Special Bulletin of the Coleopterological Society of Japan, (1): 177–214
September 22, 2017

The Longicorn Beetle Genus *Apatophysis* Chevrolat, 1860 (Coleoptera, Cerambycidae, Apatophyseini) in China, with Preliminary Remarks on its Intrageneric Structure and with Descriptions of Three New Species

Alexandr I. Miroshnikov [1), 2)] and Mei-Ying Lin [3)]

[1)] Russian Entomological Society, Krasnodar, Russia
[2)] Sochi National Park, Moskovskaya Str., 21, Sochi, Krasnodar Region, 354002 Russia
[3)] Institute of Zoology, Chinese Academy of Sciences, 1#, Beichen West Road, Chaoyang, Beijing, 100101 China

Abstract A review of the Chinese species of the genus *Apatophysis* Chevrolat, 1860 is given. Three species, namely, *A. xizangensis* Miroshnikov et Lin, sp. nov. from Xizang, *A. niisatoi* Miroshnikov et Lin, sp. nov. from Sichuan, and *A. insolita* Miroshnikov et Lin, sp. nov. from Shaanxi, Henan, Hunan, Jiangxi and Zhejiang, are described as new. The genus is noted as being very complex taxonomically, while its intrageneric structure has hitherto remained poorly developed. At this stage, the following species groups are preliminarily proposed: the *barbara*-group, the *serricornis*-group, the *sinica*-group, the *sieversi*-group, the *insolita*-group, and the *richteri*-group (no representatives of the latter group are known yet in the fauna of China). Detailed diagnoses of the groups are presented. Some controversies concerning the assignment of certain species, including *A. centralis* Semenov, 1901, to this or that group are shown. The peculiarities of lectotype and paralectotype designations in the type series of *A. mongolica* Semenov, 1901 [syn. pro *A. serricornis* (Gebler, 1843)] are discussed. The female of *A. sieversi* Ganglbauer, 1887 is described for the first time, while a morphologically peculiar female from Gansu Province which probably belongs to *A. sinica* Semenov, 1901 is considered in due detail. *Apatophysis sieversi* is recorded from Hebei, Shandong, Henan, and Sichuan provinces for the first time. An amazing record of *A. serricornis* in Guangdong Province is discussed. A key to all Chinese species is proposed, based on male characters. Abundant color pictures, including almost all type specimens, are presented.

Introduction

Only seven species of the genus *Apatophysis* Chevrolat, 1860 have hitherto been known to occur in China (Löbl & Smetana, 2010), with almost all of them described more than a century ago (Gebler, 1843; Ganglbauer, 1887; Semenov, 1901). Since the present paper adds another three new species, the fauna of China expands to ten *Apatophysis* species, although there can hardly be any doubt that further species will be found in China in the future.

The genus *Apatophysis* belongs to a number of taxonomically very complex groups with an unsettled intrageneric structure, even though it has been divided so far into two subgenera (Löbl & Smetana, 2010). The present study of Chinese representatives, including three new species, nevertheless shows that the classification of the genus is more intricate and actually can be split into at least several species groups peculiar to a varying degree. The taxonomic statuses of these groups seem to be insufficiently clear yet, as are discussed below in due detail.

The material this paper is based upon comes from the following institutional and private collections:

BMNH — Natural History Museum (London, United Kingdom);
IZAS — Institute of Zoology, Chinese Academy of Sciences (Beijing, China);
NMP — National Museum (Natural History) (Prague, Czech Republic);

NWAFU — Northwest Agriculture and Forestry University (Yangling, China);
ZIN — Zoological Institute of the Russian Academy of Sciences (St. Petersburg, Russia);
ZMUM — Zoological Museum of the Moscow State University (Moscow, Russia);
cAM — collection of Alexandr Miroshnikov (Krasnodar, Russia);
cNO — collection of Nobuo Ohbayashi (Kamimiyada, Miura City, Japan);
cSM — collection of Sergey Murzin (Moscow, Russia).

To study the structure of the mandibles, these were prepared fully exposed in many specimens. Therefore, the total body length of such specimens, including the types, is given below as being mainly somewhat larger than that indicated in the literature. The length of the females is shown regardless of the ovipositor.

We are very grateful to Maxwell V.L. Barclay (BMNH), Svetlana V. Andreeva and Andrey M. Shapovalov (ZIN), Alexey A. Gusakov (ZMUM), and Yan Ma, Lin Lv, Na Qiao and Wu Dai (NWAFU) for the opportunity to study the museum material, and to Sergey V. Murzin (Moscow, Russia) and Nobuo Ohbayashi (Kamimiyada, Miura City, Japan) who have provided some specimens from their private collections. Our sincere thanks also go to Kirill V. Makarov (Moscow Pedagogical State University, Russia) who has helped with the preparation of almost all photographs, and to Luboš Dembický (Brno, Czech Republic) for the helpful provision of picture of the holotype of *Apatophysis kadyrbekovi*, and the permission to publish it. We are deeply indebted to Alexey Yu. Solodovnikov (Natural History Museum of Denmark, Copenhagen) who has helped a lot in our prompt receipt of some specimens for revision.

Results and Discussion

Genus ***Apatophysis*** Chevrolat, 1860

Apatophysis Chevrolat, 1860: 304; J. Thomson, 1860: 368; Marseul, 1863: 260; J. Thomson, 1864: 147, 409; Marseul, 1867: 119; Lacordaire, 1869: 234; Gemminger in Gemminger & Harold, 1872: 2987; Heyden, 1881: 192; Ganglbauer, 1882: 686, 719; Heyden *et al*., 1883: 183; Ganglbauer in Marseul, 1889: 466; Heyden *et al*., 1891: 338; Heyden, 1893: 179; Pic, 1900: 12; Heyden *et al*., 1906: 502; Gahan, 1906: 69; Aurivillius, 1912: 160; Boppe, 1921: 45; Winkler, 1929: 1146; Plavilstshikov, 1932: 188; Semenov-Tian-Shanskij & Stshegoleva-Barovskaja, 1936: 60 (Revision); Plavilstshikov, 1936: 109, 494 (Review of the former USSR); Wu, 1937: 683; Villiers, 1946: 38; Plavilstshikov, 1948: 26; Gressitt, 1951: 48 (*Centrodera* subgen.); Gressitt & Rondon, 1970: 26 (partim); Kostin, 1973: 130; Lobanov *et al*., 1981: 794; Danilevsky & Miroshnikov, 1985: 99; Chiang *et al*., 1985: 27; Danilevsky, 1988: 125 (larvae); Wang, 2003: 59; Danilevsky, 2006: 1 (Review of Iran); Danilevsky, 2008: 8 (Review of Russia and adjacent regions, including China); Löbl & Smetana, 2010: 142; Miroshnikov, 2014: 13.

