Shanskij & Stshegoleva-Barovskaja, 1936); Karamakchi (now Dzhusaly, about 30 km west-northwards Kzyl-Orda - lectotype locality) - ZIN, (Semenov, 1907); Turkestan environs - ZIN, (Semenov-Tian-Shanskij & Stshegoleva-Barovskaja, 1936); Dzhulek env. - MD, SM, (Semenov-Tian-Shanskij & Stshegoleva-Barovskaja, 1936); Baigacum - ZIN, MD, (Semenov-Tian-Shanskij & Stshegoleva-Barovskaja, 1936); Chimkent region, Kara-Kengir well[?] - ZMM; Chu river valley, Ak-Kultuk[?] - MD, ZIN; Chu river valley, Guliaevka [44˚17'N, 72˚54'E] - ZIN, (Semenov-Tian-Shanskij & Stshegoleva-Barovskaja, 1936); Chu river valley, Chili[?] - ZMM; Mujunkumy - ZMM; Betpak-Dala - ZMM; South of Karatau ridge, Chokpak - MD; Kara-Kastek, north foothills of Zailijsky Alatau Ridge westwards Alma-Ata - ZIN; Taukumy Sands, southwards Balkhash lake - ZIN; Uzbekistan - Nevich, Parkent env. (near Tashkent) - SM; Chatkal natural reserve (about same locality) - MD; Kyrgyzstan - Tashkumyr environs - MD; "South Fergana"[?Osh region] - MD.

Bionomy. The species is connected with different landscapes in various parts of its very big area, from sandy dunes near Aral Sea and along Syr-Darja valley, to clay deserts of South Kazakhstnan and Betpak-Dala and then to dry bush mountain landscapes in Kyrgyzstan. (Photo 7.) The foothills near Kara-Kastek at the north slopes of Zailijsky Alatau are relatively humid. Imagoes are mostly active at the end of summer. A big number of available specimens were collected in July-August. The species is rather numerous in Naryn valley near Tashkumyr. Many specimens were attracted by light.

Remarks. The species is characterized by the absence of femora and abdomen hair brushes, so it is not close to *A. caspica*, neither to *A. serricornis* (= *mongolica*). It seems to be close to *A. komarowi,* but antennae relatively shorter, elytral pubescence much longer and denser, often totally hides elytral punctation, which is relatively fine; glabrous areas around punctures usually indistinct.

14. *Apatophysis* (s. str.) *komarowi* Semenov, 1889
(Fig. 14)

Apatophysis komarowi Semenov, 1889: 401 ("Transcaspia"); Aurivillius, 1912: 160.
Apatophysis (*s. str*.) *komarovi*, Semenov-Tian-Shanskij & Stshegoleva-Barovskaja, 1936: 65, 68, 79 (south Turkmenistan).
Apatophysis komarovi, Plavilstshikov, 1936: 112, 117, 496; Lobanov et al., 1981: 794.
Apatophysis caspica, Danilevsky, 2006: 2-4, part.

Type locality. Turkmenistan; the species was described from "Transcaspia", but according to Semenov-Tian-Shanskij & Stshegoleva-Barovskaja (1936) all known to them specimens were collected in Turkmenistan, most probably not far from Ashkhabad.

Material studied. 1 ♂, lectotype, present designation, three labels available: (1) ["Transcasp reg., Komarov, received 1888"] [in Russian]; (2) *Apatophysis komarowi* m. typ. Semenov", (3) "coll. Semenov-Tian-Shansky" – ZIN; 1 ♂ with two labels: (1) "Transcasp. merid.", (2) "*A. komarovi* Sem., N. Plavilstshikov det." - ZMM; 2 ♂♂, each with two labels: (1) "Transcasp.", (2) "*A. caspica* Sem., N. Plavilstshikov det." - ZMM; 1 ♂, ["st. Tedzhen, Transcaspien railway, 23.viii-2.ix.1896, Anger leg."] [in Russin] - ZIN; 1 ♂, ["Ashkhabad, 12.vi.1962"] [in Russian] - ZIN; 1 ♂, Tadzhikistan, "vall. fl. Pjandzh, Ajvadzh [near Tigrovaja Balka nat. reserve], Borovkov leg." - MD; 1 ♂ with two labels: (1) "vall. fl. Pjandzh, Kirovabad [now Pjandzh eastwards Tigrovaja Balka] viii.1958"; (2) "*Apatophysis komarovi* Sem., A. Bogačev det." - ZMM; 1 ♂, "Caucasus, Nuha [now Sheki]" - ZIN.

Diagnosis. Body length in males: 11.3-14.9 mm; body width: 3.4-4.5 mm (females unknown).

Males (Fig. 14); head from 1.5 to 1.7 times longer than basal width; eyes moderately big, the distance between dorsal eye lobes 1.5-1.8 times more than thickness of 1st antennal joint; the distance between ventral eye lobes 1.3-1.8 times more than thickness of 1st antennal joint or just equal to it (in two specimens including lectotype), antennae long, usually extend beyond elytral apices by three apical joints and a half of 8th joint; 4th antennal joint a little or considerably longer than 3rd; but sometimes a little shorter; each shorter than 1st, both

combined shorter than 5th (or sometimes about equal); thorax slightly transverse, usually 1.1-1.2 times shorter than basal width; lateral thoracic tubercles short but distinct, a little sharpened; pronotum with very dense conjugated punctation, covered with fine recumbent pubescence without erect setae dorsally, with distinct paired lateral convexities, without deep depressions inside each pair; central posterior pronotal convexity present or absent; central smooth posterior area often distinct; elytra elongated, from about 2.2 to 2.4 times longer than wide; elytral costae distinct; punctation distinct in anterior elytral half and gradually disappears in posterior; covered with fine, short, rather peculiar recumbent pubescence, without erect setae; each puncture is surrounded by small glabrous area, so elytra looks finely spotted; episternum of metathorax elongated with nearly parallel sides at middle; all femora without hair brushes; 3rd joint of hind tarsi shallowly emarginated to about anterior border of posterior third or posterior forth; lobes of 3rd joint of all tarsi moderately attenuated, without spines; all tarsi ventrally with central shining line covered with dense semierect pubescence, often more or less glabrous; abdominal sternites without central hair patches, but with long erect setae along posterior borders.

Distribution, Map 4(44), Map 6(21-24). Traditionally the species is regarded to be distributed in south Turkmenistan along Iran border (Plavilstshikov, 1936; Semenov-Tian-Shanskij & Stshegoleva-Barovskaja, 1936), because old available specimens were found by persons, who collected in south Turkmenistan - apparently not far from Ashkhabad - probable type locality. Only two Turkmenistan specimens have good labels - Tedzhen environs - ZIN and Ashkhabad environs - ZIN. Two available specimens with good labels were collected in south Tadzhikistan in low levels of Pjandzh and Vakhsh rivers not far from Tigrovaja Balka natural reserve: Pjandzh eastwards Tigrovaja Balka - ZMM and Ajvadzh - MD. One male with typical characters of the species was collected in Azerbaijdzhan (Sheki, Fig. 14c) - first record of the species for Transcaucasia)

Bionomy. The species is very rare in nature. It is distributed in areas, which are very popular among entomologists, but a very small number of specimens are known. So, no good information is available about its biology. It must be connected with dry bush landscapes.

Remarks. The species is not close to *A. caspica*, as it was traditionally believed, because of elongated body, very long antennae and absence of femora hair bushes. All such characters make it very close to *A. baeckmanniana*, but antennae relatively longer, elytral pubescence very short and less dense, never hides elytral punctation, which is distinct; elytra look more or less spotted because of glabrous areas around punctures.

A male from Ajvadzh was wrongly identified by me before (Danilevsky, 2006) as *A. caspica.*

15. *Apatophysis* (s. str.) *hotanica* sp. n.
(Fig. 15)

Type locality. Hotan, north-east slope of Kun-Lun Ridge, North-West China, according to holotype label.

Type material. 1 ♂, holotype with three labels: (1)"Ost-Turkestan, Khotan Geb., Coll Hauser, 1900"; (2)"Hauser Coll. 1904 - 63."; (3)"*Apatophysis Komarowi* Sem. Gnglb. det." - BMNH.

Diagnosis. Body length of a single available male: 13.0 mm; body width: 4.1 mm (females unknown).

Head about 1.4 times longer than basal width; eyes moderately big, the distance between dorsal eye lobes about same as the distance between ventral eye lobes and about 2.2 times more than thickness of 1st antennal joint; antennae short, extend beyond elytral apices by about one apical joint; 3rd and 4th antennal joints very short and similar in length, 4th joint less than 2 times longer than wide, 3rd joint a little shorter than 4th, both combined shorter than 5th; 3rd joint about 1.4 times shorter than 1st; thorax slightly transverse, about 1.3 times shorter than basal width; lateral thoracic tubercles short but slightly acute; pronotum with very fine dense nearly indistinct punctation, covered with fine recumbent pubescence without erect setae dorsally, with distinct paired lateral convexities, without deep depressions inside each pair; central posterior pronotal convexity present; central smooth posterior area absent; elytra elongated, about 2.2 times longer than wide; covered with dense, short, recumbent pubescence, without erect setae; elytral costae slightly visible; punctation nearly indistinct, primary punctures shallow and very sparse, secondary punctures very small and very dense; episternum of metathorax elongated with nearly parallel sides at middle; all femora without hair brushes; 3rd joint of hind tarsi shallowly emarginated to about anterior border of posterior third; lobes of 3rd joint of all tarsi hardly attenuated, without spines; all tarsi ventrally with central shining line covered with dense semierect pubescence, partly glabrous; abdominal sternites without central hair patches, but with long erect setae along posterior borders.