Type species: *Apatophysis toxotoides* Chevrolat, 1860 (by monotypy) = *Polyarthron barbarum* P. H. Lucas, 1858.

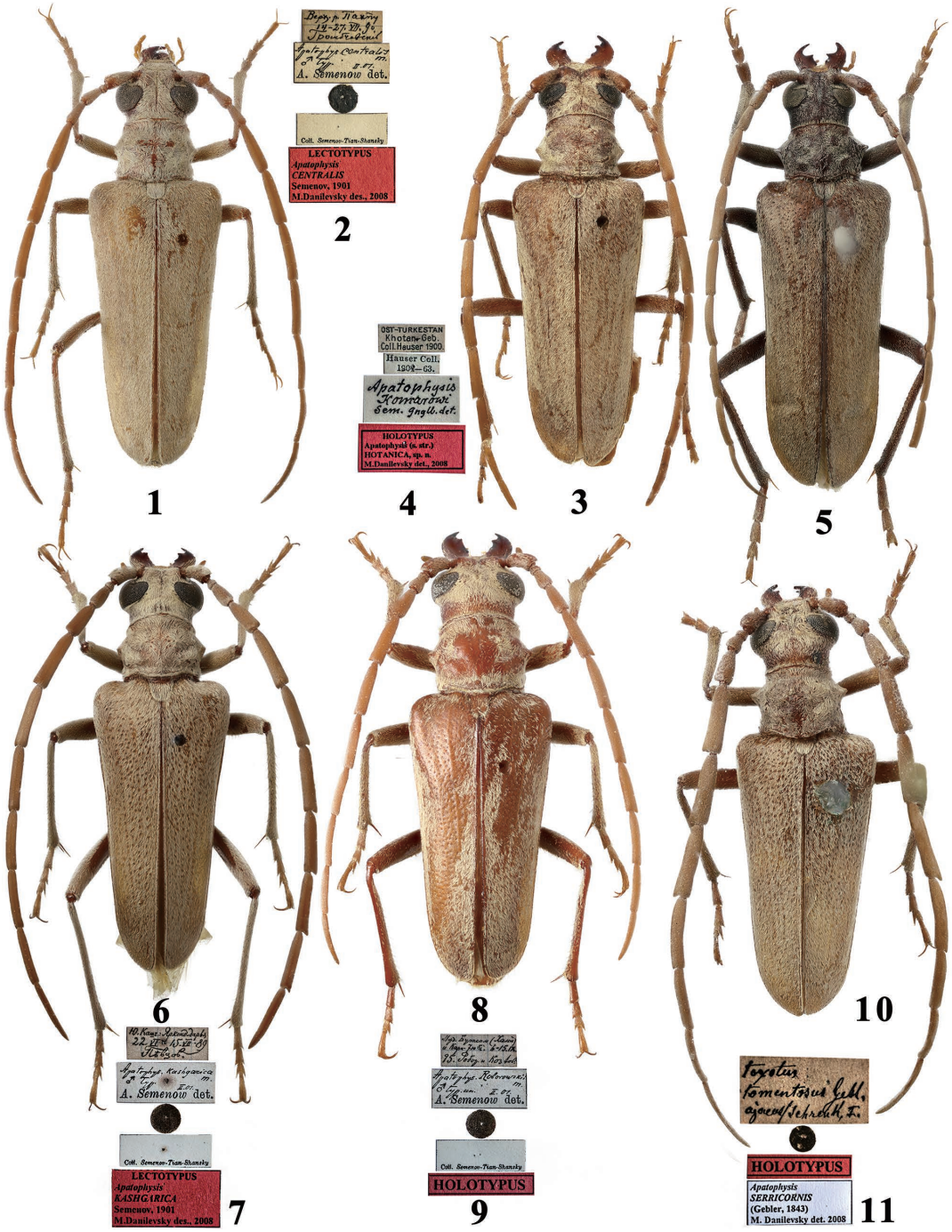
At the present stage of research, it seems appropriate to distinguish the following species groups based on the characteristics of the male and thus to preliminary advance the following intrageneric classification of *Apatophysis* (in the groups below, only Chinese species are listed):

The ***barbara***-group (*Apatophysis* s. str. et sensu auct.):

A. centralis Semenov, 1901
A. hotanica Danilevsky, 2008
A. xizangensis Miroshnikov et Lin, sp. nov.

The ***serricornis***-group:

A. serricornis (Gebler, 1843)



Figs. 1–11. Habitus and labels of *Apatophysis* spp. (males). —— 1, 2, *A. centralis* SEMENOV, 1901, lectotype; 3, 4, *A. hotanica* DANILEVSKY, 2008, holotype; 5, *A. xizangensis* MIROSHNIKOV et LIN, sp. nov., holotype; 6, 7, *A. kashgarica* SEMENOV, 1901, lectotype; 8, 9, *A. roborowskii* SEMENOV, 1901, holotype; 10, 11, *A. serricornis* (GEBLER, 1843), holotype of *A. tomentosa* (GEBLER, 1844).