Bionomy. According to available label of a single known specimen; the species must be connected with dry mountains.

Distribution, Map 2(4). North-West China, north-east slope of Kun-Lun Ridge, Hotan - BMNH.

Remark. The new species seem to be close to *A. komarowi* and *A. baeckmanniana* because of the absence of femora hair brushes and abdominal hair patches. It differs from both first of all by short antennae with very short 3rd and 4th joints.

Apatophysis (*Angustephysis* Pic, 1956) nom. rest.

Type species: *Apatophysis richteri* Pic, 1956 (monotypy).

Diagnosis. Body from intermediate size to small, in males usually more or less attenuated posteriorly; elytral pubescence usually consists of peculiar very short recumbent setae; pads of all tarsi are represented by two longitudinal portions separated by wide median line; pronotal tubercles more or less obliterated; anterior coxal cavities widely opened; internal surface of all tibiae with very dense brushes of short setae (Figs 16j-16k); middle and hind tibiae more or less curved, dilated distally; the structure of male tibiae is much more specialized than in females, but in female internal surface of all tibiae are also covered with very short, dense

setae; posterior coxae in females are strongly distant by wide process of abdominal sternite; in females abdomen strongly exposed beyond elytra.

Bionomy. All species are connected with desert and hemi-desert landscapes. Larvae must feed in roots of shrubs and trees.

Remark. The subgenus includes 5 species: *A.* (*An.*) *richteri* Pic, 1956: 2 ("Iran, Belouchistan"); *A.* (*An*.) *modica* Gahan, 1906: 71 („Baluchistan: Quetta; Persia Gulistan"); *A.* (*An*.) *farsicola* Sama, Fallahzadeh et Rapuzzi, 2005: 124 ("Iran, Fars: Shiraz"); *A.* (*An.*) *danczenkoi* Danilevsky, 2006: 5 ("SE Iran near Kerman, 15 km eastwards Makhan"); *A.* (*An*.) *margiana* Semenov-Tian-Shanskij et Stshegoleva-Barovskaja, 1936.

16. *Apatophysis* (*An.*) *margiana* Semenov-Tian-Shanskij et Stshegoleva-Barovskaja, 1936

(Fig. 16)

Apatophysis (s. str.) *margiana* Semenov-Tian-Shanskij et Stshegoleva- Barovskaja, 1936: 65, 68, 77 ("Imam-baba, districtus Merv; Sary-jazy; fl. Kushka ad limitem Afganiae: Badhyz.").
Apatophysis margiana, Plavilstshikov, 1936: 110; Lobanov et al., 1981: 794.
Apatophysis plavilstshikovi Miroshnikov, 1992: 392 ("West Turkmenistan, Balkan region, sands Tchilmamedkum, Kyzyl-Takyr"), **syn. n.**

Type locality. Turkmenistan, Imam-Baba (according to present lectotype designation).

Material studied. 1 ♂, lectotype of *A. margiana* Semenov-Tian-Shanskij et Stshegoleva-Barovskaja, 1936 (present designation) with three labels: (1)["Imam-Baba, Transcasp. reg., 4.v.1912 (the date in the original description is 17.v.1912), V.Kozhantchikov leg."][in Russian], (2)"*Apatophysis margiana* m. type, 1935, A. Semenov-Tian-Shansky det.", (3)"Coll. Semenov-Tian-Shansky" - ZIN; 2 ♂♂, paralectotypes (present designation) with same geographical label - ZIN; 1 ♂, paralectotype (present designation), "Transcaspien, K Aris leg." - ZIN; 1 ♂, paralectotype (present designation) with two labels: (1)"Afganist. Kushke.", (2)"Coll. Semenov-Tian-Shansky" - ZIN; 1 ♂, paralectotype (present designation) of *A. caspica* Semenov, 1901 with two labels: (1)["Kelet-kaja (?Murgab river valley), 3.vi.1893, Glazunov"][in Russian], (2)"*Apatophysis caspica* m. AS iii.94" - ZIN; 1 ♂ from same locality (as "Kales-Kaia"), 3.vi.1893, Glazunov leg. - ZIN; 1 ♂, Turkmenistan, "Transcaspia, Imam-baba, 6.v.1910" - ZMM; 2 ♂♂, "Kushka distr., Imam-baba, 4.iv.1912 and 6.v.1912, Kozhantchikov leg.", 1st specimen with 2nd label: "*Apatophysis kozhantchikovi* [nomen nudum], typ. G. Suvorov det." - ZIN; 1 ♂, Turkmenistan, Badhyz, Akarcheshma, 5.vii.1991, Krivohatsky leg. - ZIN; 2 ♂♂, Turkmenistan, "Imam-Baba, 4.iv.1912 and 4.iv.1913, V.Kozhantchikov leg."][in Russian] - ZIN; 1 ♂, "Imam-Baba, 4.iv.1912, V. Kozhantchikov leg."][in Russian] - SM; 1 ♂, Turkmenistan, "Transcasp., Imam-Baba" - MD; 1 ♂♂, Kazakhstan, Kzyl-Orda reg., Chiili, 13.vi.1958, V.Murzin leg. - SM; 1 ♂, Turkmenistan, Turanga[?], 23.viii.1973, O. Yudaev leg. - SM; 2 ♂♂, 1 ♀, Turkmenistan, Bairam-Ali, 22.v.1973, M.Danilevsky leg. - MD; 2 ♂♂, Turkmenistan, Badkhyz, 15.vi.1975 and 27.vii.1975, S. Murzin leg. - SM; 1 ♂, holotype of *A. plavilstshikovi* Miroshnikov, 1992 (the original description was based on a single specimen), Turkmenistan, Krasnovodsk reg.,

sands Chilmamedkum, 2 km from Kyzyl-Takyr, 22.v.1984 E. Khatchikov leg. - ZIN; 4 ♂♂, SW Turkmenistan, "Transcaspien, Sumbar, 1894, Herz" - ZIN; 1 ♂ (from about type locality) with two labeles: (1)"Tr. Casp., Gr. Balchan [= Bolshoj Balkhan or „Balchan Majus",]", (2)"Coll. Semenov-Tian-Shansky" - most probably one of syntypes of *A. caspica* Sem.; 1 ♂, Turkmenistan, Iol-Dere (near Kara-Kala), 20.viii.1952, V. Kuznetzov leg. - ZIN; 1 ♂, Uzbekistan, Karakalpakia, west bank of Aral sea, 10.viii.1970, Pirnazarov leg. - ZIN; 1 ♂, Uzbekistan, Karakalpakia, Ustiurt, Kuanysh, 10.viii.1970, Pirnazarov leg. - ZIN.

Diagnosis. Traditionally the area of *A. margiana* - (a single representative of *Angustephysis* Pic in the region) was limited to Murgab river valley in south Turkmenistan. Now, because of new good characters, many specimens of *A. margiana* were adequately identified from many distant localities of Central Asia including type locality of *A. plavilstshikovi* Miroshnikov, 1992, which also undoubtedly belong to subgenus *Angustephysis.* The whole series of *A. margiana* is so variable, that the distinguishing characters of *A. plavilstshikovi* Miroshnikov, 1992 (Fig. 16d) listed in the original description must be regarded now as individual characters of holotype specimen. So, *A. margiana* Semenov-Tian-Shanskij et Stshegoleva-Barovskaja, 1936 = *A. plavilstshikovi* Miroshnikov, 1992, syn. n.

Body length of males: 10.5-15.0 mm; body width: 3.4-5.0 mm; body length of a single available female (from mandible apices to posterior margin of the last abdominal tergite) 18.6 mm; body width (at humeri): 5.2 mm; the length of the female from mandible apices to elytral apices: 15.0 mm. Body length of the male holotype of *A. plaviltshikovi* Miroshnikov - 11.1 mm, width - 3.4 mm.

Males (Figs 16a-16b, 16d-16k); head about 1.5-1.7 times longer than basal width; eyes moderately big, the distance between dorsal eye lobes from 1.2 to 1.9 times more than thickness of 1st antennal joint, the distance between ventral eye lobes from 1.2 times less than the distance between dorsal eye lobes, to 1.2 times more; antennae long or short; they can extend beyond elytral apices by three apical joints (Fig. 16b), or by about one (16d, 16e, 16i); 4th antennal joint from a little longer than 3rd, to 1.5 times longer than 3rd and longer than 1st; 3rd joint usually a little shorter than 1st or a little longer; 3rd and 4th combined much longer than 5th; thorax transverse, 1.1-1.4 times shorter than basal width; lateral thoracic tubercles small and wide, sometimes a little sharpened; pronotum slightly convex, with very dense partly irregular conjugated punctation, which sometimes is very fine and nearly indistinct, or punctures dense, but very distinct; usually covered with very fine short recumbent pubescence and scattered erect setae; but sometimes (specimen from Kzyl-Orda, Fig. 16i) pronotal recumbent pubescence consists of longer setae, similar to pronotal pubescence of *Apatophysis* s. str.; pronotal sculpture often partly obliterated, paired lateral convexities usually nearly indistinct or very distinct (specimen from Kzyl-Orda, Fig. 16i); depression inside each pair usually well developed; central posterior pronotal convexity absent or present; central smooth posterior area sometimes present; elytra about 2.1-2.2 times longer than wide; elytral costae indistinct; elytral punctation small, but distinct up to elytral middle or longer, disappearing in posterior elytral third; sometimes elytral punctation sparse and hardly visible only near humeri; elytra covered with very fine, short, peculiar recumbent pubescence, which is typical for the subgenus or with longer semierect recumbent pubescence (specimen from Kzyl-Orda, Fig. 16i); with or without scattered erect setae anteriorly; episternum of metathorax elongated

with nearly parallel sides at middle; femora without hair brushes; all tibiae with strongly developed very short and dense internal brushes (Figs 16j-16k); middle and hind tibiae curved (strongly curved in the holotype of *A. plavilstshikovi,* Fig. 16d) and considerably dilated distally; joints of hind tarsi in the holotype of *A. plavilstshikovi* abnormally small, so 2nd and 3rd joints combined much shorter than apical joint (Fig. 16d); normally they are longer than apical joint; 3rd joint of hind tarsi emarginated to about middle or less; lobes of 3rd joint of all tarsi moderately attenuated, without spines; all tarsi ventrally with central shining line covered with dense recumbent setae, sometimes partly glabrous; abdomen with more or less dense recumbent pubescence and more or less numerous erect setae.

Female (Fig. 16c). Head wide, about 1.6 times longer than basal width; eyes moderately big, the distance between dorsal eye lobes 2.2 times more than thickness of 1st antennal joint; the distance between ventral eye lobes 3.3 times more than thickness of 1st antennal joint; antennae reach posterior elytral third; 4th antennal joint as long as 3rd; each shorter than 1st, which about as long as 5th; thorax transverse, about 1.2 times wider than long; lateral thoracic tubercles wide and short, but slightly acute; pronotum evenly exposed, nearly smooth, with very dense partly irregular small punctation, covered with very fine and short indistinct recumbent pubescence, with several erect setae; pronotal tubercles strongly obliterated; elytra slightly widened near middle, about 1.9 times longer than width at humeri; elytral punctation deep and distinct in anterior half, becoming sparser posteriorly and indistinct near middle; covered with very fine, indistinct recumbent pubescence, with several erect setae near scutellum; all femora without hair brushes, but all tibiae covered with very dense, very short setae internally; 3rd joint of hind tarsi emarginated to about anterior border of posterior third; lobes of 3rd joint of hind tarsi moderately attenuated; abdominal sternites with fine recumbent pubescence.

Distribution, Map 6(25-33). Up to now the species was known only from Murgab river valley in Turkmenistan: Imam-Baba, about 100 km southwards Bairam-Ali - lectotype locality, MD; Sary-Jazy, about 140 km southwards Bairam-Ali (Semenov-Tian-Shanskij & Stshegoleva-Barovskaja, 1936); Bairam-Ali environs - MD; Kushka environs, Badkhyz - (Semenov-Tian-Shanskij & Stshegoleva-Barovskaja, 1936) - this population undoubtedly occurs in north Afghanistan near Turkmenistan border.

The species is also distributed in the west Transcaspia in West Turkmenistan and North Uzbekistan (Karakalpakia); known localities are: Turkmenistan - Chilmamedkum sands, about 50 km northwards Bolshoj Balkhan Mts (type localiy of *A. plavilstshikovi*) - ZIN; Bolshoj Balkhan Mts. - ZIN; Iol-Dere, West Kopet-Dag ridge near Kara-Kala - ZIN; Sumbar river (about same locality?) - ZIN; Uzbekistan, Karakalpakia - Kuanysh, Ustiurt, west bank of Aral Sea - ZIN.

It was also collected in Kazakhstan: Kzyl-Orda reg., Chiili - SM.

Bionomy. Most of available specimens were collected in sandy deserts including the holotype of *A. plavilstshikovi*, but the species is also definitely known from stony foothills (Kopet-Dag). *A. margiana* is a unique species, because it was often collected in early spring from first days of April. I observed copulation of specimens among sandy dunes near Bairam-Ali in the day time in May. But several specimens were also collected at the end of summer. I do not know any evidence of the attraction of this species by light.

Remark. It is very important practically to distinguish females of *Apatophysis* s.str. from females of *A.* (*Angustephysis*) *margiana*, as *A. margiana* everywhere is sympatric with different species of the nominative subgenus. The main subgenus character is the most important: all tibiae of *A.margiana* females are covered internally with very typical short and dense pubescence; besides the pronotum in *A.margiana* females is evenly convex with obliterated dorsal tubercles, with rather regular even punctation, lateral tubercles a little sharpened; while in females of *A. caspica* all tibiae have normal semierect pubescence, pronotum with distinct paired dorsal tubercles and irregular punctation, lateral thoracic tubercles obtuse.

The closest relatives of *A. margiana* from subgenus *Angustephysis* Pic are distributed in south Iran: *A.* (*An.*) *farsicola* Sama, Fallahzadeh et Rapuzzi, 2005 and *A.* (*An.*) *danczenkoi* Danilevsky, 2006. Both Iranian species have shorter antennae and small thoracic lateral tubercles.

A key to *Apatophysis* species of Russia and adjacent areas (males).

1(29) All tibiae without setae brushes along internal side; all tibiae straight and not dilated distally ....1. Subgen. *Apatophysis* Chevr. s. str.

2(10) Abdominal sternites with long central hair patches (Fig. 2h), very rare (only in *A. centralis*) hair patches short and look like wide spots of very dense short setae; metathorax episterna with sides strongly converging posteriorly; femora without hair brushes.

3(4) Body big, up to 20.5 mm; elytra long, with nearly parallel sides, from 5.0 to 6.3 times longer than prothorax; 13.4-20.5 mm .....1. *A.* (s. str.) *pavlovskii* Plavilstshikov, 1954 (Fig. 1)
Tadzhikistan: Gissar and Karategin ridges; Map 6(1-4).

3(2) Body smaller, always less than 18 mm, but usually much shorter; elytra distinctly triangular, more or less strongly converging posteriorly, from 3.3 to 4.8 times longer than prothorax.

4(9) Abdominal hair patches well developed, long, consist of long dense erect setae (fig. 2h); 3rd antennal joint always shorter than 4th, which is longer (sometimes about equal) than 1st joint; elytral punctation always very distinct anteriorly;

5(6) Antennae very short, hardly reaching elytral apices; eyes relatively small, the distance between dorsal eye lobes about 2.1 times more than thickness of 1st antennal joint; head very big; 14.5 mm ....*A.* (s. str.) *roborowskii* Semenov, 1901 (Fig. 3)
North-West China, Xinjiang, between Hami and Kara-tjube, about 70 km W Hami; Map 2(5).

6(5) Antennae long, extend beyond elytral apices by two or three apical joints; eyes larger, the distance between dorsal eye lobes 1.4-1.7 times more than thickness of 1st antennal joint; head normal.

7(8) 3rd antennal joint extremely short, sometimes about as long as wide, but usually about 1.3-1.7 times longer than wide and always much shorter than 4th joint from 1.8 to 2.3 times ; 10.8-17.5 mm ....2. *A.* (s. str.) *serricornis* (Gebler, 1843) (Fig. 2)
Kazakhstan eastwards Ily river valley; China: from Dzhungaria to Ordos; Mongolia; Map 1.

8(7) 3rd antennal joint more elongated, about 1.4-1.6 times shorter than 4th; 11.4-15.0 mm ....4. *A.* (s. str.) *kashgarica* Semenov, 1901 (Fig. 4)
North-West China, Xinjiang, SW Kashgaria, Yarkant He; Map 2(1).

9(4) Abdominal hair patches poorly developed, short, look like wide spots of very dense short semierect setae; 3rd and 4th antennal are about equal in length, each one much shorter than 1st joint; fine elytral punctation indistinct under dense recumbent pubescence; 11.2.0-13.1 mm..... .....5. *A.* (s. str.) *centralis* Semenov, 1901 (Fig. 5)
North-West China, Xinjiang, North- West Kashgaria; Map 2(2-3).

10(2) Abdominal sternites without hair patches with fine regular recumbent pubescence along posterior border; metathorax episterna with nearly parallel sides.

11(20) Middle and posterior femora without hair brushes.

12(15) Elytral punctation always deep and very distinct; body big: 15.0-21.0 mm.

13(14) Middle and hind tibiae straight without dents or spines internally; middle and hind femora with normal plane internal margin without spines; 15.0-21.0 mm.....6. *A.* (s. str.) *sinica* Semenov, 1901 (Fig. 6)
Central China, Sichuan province: Wenchuan (Weizhou) environs; Map 2(9-10).

14(13) Middle and hind tibiae strongly curved, dentated internally; middle and hind femora with very narrow

internal margin in basal half and here with small spines; 13-19 mm ..... 7. *A.* (s. str.) *sieversi* Ganglbauer, 1887 (Fig. 7) North East China: Beijing environs; Liaoning Peninsula; Map 2(6-8).

15(12) Elytral punctation fine, often nearly indistinct; body small: 11.0-16.0 mm.

16(19) Antennae long, extend beyond elytral apices usually by three distal joints or more; 3rd and 4th antennal joints relatively long, each longer own width more than twice.

17(18) Antennae relatively shorter, usually extend beyond elytral apices by three distal joints; elytral pubescence much longer and denser, often totally hides elytral punctation, which is relatively fine; glabrous areas around punctures usually indistinct; 11.0-16.0 mm ..... 13. *A.* (s. str.) *baeckmanniana* Semenov, 1907 (Fig. 13) Kazakhstan: Syr-Darja valley from Aral sea to Chardara, Chimkent region, Karatau Mts., Chu river valley, south Betpak-Dala, Mujunkumy; Uzbekistan: south-east environs of Aral sea, Tashkent environs, Chatkal ridge; Kyrgyzstan: Tashkumyr environs, foothills in south Fergana; Map 6(5-20).