A. kashgarica Semenov, 1901
A. roborowskii Semenov, 1901

The ***sinica***-group:

A. sinica Semenov, 1901
A. niisatoi Miroshnikov et Lin, sp. nov.

The ***sieversi***-group:

A. sieversi Ganglbauer, 1887

The ***insolita***-group:

A. insolita Miroshnikov et Lin, sp. nov.

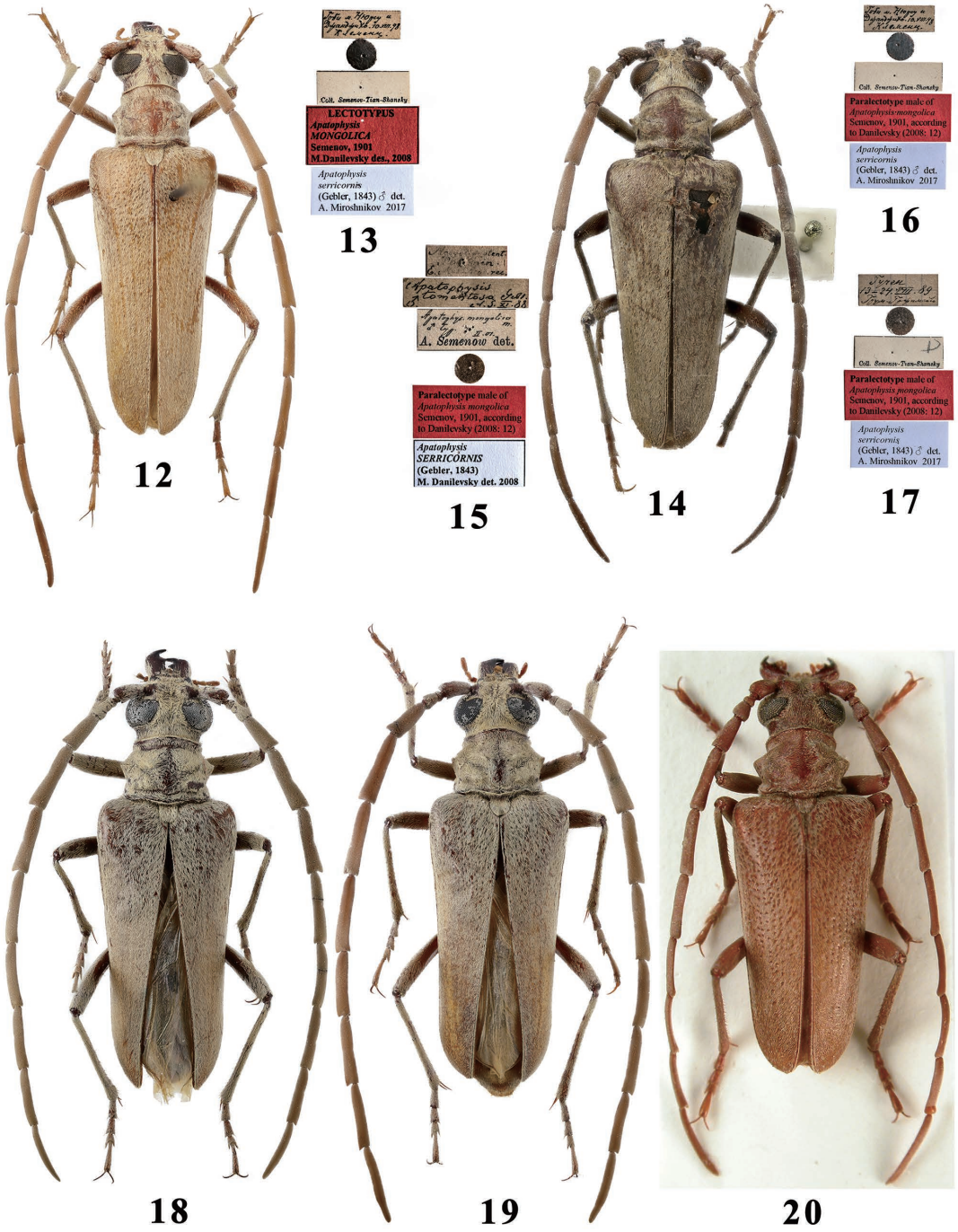
Within this genus, the ***richteri***-group [*Angustephysis* Pic, 1956 (*Apatophysis* subgen.) sensu auct.] is also distinguished, whose representatives are not yet known from China. This group consists of six species and differs from other groups at least in the peculiar structure of all tibiae which bear ventrally a brush of dense short setae.

It seems quite possible that each of these groups deserves of the rank of a separate subgenus (for *Apatophysis* s. str. and *Angustephysis* only the recognition or confirmation of this status is required, because the names are already available), while the *insolita*-group perhaps even of an independent genus. However, a detailed and comprehensive rationale for such taxonomic solutions can only be elaborated with due account of material that is presently missing. This especially concerns the still unknown females of species in the *sinica*- and *insolita*-groups. Studies on their morphological features could prove to be very important that some preliminary data considered in this paper already shows this. In addition, it seems necessary to investigate in due detail the still poorly or completely unexplored morphological structures of various representatives of these species groups not only within the whole genus, but also with the involvement of representatives of other closely related genera, such as *Protapatophysis* Semenov-Tian-Shanskij et Stshegoleva-Barovskaja, 1936 and *Mimapatophysis* Miroshnikov, 2014. Only this way does it seem possible to achieve a correct assessment of the levels of both the similarities and differences between the groups, and the taxonomic significance of various features, and ultimately to successfully solve the still existing complex problems of the supraspecific systematics of the *Apatophysis*-group. Thus, the establishment of new genus-group taxa at this stage of research seems premature yet.

The characteristics of the groups, both diagnoses and compositions, are given taking into account all their representatives, not only the known Chinese species.

The ***barbara***-group

Diagnosis. This group are characterized by the following features: body from small to medium-sized; recumbent light setation of elytra from almost entirely or strongly hiding, through less significantly concealing, to generally weakly hiding their puncturation; primary puncturation of elytra from very clear and well-expressed, at least so in their basal part, to generally very faint; antennae more or less long, considerably extending beyond apices of elytra, sometimes even by antennomere 8, or shorter (typical of the Chinese representatives), extending beyond apices of elytra only by last antennomere or apical part of penultimate antennomere, in which cases antennomere 4 clearly or significantly not reaching the bases of elytra; from antennomere 6 until 10th from moderately to strongly serrate; antennomere 1, 1.22–1.41 times as long as antennomere 4; genae rather short, only sometimes (in *A. xizangensis* sp. nov.) moderately short; mandibles well-developed, as in Figs. 42–47, 3.9–4.8 times as long as genae, but sometimes 3.5 times as long as them; inner margin of left mandible varying in structure, but at least in the Chinese representatives neither dentate nor partly, nor regularly



Figs. 12–20. Habitus and labels of *Apatophysis serricornis* (GEBLER, 1843) (males). —— 12, 13, Lectotype of *A. mongolica* SEMENOV, 1901; 14, 15, paralectotype of *A. mongolica*; 16, 17, paralectotypes of *A. mongolica*; 18, 19, *A.* ? *serricornis* (from Nanling Baohuzhan, Guangdong); 20, holotype of *A. kadyrbekovi* KADLEC, 2006 (after KADLEC, 2006, photograph reproduced courtesy of Luboš DEMBICKÝ).

curved, nor devoid of obtuse tooth near middle; abdominal ventrites without peculiar brushes in apical part, sometimes (in *A. centralis*) recumbent setation in this area in most ventrites can only be denser than over their remaining surface; all tibiae relatively straight, with neither a clear curvature nor a very dense setation, nor denticles ventrally, but sometimes (in *A. xizangensis* sp. nov.) both meso- and metatibiae dentate ventrally, albeit not curved; all femora without spines ventrally; tarsomere 3 not deeply or only moderately split (but not more than about halfway); pads on tarsi formed only by narrow fragments along margins of tarsomeres, most tarsomeres thereby with a rather lax, recumbent, light pubescence either not or only poorly hiding a shiny surface of integument contrasting as a wide strip.

The *barbara*-group differs from all other groups of the genus by the combination of these characteristics, as well as by these or those features from each of the other groups individually, as shown below in their diagnoses.

Composition. The group consists of 11 species (see Remarks), three of which inhabit China.

Remarks. Danilevsky (2008, p. 26) referred to the "*caspica*-group" (*A. caspica* Semenov, 1901 and several species that are close to it, none of which being known from China) as a component of *Apatophysis* s. str. In his opinion, it differs from other species groups by the presence of very dense suberect setae forming a brush on each femur, and being especially well-expressed on the metafemora. However, this feature is not stable, being variable or even absent at all, as the author indicated. Danilevsky (2008) did not list all species that he referred to that group. But it is noteworthy that in the type species of the genus, *A. barbara*, which had not been considered by the author, the femora, at least the middle and posterior ones, also ventrally show more or less dense short setae forming something like a brush, clearly resembling such, for example, in some specimens of *A. caspica*. By the way, it was long ago that Semenov-Tian-Shanskij and Stshegoleva-Barovskaja (1936) paid attention to the strong general similarity of the males of *A. barbara* and *A. caspica*.

Taking all above in consideration, it seems too difficult to recognize a "*caspica*-group" sensu Danilevsky (2008). Instead, *A. caspica* and all similar species are taken into account in the characteristics of the *barbara*-group where they belong.

Apatophysis centralis Semenov, 1901

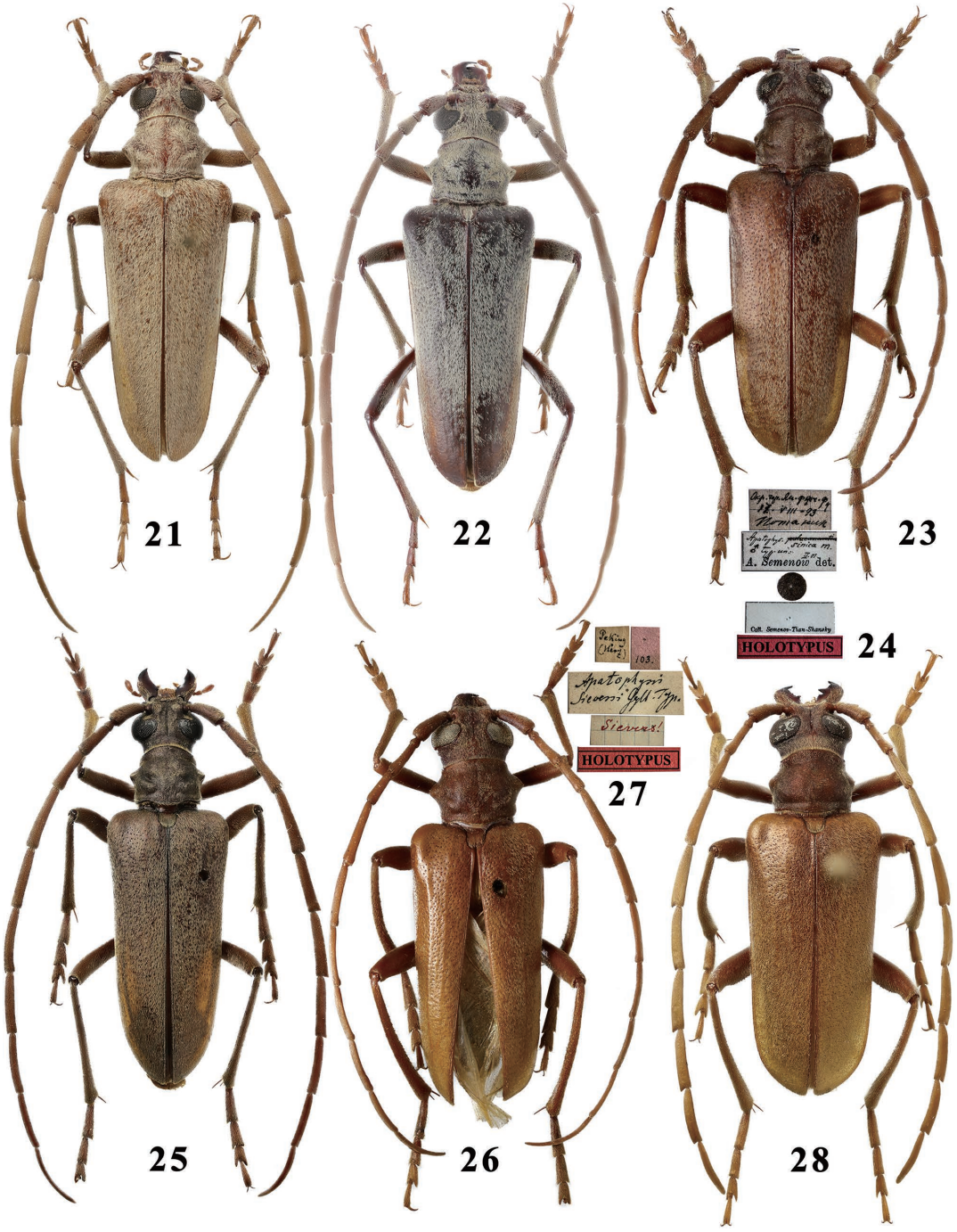
(Figs. 1, 2, 34, 35, 45, 67, 72, 73, 80, 83, 109, 127)

Apatophysis centralis Semenov, 1901: 32 ("Turkestania sinica: curs. super. fl. Pachpu; Kok-jar Tochtachon; curs. super. fl. Kul-jar"). Type locality: upper stream of Pakhpu River [Xinjiang, China] [according to Danilevsky (2008) and the label of the lectotype]; Aurivillius, 1912: 160; Boppe, 1921: 46; Winkler, 1929: 1146; Wu, 1937: 683; Hua, 1982: 10; Chiang *et al*., 1985: 27, pl. II, fig. 17; Hua, 2002: 194; Wang, 2003: 60, Figs. (in the figures is not at all *Apatophysis*, misidentification); Wang & Hua, 2009: 162; Hua *et al*., 2009: 7 (pl. VII, fig. 80), 134.