18(17) Antennae longer, extend beyond elytral apices by three distal joints and a half of 8th joint; elytral pubescence less dense and very short, never hides elytral punctation, which is distinct; elytra look more or less spotted because of glabrous areas around punctures; 11.3-14.9 mm ..... 14. *A.* (s. str.) *komarowi* Semenov, 1889 (Fig. 14) South Turkmenistan, South Tadzhikistan; Azerbajdzjan; Map 4(44), Map 6(21-24).

19(16) Antennae short, extend beyond elytral apices by about one distal joint; 3rd and 4th antennal joints very short, 4th joint is a little longer than 3rd and less than twice longer own width..... 15. *A.* (s. str.) *hotanica* sp. n. (Fig. 15) NE China, Xinjiang, Hotan; Map 2(4).

20(11) Middle and posterior femora (Fig. 8f) with long hair brushes (very rare in certain specimens from east Azerbajdzhan femora brushes can be indistinct - just in form of dense recumbent pubescence).

21(22) Elytra with rough pubescence consists anteriorly of semierect setae (Fig. 10c); pubescence of 5th-6th antennal joints very distinct (Fig. 10c); pronotal punctures conjugate in the middle; 15.0-17.7 mm ..... 10. *A.* (s. str.) *karsica* sp. n. (Fig. 10) Turkey - south-east part of Kars province, Kaçkar Dağı; Map 3(43), Map 4(43).

22(21) Elytra with finer more or less dense recumbent pubescence (Fig. 9d) with several erect setae near scutellum; pubescence of 5th-6th antennal joints indistinct or hardly visible (Fig. 9d); pronotal punctures usually separate, not conjugate in the middle (in *A.caspica* often conjugated).

23(26) Elytra relatively shorter, 2.0 to 2.1 times longer than wide.

24(25) Elytral costae usually indistinct; elytral punctation more or less dense, from rather distinct to very rough; the distance between dorsal eye lobes always more than the distance between ventral eye lobes; 9.5-17.0 mm..... 8. *A.* (s. str.) *caspica* Semenov, 1901 (Fig. 8) SE of European Russia - Dagestan; E Georgia - Eldar Steppe; Azerbajdzhan; W Kazakhstan - Mangyshlak; South Turkmenistan; N Afghanistan; Iran; Map 3(1-35), Map 4(1-17).

25(24) Elytral costae distinct; elytral punctation more or less sparse, distinct, always finer; the distance between dorsal eye lobes always less than the distance between ventral eye lobes; 13.5-16.5 mm ..... 12. *A.* (s. str.) *anatolica* Heyrovský, 1938 (Fig. 12) Turkey - Konya prov.: Ak-Shehir,Karapinar, Tuz Gölü; Aksaray prov.: Eskil, Aksaray env.; Map 5(1-5).

26(23) Elytra relatively longer, 2.1-2.3 times longer than wide;

27(28) Elytra distinctly tapering posteriorly; the distance between dorsal eye lobes more than distance between ventral eye lobes; 11.5-18.0 mm ..... 9. *A.* (s. str.) *vedica* sp. n. (Fig. 9) South Armenia; North-East Turkey; Map 4(36-41).

28(27) Elytra nearly parallel-sided; the distance between dorsal eye lobes less than distance between ventral eye lobes; 11.3-17.5 mm ..... 11. *A.* (s. str.) *kadleci* sp. n. (Fig. 11) Turkey: Namrun, Icel; Map 5(6).

29(1) All tibiae with setae brushes along internal side - distinct structure of very short and dense setae (Fig. 16j-16k); middle and hind tibiae more or less curved and dilated distally; 10.5-15 mm 2. Subgen. *Angustephysis* Pic, 1956 16. *A.* (*An.*) *margiana* Semenov-Tian-Shanskij et Stshegoleva-Barovskaja, 1936 (Fig. 16) Turkmenistan from Murgab river valley to Caspian Sea and probably the whole Kara-Kumy sands; Uzbekistan, south-west bank of Aral Sea in Karakalpakia); Kazakhstan, Kzyl-Orda environs; North Afghanistan; Map 6(25-33).

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REFERENCES

Adlbauer K. 1992: Zur Faunistik und Taxonomie der Bockkäferfauna der Turkei II (Coleoptera, Cerambycidae). *Entomofauna, Zeitschrift für Entomologie* 13: 485-509.

Aurivillius Ch. 1912: *Coleopterorum Catalogus. Pars 39: Cerambycidae: Cerambycinae*. In: Junk W. & Schenkling S. (eds): *Coleopterorum Catalogus*. Berlin: W. Junk, 574 pp.

Bianchi V. 1916: Materialy dlia aviafauny vostochnoj Mongolii i severovostochnogo Tibeta po dannym Mongolo-Sychuanskoj expeditzii 1907-1909 gg. pod nachalstvom P. K. Kozlova (s 1 kartoj) [Aves expeditionis P.K. Kozlowi per Mongoliam orientalem et Tibetiam orientali-septentrionalem 1907-1909.] (Avec 1 carte). *Ezhegodnik Zoologicheskogo Muzeya Imperatorskoy Akademii Nauk.* [*Annuaire du Musée Zoologique de l'Académie Impériale des Sciences de Petrograd*] 20 (1915): 1-102 (in Russian).

Chevrolat A. 1860: Description de Coléoptères nouveaux d'Algérie. *Revue et Magasin de Zoologie Pure et Appliquée* 2 12: 304.

Danilevsky M. L. 1979: Opisanie samki, kukolki i lichinki *Apatophysis pavlovskii* Plav. i obsuzhdenie polozhenia roda *Apatophysis* Chevr. v sisteme semeistva Cerambycidae (Coleoptera). [Descriptions of female, pupa and larva of *Apatophysis pavlovskii* Plav. and discussion of systematic position of genus *Apatophysis* Chevr. in the system of family Cerambycidae (Coleoptera)]. *Entomologicheskoe Obozrenie* 58(4): 821-828 (in Russian).

Danilevsky M. L. 1988: Apatophyseinae. In: Švácha P., Danilevsky M. L. Cerambycoid larvae of Europe and Soviet Union (Coleoptera, Cerambycoidea). Part II. *Acta Universitatis Carolinae* 31(1987), 3-4: 125-129.

Danilevsky M. L. 2006: A revue of genus *Apatophysis* Chevrolat, 1860 of Iran (Coleoptera, Cerambycidae). *Les cahiers Magellanes* 59: 1-11.

Danilevsky M. L. & Miroshnikov A. I. 1985: *Zhuki-drovoseki Kavkaza (Coleoptera,Cerambycidae).* [*Timber-Beetles of Caucasus (Coleoptera, Cerambycidae).* Key.] Krasnodar: Kuban Agricultural Institute, Krasnodar Station of Plant Protection, 419 pp (in Russian).

Demelt C. 1967: 1. Nachtrag zur Kenntnis der Cerambyciden-Fauna Kleinasiens. *Entomologische Blätter* 63: 106-109.

Faust J. 1877: Beiträge zur Kenntnis der Käfer des Europäischen und Asiatischen Russlands mit Einschluss der Küsten des Kaspischen Meeres. *Horae Societatis Entomologicae Rossicae* 14 (1878): 111-139.

Gahan C. J. 1906: *Coleoptera. - Vol. I. (Cerambycidae). The Fauna of British India including Ceylon and Burma*. New Delhi: Today & Tomorrow's Printers & Publishers: -XVIII, 1-329.

Ganglbauer L. 1882: Bestimmungs-Tabellen der europaeischen Coleopteren. VII. Cerambycidae. *Verhandlungen der kaiserlich-königlichen zoologisch-botanischen Gesellschaft in Wien* 31 Band: 681-758.

Ganglbauer L. 1887: Neue Cerambyciden von Peking. *Horae Societatis Entomologicae Rossicae* 21: 21-24.

Ganglbauer L. 1888: Von Herrn E.König in Turcmenien gesammelte Buprestiden und Cerambyciden. *Horae Societatis Entomologicae Rossicae* 22: 192-198.

Gebler F. A. 1843: Charakteristik der von Hn. Dr. Schrenk im Jahre 1841 in den Steppen und Gebirgen der Songarei gefundenen neuen Coleopteren-Arten. *Bulletin de la classe Physico-Mathématique de l'Académie Impériale des Sciences de St.-Pétersbourg rédigé par son secrétaire perpétuel.* Tome 1: 36-40.

Gebler F. A. 1844: Charakteristic der von Hn. Dr. Schrenk in den Jahren 1842 und 1843 in den Steppen der Dsungarei gefundenen neuen Coleopteren-Arten. II. *Bulletin Physico-Mathématique de l'Académie Impériale des Sciences de St.-Pétersbourg rédigé par son secrétaire perpétuel.* Tome 3 (1845), N7: 97-106.

Gebler F. A. 1859: Verzeichniss der von Herrn Dr. Schrenk in den Kreisen Ajagus und Kakaraly in der östlichen Kirgisensteppe und in der Songarey in den Jahren 1840 bis 1843 gefundenen Käferarten. *Bulletin de laSociété Impériale des Naturalistes de Moscou* 32: 315-356.

Gressitt J. L. 1951: *Longicorn beetles of China. Longicornia* 2. Paris: 1-667.