Apatophysis (s. str.) *centralis*: Semenov-Tian-Shanskij & Stshegoleva-Barovskaja, 1936: 81; Danilevsky, 2008: 18; Löbl & Smetana, 2010: 142.

Centrodera (*Apatophysis*) *centralis*: Gressitt, 1951: 48, 49.

Materials examined. China: lectotype ♂ (ZIN) (Fig. 1), "Upper stream of Pakhpu River, 14–27. VII.[18]90, Grombchevsky leg." [in Russian] / "*Apatophysis centralis* m. ♂ typ. II.[19]01. A. Semenov det." / silver circle / "Coll. Semenov-Tian-Shansky" / "Lectotypus *Apatophysis centralis* Semenov, 1901, M. Danilevsky des., 2008" (Fig. 2); paralectotype ♂ (ZIN), same labels as the lectotype, but "Paralectotypus *Apatophysis centralis* Semenov, 1901, M. Danilevsky des., 2008"; paralectotype ♀ (ZIN) (Fig. 34), "Upper stream of Kul-jar River, 27.VII– 3.VIII.[18]90, Grombchevsky leg." [in Russian] / "*Apatophysis centralis* m. ♀ typ. II.[19]01. A. Semenov det." / silver circle / "Coll. Semenov-Tian-Shansky" / "Paralectotypus *Apatophysis centralis* Semenov, 1901, M. Danilevsky des., 2008"



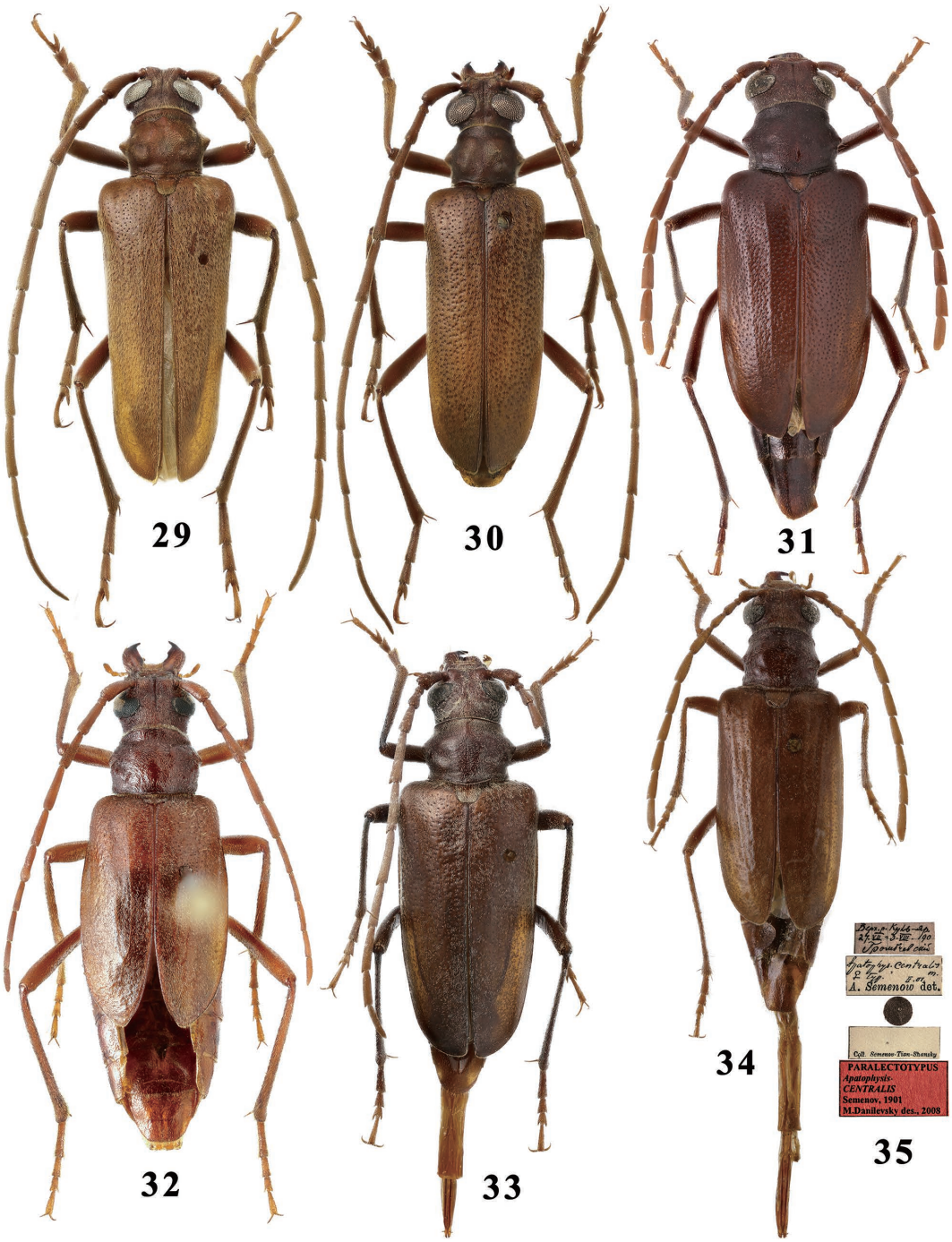
Figs. 21–28. Habitus and labels of *Apatophysis* spp. (males). —— 21, 22, *A. serricornis* (GEBLER, 1843) (from Inner Mongolia); 23, 24, *A. sinica* SEMENOV, 1901, holotype; 25, *A. niisatoi* MIROSHNIKOV et LIN, sp. nov., holotype; 26, 28, *A. sieversi* GANGLBAUER, 1887 (26–27, holotype; 28, from Sanbao, Beijing).

(Fig. 35); 1 ♂ (ZMMU), "Upper stream of Pakhpu River, 14–27.VII.[18]90, Grombchevsky leg." [in Russian] / "*Apatophysis centralis* Sem., N. Plavilstshikov det."; 3 ♀♀ (ZIN), "Ak-Su River, Chinese Turkestan, VI.1910, Riukbeil leg." [in Russian] / "Coll. Semenov-Tian-Shansky"; 1 ♂ (ZIN), "Ost-Turkestan, Aksu, 1067 m, V.1903, Coll. Hauser" / "380" / "Coll. Semenov-Tian-Shansky".

Remarks. Body length of males 11.2–13.15 mm, humeral width 3.4–4.1 mm, the holotype being the largest; body length of females 14.1–17.4 mm, humeral width 3.9–5.6 mm. In the original description, the body lengths range from 9.5 to 15.0 mm.

Both the original description (Semenov, 1901) and the "Monograph of the genus *Apatophysis* Chevr. ...." (Semenov-Tian-Shanskij and Stshegoleva-Barovskaja, 1936) failed to indicate which congener(s) *A. centralis* is most similar to. At the same time, Danilevsky (2008) noted the following: "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 punctuation because of dense pubescence; by shallow emargination of 3rd joint of hind tarsi with shortened lobes.". However, the "hair patches" (sensu Danilevsky, 2008) in *A. centralis* differ strongly from those in *A. serricornis*, *A. roborowskii*, *A. kashgarica*, as well as *A. pavlovskii* Plavilstshikov, 1954 and *A. afghanica* Miroshnikov, 2014, the latter two species being absent from the fauna of China. In *A. centralis* (Fig. 109), recumbent setae predominantly in the middle areas of ventrites 1–4 or 1–3 are only denser in the apical parts than over the remaining surface of these ventrites, whereas in all of the above five species the dense setae in the respective places of the same ventrites are erect and form a peculiar brush (Figs. 110–113), thereby on the 1st and 2nd or in the majority of the ventrites the setae at least partly look more or less twisted. Whether the concentration of completely recumbent setae on the ventrites in *A. centralis* represents a certain strongly reduced derivative of such a peculiar structure as described above in the species close to *A. serricornis*, remains unknown. Therefore, it is difficult so far to judge if *A. centralis* should indeed be included into a group of species close to *A. serricornis*. But what is quite obvious even now is that the use of the peculiarities of sternal setation in *A. centralis* as the main distinctive feature in the same thesis of the key together with the species similar to *A. serricornis*, as Danilevsky (2008, p. 40) did, is absolutely unacceptable (see also below).

Besides the absence of brushes on the ventrites, by some other morphologically important features *A. centralis* is very similar to *A. hotanica* and it also resembles *A. xizangensis* sp. nov., thereby differs clearly from the species close to *A. serricornis*. Thus, in *A. centralis*, *A. hotanica* and *A. xizangensis* sp. nov., the length ratio of antennomeres 3 and 4 is quite stable, antennomere 4 being only about 1.1 times as long as antennomere 3, thereby the apical external angle of antennomeres 4 and 5, like that of the 3rd, is regularly rounded, not so sharply expressed (Figs. 67–69), while in *A. serricornis*, *A. kashgarica* and *A. roborowskii*, the length ratio of antennomeres 3 and 4 is highly variable, antennomere 4 being 1.45–2.4 times (sometimes up to 2.65 times, see below) as long as antennomere 3, thereby the apical external angle of antennomeres 4 and 5 is usually more or less sharply expressed (but in no case rounded) (Figs. 75–78), often serrate; in the former three species, antennomere 1 is 1.37–1.41 times as long as antennomere 4, lobes on tarsomere 3 only more or less clearly sharpened apically, but neither too sharp nor spine-shaped (Figs. 83–85), while in the latter three species, antennomere 4 is either not more than 1.33 times as long as antennomere 1 or these antennomeres are subequal, or antennomere 1 can also be barely (but not more) longer than antennomere 4, with lobes on tarsomere 3 being very sharp apically, spine-shaped (Figs. 86–89), thereby very sharp apically can also be lobes of tarsomeres 1 and 2. Besides the absence of brushes on the ventrites, *A. centralis*, *A. hotanica* and *A. xizangensis* sp. nov. differ very clearly from *A. pavlovskii* and *A. afghanica* as well by



Figs. 29–35. Habitus and labels of *Apatophysis* spp. —— 29, 30, *A. insolita* MIROSHNIKOV et LIN, sp. nov., holotype and paratype (from Shennonggu, Henan), males, respectively; 31, *A. barbara* (P. H. LUCAS, 1858), female; 32, *A. modica* GAHAN, 1906, female (the *richteri*-group); 33, *A. serricornis* (GEBLER, 1843), female (from Eastern Gobi Aimak, Mongolia); 34, 35, *A. centralis* SEMENOV, 1901, paralectotype female.

the structure of the basal antennomeres, the mandibles, the tarsi, the peculiarity of both setation and puncturation of the elytra, and some other features.

All above allows us to doubt even more in the assignment of *A. centralis* to "*A. serricornis*-group of species" (sensu Danilevsky, 2008), and in contrast provides sufficient grounds for the inclusion of this species into the *barbara*-group.

Returning to the key by Danilevsky (2008, pp. 40–41), it seems noteworthy that its use can cause great difficulties in identifying not only *A. centralis*, but also another Chinese species, *A. sieversi*. Thus, in thesis "1(29)", the author indicated "... all tibiae straight ... 1. Subgen. *Apatophysis* Chevr. s. str.". Further, in thesis "14(13)", he referred *A. sieversi* to the above subgenus, but at the same time he noted "Middle and hind tibiae strongly curved, ...". As a result, Danilevsky contradicted himself, although the structure of both meso- and metatibiae in *A. sieversi* is exactly as he described in thesis "14(13)". Besides this, the partly erroneous numbering of theses "2(10)", "3(4)", "3(2)", "4(9)" causes more confusion in his key.