Heyden L. 1880-1881: *Catalog der Coleopteren von Sibirien mit Einschluss derjenigen der Turanischen Länder, Turkestans und der chinesischen Grenzgebiete 1-24.* Berlin: 1-224.

Heyrovský L. 1938: Dvě nové formy asijských tesaříků. Zwei neue asiatische Cerambycidenformen. *Časopis Československé Společnosti Entomologické* 35: 92-94.

Heyrovský L. 1968: 157. Cerambycidae IV. Ergebnisse der zoologischen Forschungen von Dr. Z. Kaszab in der Mongolei (Coleoptera). *Reichenbachia* 11: 235-238.
Hua Li-zhong 2002: Family Cerambycidae. In: *List of Chinese Insects* 2. Guangzhow: Zhongshan University Press: 189-237.
Kadlec S. 2006: Two new Cerambycid species from Kazakhstan and Iran (Coleoptera, Cerambycidae). *Animma. X* 12: 1-7.
Kostin I. A. 1973: *Zhuki-dendrofagi Kazakhstana (Buprestidae, Cerambycidae, Ipidae)*. [*The Dendrophagus Beetles of Kazakhstan (Buprestidae, Cerambycidae, Ipidae)*]. Alma-Ata, 288 pp (in Russian).
Lacordaire J. T. 1869: *Histoire naturelle des insectes, Genera des Coléoptères ou exposé méthodique et critique de tous les genres proposes jusqu'ici dans cet ordre d'insectes*. Vol. IX, part 1. Famille des Longicornes (suite). Roret. Paris: 409pp.
Lobanov A. L., Danilevsky M. L. & Murzin S. V. 1981: Systematic list of longicorn beetles (Coleoptera, Cerambycidae) of the USSR. 1. *Entomologicheskoe Obozrenie* 58: 821-828.
Kraatz G. 1879: Ueber die Bockkäfer Ost-Sibiricus namentlich die von Christoph am Amur gesammelten. *Deutsche Entomologische Zeitschrift* 23: 77-117.
Miroshnikov A. I. 1992: Novyj vid zhukov-drovosekov roda *Apatophysis* Chevr. (Coleoptera, Cerambycidae) iz Turkmenistana. [A new species of the longicorn beetles genus *Apatophysis* Chevr. (Coleoptera, Cerambycidae) from Turkmenistan]. *Entomologicheskoe Obozrenie* 71: 392-394 (in Russian).
Motschulsky V. 1860: Coléoptères rapportés en 1859 par M. Sévertsef des Steppes méridionales des Kirghises, et énumerés par V. de Motschulsky. *Bulletin de l'Academie Impériale des Sciences de St.-Pétersbourg* 2: 513-544.
Motschulsky V. 1861: Coléoptères rapportés en 1859 par M. Sévertsef des Steppes méridionales des Kirghises, et énumerés par V. de Motschulsky. *Mélanges Biologiquestirés du Bulletin de l'Academie Impériale des Sciences de St.-Pétersbourg* 3: 408-452.
Namhaidorzh B. 1972: K faune zhukov-drovosekov (Coleoptera, Cerambycidae) Mongolskoj Narodnoj Respubliki [On the fauna of longicorn beetles (Coleoptera, Cerambycidae) of the Mongolian People's Republic]. In: *Nasekomye Mongolii* [*Insects of Mongolia] I.* Leningrad: Nauka: 495-538 (in Russian).
Namhaidorzh B. 1976: K faune zhukov-drovosekov (Coleoptera, Cerambycidae) Mongolskoj Narodnoj Respubliki [On the fauna of longicorn beetles (Coleoptera, Cerambycidae) of the Mongolian People's Republic] II.- In: *Nasekomye Mongolii* [Insects of Mongolia] 4. Leningrad: Nauka: 202-216 (in Russian).
Özdikmen H. & Demir E. 2006: Notes on Longicorn beetles fauna of Turkey (Coleoptera: Cerambycidae). *Munis Entomology and Zoology* 1(1): 157-166.
Özdikmen H. & Turgut S. 2006: An evaluation on the known taxa Necydalinae and Apatophyseinae from Turkey with a syn. nov. (Coleoptera: Cerambycidae). *Munis Entomology and Zoology* 1: 199-166.
Pic M. 1956: Coléoptères du globe (suite). *L'Échange, Revue Linnéenne* 72: 1-4.
Plavilstshikov N. N. 1932: *Zhuki-drovoseki - vrediteli drevesiny [Timber-beetles - Timber Pests]*. Moscow, Leningrad, 200 pp (in Russian).
Plavilstshikov N. N. 1936: Zhuki-drovoseki (Ch.1). *Fauna SSSR. Nasekomye Zhestkokrylye* T.21 [Faune de l'URSS. Insects Coléoptères. V.21. Cerambycidae (P.1)]. Moscou, Leningrad, 612 pp (in Russian with German summary).
Plavilstshikov N. N. 1954: Novye vidy zhukov-drovosekov fauny Sovetskogo Soiuza (Coleoptera, Cerambycidae). [New species of Timber-Beetles of the fauna of Soviet Union (Coleoptera, Cerambycidae)]. *Zoologicheskiy Zhurnal* 33: 470-476 (in Russian).
Rejzek M., Kadlec S. & Sama G. 2003: Contibution to the knowledge of Syrian Cerambycidae fauna (Coleoptera). *Biocosme Mésogéen,* Nice 20: 7-50.
Sama G., Fallahzadeh M. & Rapuzzi P. 2005: Notes on some Cerambycidae (Coleoptera) from Iran with description of two new species. *Quaderno di Studi e Notizie di Storia Naturale della Romagna* 20: 123-132.
Sama G., Katbeh-Bader A. & Miloud Mahdi D. 2002: A preliminary catalogue of the Cerambycidae of Jordan (Coleoptera). *Bulletin de la Société Entomologique de France* 107: 471-487.
Semenov A. 1889: Diagnoses Coleopterorum novorum ex Asia Centrali et Orientali. *Horae Societatis Entomologicae Rossicae* 23: 348-403.
Semenov A. 1901: Diagnoses praecursoriae specierum novarum generic *Apatophysis* Chevr. (Coleoptera, Cerambycidae). *Revue Russe d'Entomologie* 1: 28-32.
Semenov A. 1907: De nova specie generis *Apatophysis* Chevr. (Coleoptera, Cerambycidae) e fauna Rossiae. *Revue Russe d'Entomologie* 6(1906): 223-224.

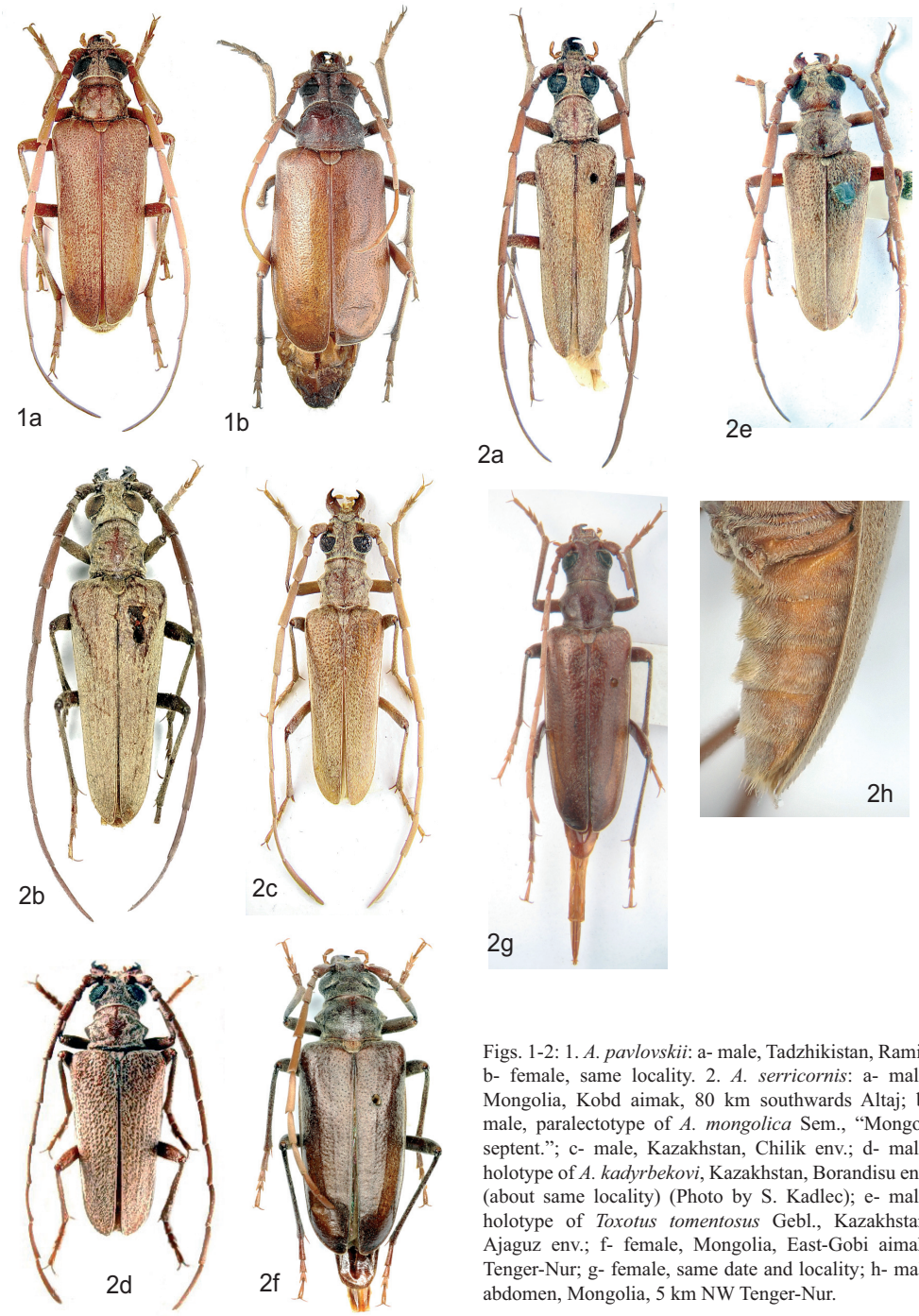
Semenov-Tian-Shanskij A. P. & Stshegoleva-Barovskaja T. I. 1936: Monografia roda *Apatophysis* Chevr. (Coleoptera, Cerambycidae). [Monographia generic *Apatophysis* Chevr. (Coleoptera, Cerambycidae)]. *Entomologisheskoe Obozrenie* 26 (1935): 59-89 (in Russian).