Distribution. China: Xinjiang. The records from Sichuan, as well as in the former USSR, Kashmir and Laos (Hua, 2002) are wrong.

Apatophysis hotanica Danilevsky, 2008

(Figs. 3, 4, 46, 68, 74, 79, 84)

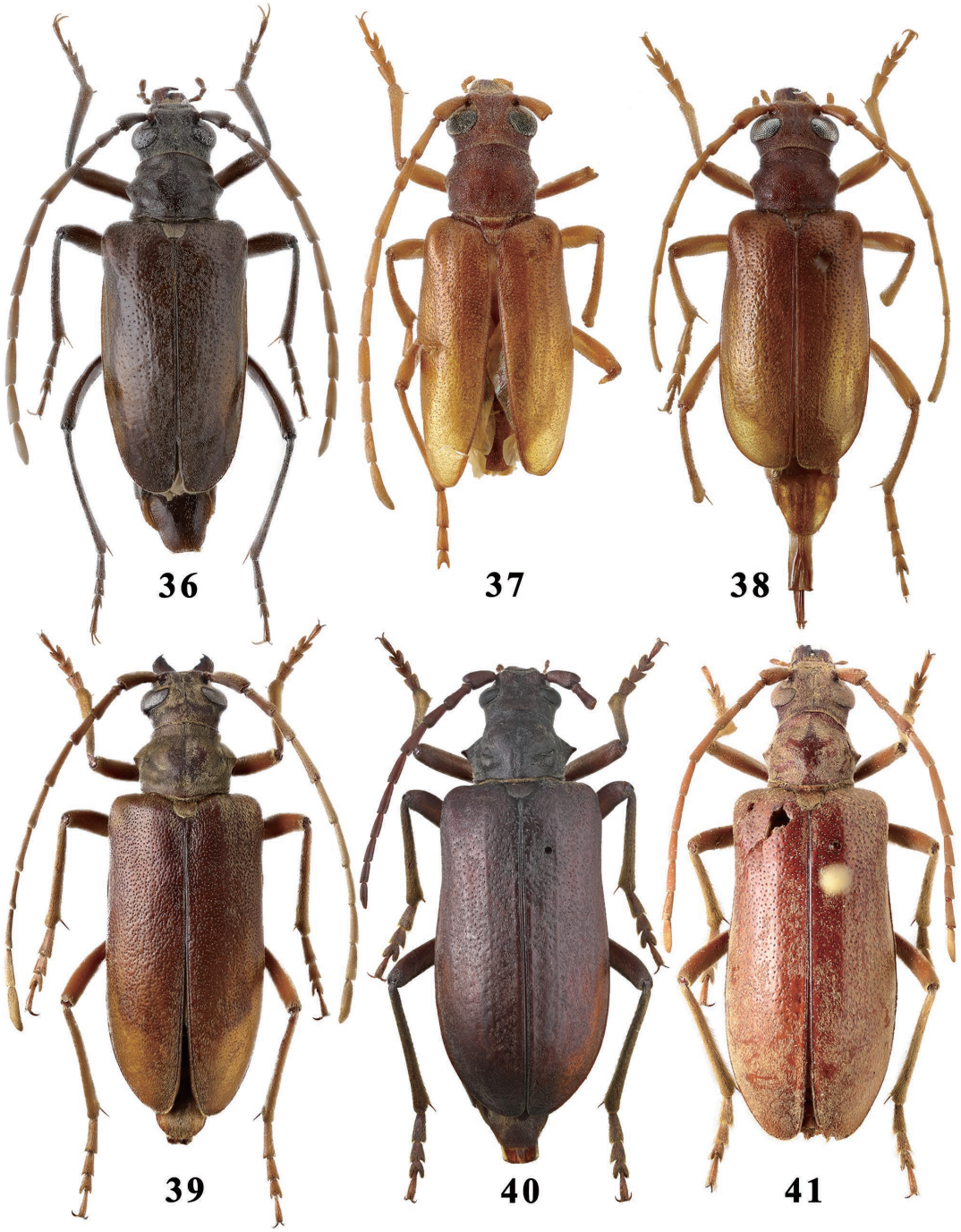
Apatophysis (s. str.) *hotanica* Danilevsky, 2008: 35 ("Hotan, north-east slope of Kun-Lun Ridge, North-West China"). Type locality: Hotan [Xinjiang, China] (according to the original description and the label of the holotype); Löbl & Smetana, 2010: 142.

Material examined. China: holotype ♂ (BMNH) (Fig. 3), "Ost Turkestan, Khotan-Geb., Coll. Hauser 1900" / "Hauser Coll. 1904-63" / "*Apatophysis komarowi* Sem. Gnglb. det." / "Holotypus *Apatophysis* (s. str.) *hotanica*, sp. n. M. Danilevsky det., 2008" (Fig. 4).

Remarks. Until now, this species is only known from the holotype, body length 13.5 mm, humeral width 4.2 mm.

Danilevsky (2008), in the original description of *A. hotanica*, brought it close to *A. komarowi* Semenov, 1889 and *A. baeckmanniana* Semenov, 1907, neither present in China, and he totally omitted *A. centralis*. However, *A. hotanica*, as shown above, much more strongly resembles the latter species by a number of characters compared to the former two species. Besides the two characters indicated by Danilevsky (2008), i.e. the short antennae and the very short antennomeres 3 and 4, *A. hotanica* differs from both *A. komarowi* and *A. baeckmanniana* by the less strongly elongated antennomere 1, whose length is distinctly less than the shortest distance between the antennal cavities (in *A. komarowi* and *A. baeckmanniana*, the length of antennomere 1 clearly exceeds the shortest distance between the antennal cavities), the less strongly flattened antennomeres 3 and 4 (Figs. 70, 71, 74), the rounded shape of the apical external angle of antennomere 5 (Figs. 65, 66, 68), the less strongly elongated tarsomeres at least of the metatarsus (Figs. 81, 82, 84), a somewhat different structure of the mandibles, in particular the presence of a well-expressed obtuse tooth at the inner margin of the left mandible at its middle (Figs. 43, 44, 46), and the less sharp constriction behind the eyes, whereas by the conformation of all these structures in addition to some others, *A. hotanica* is clearly similar to *A. centralis* (Figs. 45, 46, 67, 68, 72, 73, 74, 83, 84). The differences between *A. hotanica* and *A. centralis* are presented in the key.