Švácha P., Wang J.-J. & Chen Sh.-Ch. 1997: Larval morphology and biology of *Philus antennatus* and *Heterophilus punctulatus*, and systematic position of the hilinae (Coleoptera: Cerambycidae and Vesperidae). *Annales de la Société entomologique de France* (N. S.) 33: 323-369.

Villiers A. 1967a: Coléoptères Cérambycides de Turquie. 1. *L´Entomologiste* 23(1): 18-22.

Villiers A. 1967b: Contribution a la faune de l´Iran. 1. Coléoptères Cérambycides. *Annales de la Société Entomologique de France* 3: 327-379.

Wang Zh. 2003: *Monographia of original colored Longicorn beetles of China's north-east*. Jilin Science and Technology Publishing House, 420 pp (in Chinese).



Figs. 1-2: 1. *A. pavlovskii*: a- male, Tadzhikistan, Ramit; b- female, same locality. 2. *A. serricornis*: a- male, Mongolia, Kobd aimak, 80 km southwards Altaj; b- male, paralectotype of *A. mongolica* Sem., "Mongol. septent."; c- male, Kazakhstan, Chilik env.; d- male, holotype of *A. kadyrbekovi*, Kazakhstan, Borandisu env. (about same locality) (Photo by S. Kadlec); e- male, holotype of *Toxotus tomentosus* Gebl., Kazakhstan, Ajaguz env.; f- female, Mongolia, East-Gobi aimak, Tenger-Nur; g- female, same date and locality; h- male abdomen, Mongolia, 5 km NW Tenger-Nur.


3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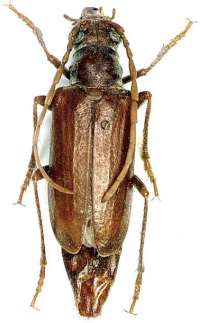
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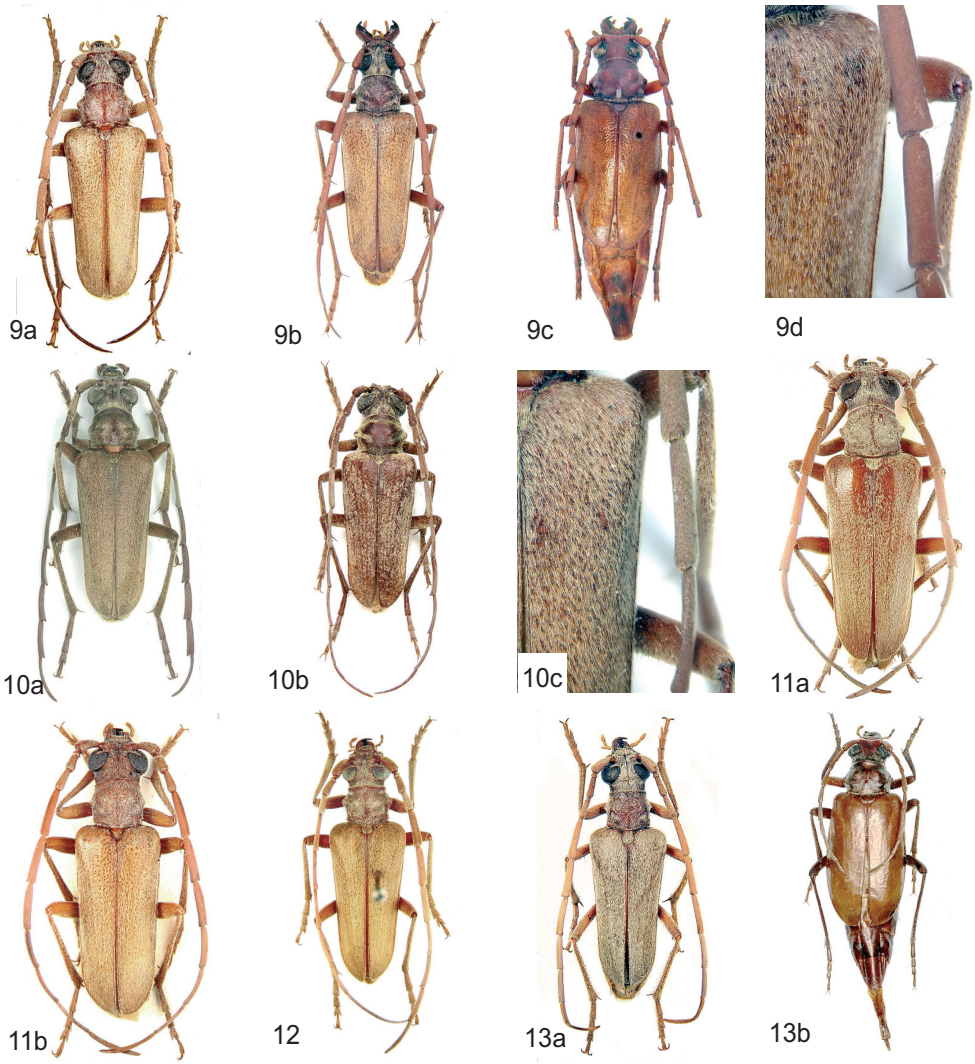

Figs. 3-13: 3. *A. roborowskii*: male, holotype, China, between Bugas (Hami) and Kara-tjube. 4. *A. kashgarica*: male, lectotype, Kashgaria, Jarkend-Darja. 5. *A. centralis*: a- male, lectotype, China, Pakhpu river; b- female, paralectotype, China, Kul-jar river. 6. *A. sinica*: a- male, holotype, China, Sichuan prov., Wenchuan; b- male, China, Sichuan prov., Tonghua, 20 km W Wenchuan; c- male, same locality. 7. *A. sieversi*: a- male, holotype, "China, Pekin, Herz" 8. *A. caspica:* a- male, lectotype, Turkmenistan, Tedzhen; b- male, Azerbajdzhan, Mugan; c- male, with same label; d- male, Turkmenistan, Geok-Tepe; e- female, Kazakhstan, Mangyshlak; f- male, hind femur, Turkmenistan, Geok-Tepe. 9. *A. vedica* sp. n.: a- male, holotype, Armenia, Goravan; b- male, paratype, Armenia, Surenavan; c- female, paratype, Armenia, Erevan; d- male, paratype, Surenavan, elytral punctation and pubescence. 10. *A. karsica* sp. n.: a- male, holotype, Turkey b.-or., Yusufeli, Parkal, Kackar Mt.; b- male, paratype, Turkey b.-or., Kackar Dagi, 2400 m, Yaylalar; c- male, holotype, elytral punctation and pubescence. 11. *A. kadleci* sp. n.: a- male, holotype, SO Turkey [Icel], Namrun Tarsus; b- male, paratype, SO Turkey [Icel], Namrun Tarsus. 12. *A. anatolica*: male, lectotype, Asia min. c., Akschechir-Tsch. 13. *A. baeckmanniana*: a- male, Kyrgyzstan, Tash-Kumyr; b- female, Kazakhstan, Syr-Darja, Baigacum.

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16c

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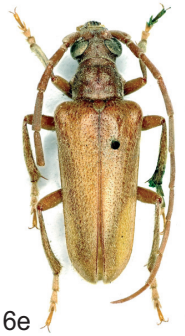

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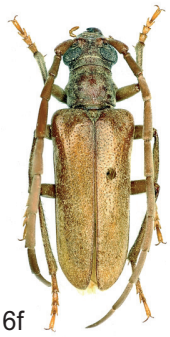

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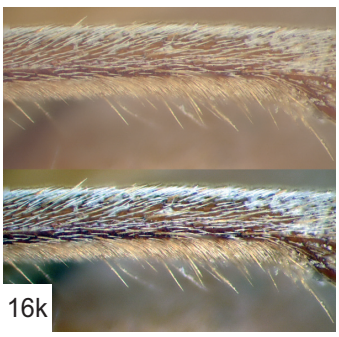


16k

Photo 1. Tadzhikistan, Kondara, 1100-1200 m (July) - locality of *A. pavlovskii,* author's Photo.

Photo 2. Kazakhstan, Dzharkent env., Ily valley, 550 m (July) - locality of *A. serricornis,* author's Photo.

Figs. 14-16: 14. *A. komarowi*: a- male, lectotype, Turkmenistan; b- male, Turkmenistan, Tedzhen; c- male, Azerbajdzhan, Sheki. 15. *A. hotanica*: male, holotype, China, Hotan. Fig. 16. *A. margiana:* a- male, lectotype, Turkmenistan, Imam-Baba; b- male, Turkmenistan, Imam-Baba; c- female with same label; d- male, holotype of *A. plavilstshikovi* Mir., Turkmenistan, Chilmamedkum sands northwards Bolshoj Balkhan Mts.; e- male, Turkmenistan, Sumbar valley; f- male, Turkmenistan, Iol-Dere; g- male, Turkmenistan, "Gr.Balchan"; h- male, Uzbekistan, Karakalpakia, west bank of Aral Sea; i- male, Kazakhstan, Kzyl-Orda reg., Chiili; j- hind male tibia, Turkmenistan "Gr.Balkhan"; k- pubescence of hind male tibia, Turkmenistan "Gr.Balkhan".

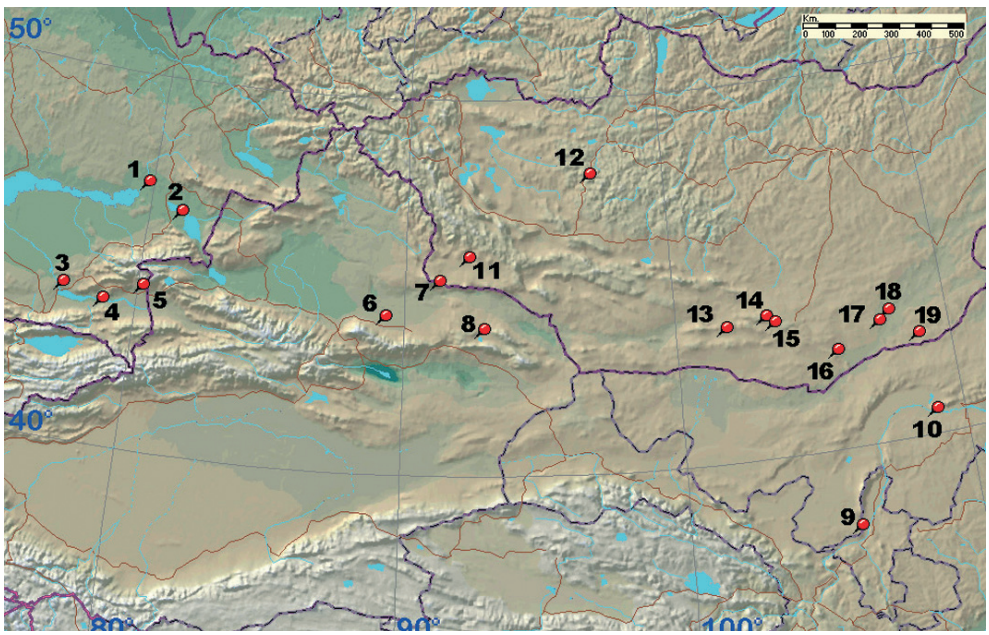
Photo 3. Mongolia, south west-part of East-Gobi aimak, 1200 m (August) - locality of *A. serricornis,* author's Photo.

Photo 4. China, Tonghua, 20 km W Wenchuan, 1800 m (August) - locality of *A.sinica,* Photo by S. Murzin.

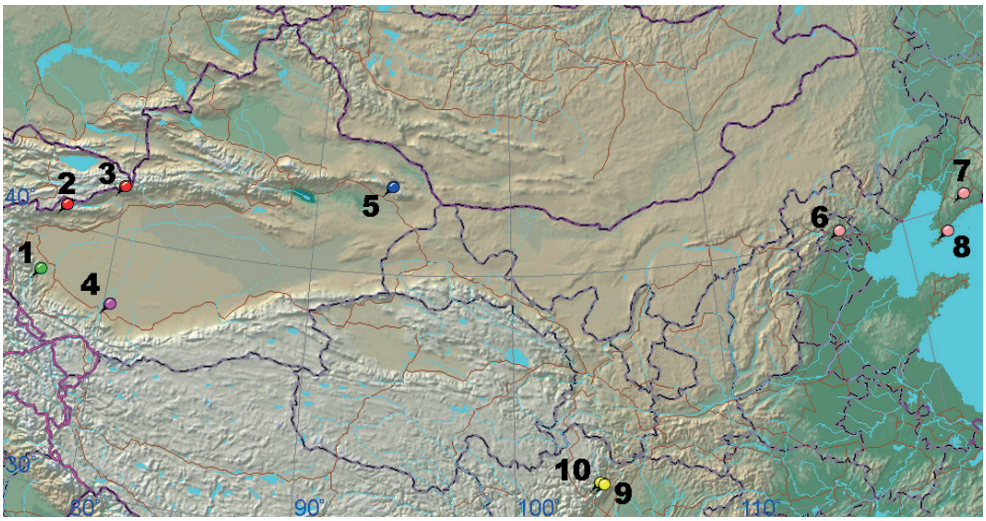
Photo 5. Azerbajdzhan, semi-desert area westwards Baku, 80 m (June) - locality of *A. caspica,* author's Photo.

Photo 6. Armenia, Goravan, 1000 m (June) - locality of *A. vedica*, author's Photo.

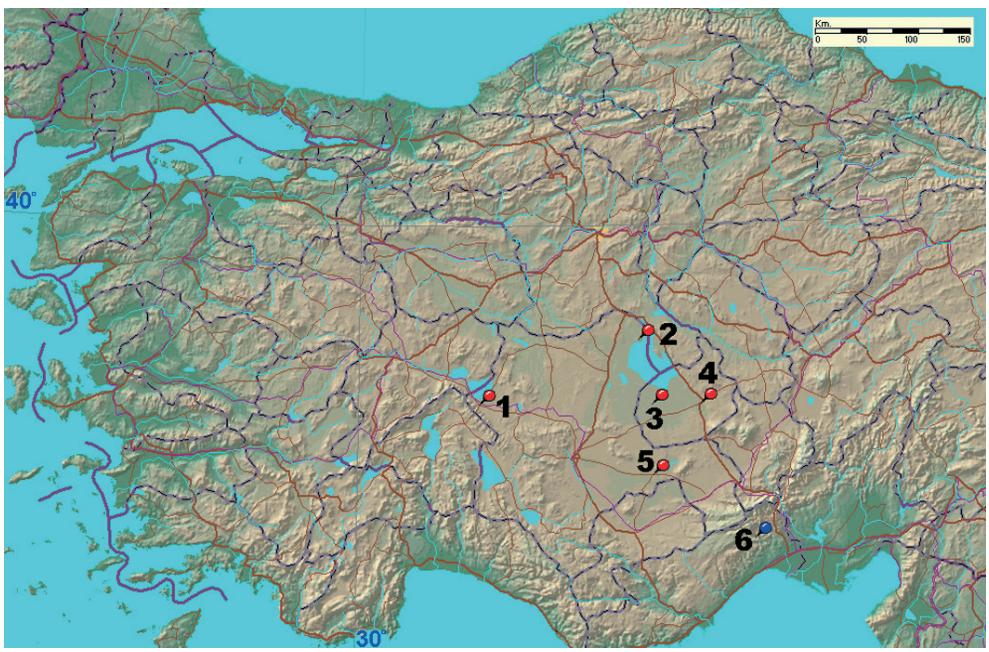
Photo 7. Kyrgyzstan, Tashkumyr, 700 m (July) - locality of *A. baeckmanniana*, author's Photo.



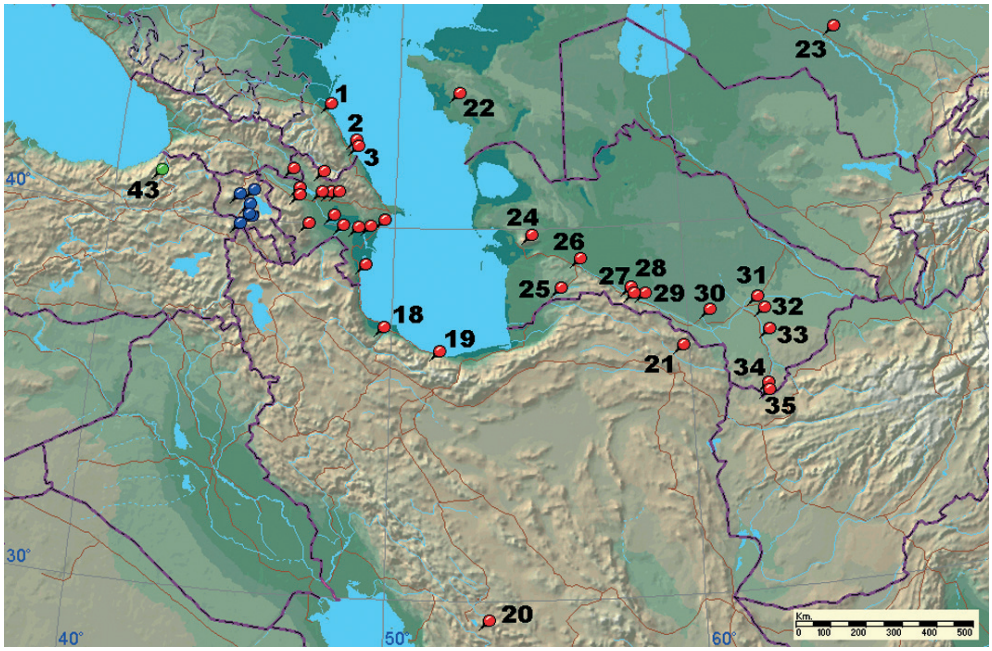
Map 1. *A. serricornis* (1-19): 1 - Ajaguz river; 2 - Alakol environs; 3 - Kapchagai; 4 - Baraldaisu (type locality of *A. kadyrbekovi*); 5 - Dzharkent; 6 - Guchen; 7 - foothills of Baityk-Bogdo; 8 - Barkul; 9 - south Alashan; 10 - north Ordos; 11 - 20 km SE Altaj, Kobd aimak; 12 - Uliasutj env.; 13 - Gurvan-Tes; 14 - south Gurvan-Saikhan; 15 - 20 km WSW Baian-Dalaj; 16 - 30 km ESE Nomgon; 17 - 25 km S Khan-Bogdo; 18 - Dzemgijn-Gobi; 19 - Tenger-Nur.



Map 2. *A. kashgarica* (1), *A. centralis* (2-3); *A. hotanica* (4); *A. roborowskii* (5); *A. sieversi* (6-8); *A. sinica* (9-10).
1 - South Kashgaria, Jarkend-darja; 2 - West Kashgaria (type locality); 3 - Ak-Su river; 4 - Hotan; 5 - 70 km westwards Hami; 6 - Beijing environs; 7 - north of Liaoning Peninsula; 8 - Dalian environs; 9 - Weizhou environs (type locality); 10 - 20 km westwards Wenchuan;



Map. 5. *A. anatolica* (1-5); *A. kadleci* sp. n. (6).
1 - Ak-Shehir (type locality); 2 - north bank of Tuz lake; 3 - Eskil; 4 - Aksaray; 5 - Karapinar; 6 - Namrun.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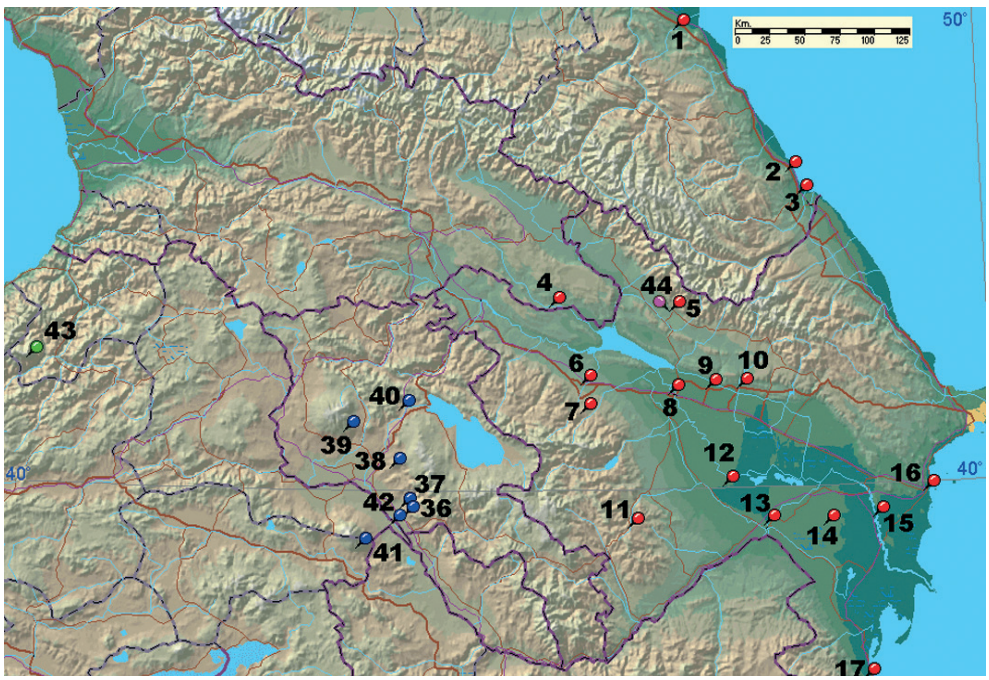
Maps 3-4.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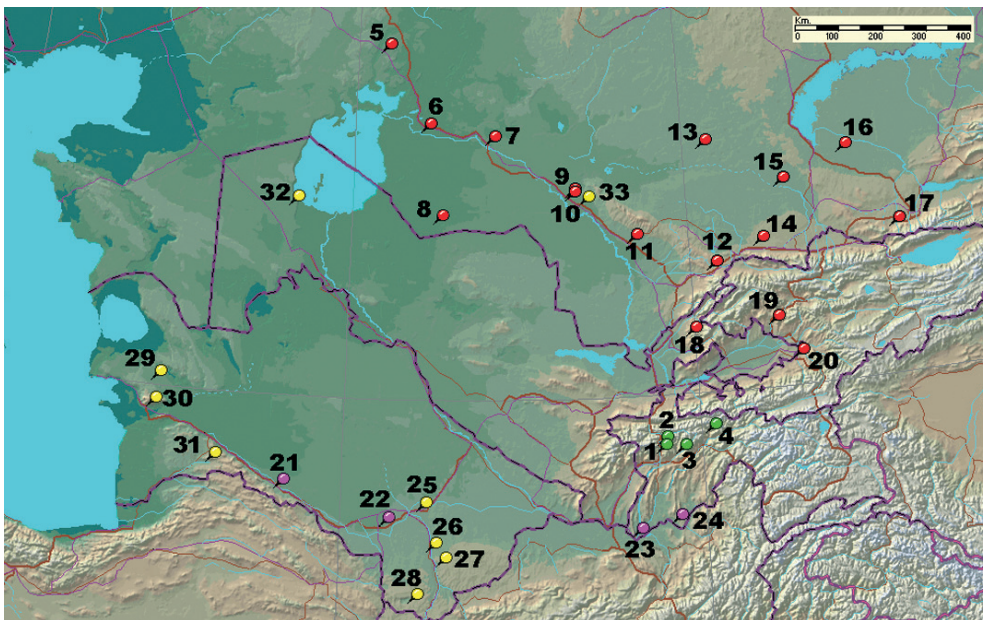
Maps 3-4. *A. caspica* (1-35), *A. vedica* sp. n. (36-42), *A. karsica* (43), *A. komarowi* (44).
Russia (1-3): 1 - Kumtorkale; 2 - Derbent; 3 - Rubas river; Georgia: 4 - Eldar Steppe, Iori river; Azerbajdzhan(5-17): 5 - Sheki (= Nuha); 6 - Giandzha; 7 - Adzhikend; 8 - Evlah; 9 - Agdash (= Geok-Tapa = Aresh); 10 - Geokchaj; 11 - Shusha; 12 - Aggel lake; 13 - Karadonly; 14 - Mugan steppe; 15 - Karabagly; 16 - Aljat; 17 - Lenkoran; Iran (18-21): 18 - Tariki Rud [37˚08'N, 49˚52'E]; 19 - Elburs Ridge; 20 - 71 km SE Shiraz; 21 - Khorasan prov.; Kazakhstan (22-23): 22 - Mangyshlak peninsula; 23 - Solo-Tjube, about 50 km SE Kzyl-Orda; Turkmenistan (24-34): 24 - Bolshoj Balkhan; 25 - Sumbar river valley; 26 - Kyzyl-Arvat; 27 - Geok-Tepe; 28 - Chuli; 29 - Ashkhabad; 30 - Tedzhen; 31 - Bairam-Ali; 32 - Iolotan; 33 - Imam-Baba; 34 - Kushka; Afghanistan: 35 - Kushka env.; Armenia (36-40): 36. 2 km N Surenavan, 39˚48'N, 44˚48'E (type locality); 37 - Vedy environs, Goravan; 38 - Hatsavan; 39 - Alagez Mt., Antarut; 40 - Tzakhkadzor; Turkey (41-42): 41 - SE slope of Ararat Mt; 42 - Peynhanli, Igdir prov.; 43 - Kaçkar Dağı, Kars province; 44 - Azerbajdzan, Sheki (before Nuha).



Map. 6. *A. pavlovskii* (1-4); *A. baeckmanniana* (5-20); *A. komarowi* (21-24); *A. margiana* (25-33).
Tadzhikistan (1-4): 1 - Kondara [about 25 km N Dushanbe] - type locality; 2 - Varsob river, Gushary defile [about 15 km N Kondara]; 3 - Ramit [about 50 km NE Dushanbe]; 4 - Karategin ridge, Sangikar river [northwards Navabad]; Kazakhstan (5-17): 5 - Malye Barsuki Sands; 6 - Kazalinsk; 7 - Dzhusaly; 8 - Ush-Kuduk well; 9 - Baigacum; 10 - Dzhulek; 11 - Turkestan; 12 - South of Karatau ridge, Chokpak; 13 - Betpak-Dala Desert; 14 - Mujunkumy Sands; 15 - Guliaevka [44˚17'N, 72˚54'E]; 16 - Taukumy Sands; 17 - Kara-Kastek; Uzbekistan: 18 - Chatkal natural reserve; Kyrgyzstan (19-20): 19 - Tashkumyr environs; 20 - Osh environs; Turkmenistan (21-22): 21 - Ashkhabad environs (probable type locality); 22 - Tedzhen; Tadzhikistan (23-24): 23 - Ajvadzh; 24 - Pjandzh; Turkmenistan (25-31): 25 - Bajram-Ali; 26 - Imam-Baba; 27 - Sary-Jazy; 28 - Kushka env., Badkhyz; 29 - Chilmamedkum sands northwards Bolshoj Balkhan; 30 - Bolshoj Balkhan; 31 - Iol-Dere, West Kopet-Dag near Kara-Kala; Uzbekistan: 32 - Kuanysh, Ustiurt, Karakalpakia; 33 - Kazakhstan: Chiili.