Distribution. China: Xinjiang.



Figs. 36–41. Habitus of *Apatophysis* and *Protapatophysis* spp., females. —— 36, *A. serricornis* (GEBLER, 1843) (from Inner Mongolia); 37, 38, *A. sieversi* GANGLBAUER, 1887; 39, *Apatophysis* sp. (? *sinica* SEMENOV, 1901) (from Wenxian, Gansu); 40, *P. kashmiriana* (SEMENOV, 1901), paralectotype; 41, *P. montana* (GAHAN, 1906).

Apatophysis xizangensis Miroshnikov et Lin, sp. nov.

(Figs. 5, 47, 69, 85)

Diagnosis. This new species seems to be especially similar to *A. hotanica* and *A. centralis*, but differs very clearly from both by the evidently more strongly developed lateral tubercles of the pronotum, the generally more strongly transverse pronotum, the slightly more elongated elytra (Figs. 1, 3, 5), the clear puncturation on most of their parts, the somewhat different structure of the inner margin of both mandibles, the longer genae (Figs. 45–47), the clearly expressed antennal tubercles, the obviously stronger legs (Figs. 1, 3, 5), the ventrally dentate meso- and metatibiae, the wider basal tarsomeres, the clearly sparser recumbent setation of the venter, the peculiarities of the sculpture, setation and coloration of the head ventrally, the ventrally mostly absent setation in the apical half of all femora, and the clearly darker coloration of the head dorsally, of the pronotum, scutellum, legs (Figs. 1, 3, 5) and most of the venter, as well as by several other minor features.

Description. Male. Body length 15.9 mm, humeral width 4.75 mm. Reddish-brown; head mostly, pronotum, scutellum, femora and tibiae darker.

Head at eye level clearly narrower than pronotum at level of lateral tubercles; antennal tubercles well-developed, median longitudinal groove between them distinctly visible, but much less strongly expressed between eyes, with a clear, very dense and confluent puncturation and poorly-visible microsculpture; eyes moderately convex, shallowly emarginate; genae well-developed; mandibles long, sharpened by a narrow cone apically, inner margin of both mandibles with large tooth as in Fig. 47; submentum with a slightly scabrous sculpture; gula almost smooth, on either side of it with a rough rugose puncturation; posterior margin of eyes, predominantly laterally, with rugose, partly curved folds; antennae relatively short, extending beyond apices of elytra by last antennomere, from antennomere 6 until 10th moderately serrate; length ratio of antennomeres 1–11, 53 : 12 : 34 : 38 : 84 : 79 : 77 : 73 : 76 : 76 : 108; antennomere 2 clearly transverse.

Pronotum strongly transverse, broadest at level of lateral tubercles where it is 1.67 times as wide as long, with base noticeably wider than apex, with a clear, very dense and confluent puncturation and almost invisible microsculpture; lateral tubercles very well-developed, sharpened apically; disk with clearly expressed two pairs of tubercles and deep transverse depression between each pair, at base with a median, well-visible, smooth, shiny area.

Scutellum moderately narrowed toward apex, rounded apically, with a fine puncturation.

Elytra 2.32 times as long as the humeral width, with sides near bases moderately narrowed toward apices, partly about parallel-sided behind the middle, with distinct, but not too sharp longitudinal ribs; basal part with a clear, sparse, irregular, rough puncturation, partly hidden by a dense setation and strongly weakened in apical part, with very small, dense punctures forming a somewhat scabrous microsculpture.

Pro- and mesosterna with a small puncturation and partly with gentle rugose sculptures; prosternal process very narrow between coxae, significantly broadened at apex; mesosternal process moderately wide; metasternum with a distinct, partly rugose, in places confluent puncturation; metepisterna elongate, moderately narrowed toward apex. Abdomen with last ventrite widely truncate at apex, noticeably impressed at the extremity.

Legs long, relatively strong; meso- and metatibiae dentate ventrally; metatibia about 1.5 times as long as metatarsus; metatarsomere 1 slightly shorter than 2nd and 3rd of the same tarsus combined.

Recumbent light setation on dorsum relatively dense, moderately sparse on venter, only denser mostly on mesepisterna, mesepimera, metepisterna, adjacent surface of metasternum and at metacoxae; sparse, more or less long, erect and suberect setae mainly developed on venter and legs.

Material examined. Holotype: ♂ (IZAS, IOZ(E)1905136), China, Xizang, Qushui County, 3,620 m, 26.V.1960, Chunguang Wang leg. / "*Apatophysis mongolica* Sem., E. Vives det. 2012" (misidentification).

Etymology. The new species is the first and so far only representative of the genus found in Xizang. Its name just is derived from the name of this region of China.

Distribution. China: Xizang.

The ***serricornis***-group

Diagnosis. This group seems to be especially similar to the *barbara*-group, but differs very clearly from it, as well as from other groups of the genus, by the structure of the abdominal ventrites, namely, the presence in the apical part, mainly in the middle area, of ventrites 1–4 or 1–3 of very dense, erect, partly twisted setae forming a peculiar brush, as in Figs. 110–113. The *serricornis*-group is also characterized by the following features, the combination of which even more reliably sets it from each of the other groups: body from small to medium-sized; lobes of tarsomere 3 sharpened (Fig. 90) or very sharp apically (Figs. 86–89), besides this with lobes on tarsomeres 1 and 2 which can also be very sharp; antennomere 4 either up to about 1.3 times as long as antennomere 1 or these antennomeres subequal, or antennomere 1 can also be barely (but not more) longer than antennomere 4; pads on tarsi like in the *barbara*-group. Some representatives show strong individual variability.

Composition. The group consists of five species, three of which inhabit China.

Remarks. It is noteworthy that the Chinese representatives of this group differ clearly from the other two members, *A. pavlovskii* and *A. afghanica* mentioned above, by the clearly more strongly developed recumbent setation of the body, at least so on the elytra, usually very strongly or significantly hiding their puncturation, the clearly apically sharper lobes on tarsomere 3 (Figs. 86–90) or also on the two previous tarsomeres, the structure of the mandibles, in particular, the presence of a large tooth at the inner margin of the left mandible, like on the right mandible (Figs. 48, 50–52), and some other features.

Apatophysis serricornis (Gebler, 1843)

(Figs. 10–22, 33, 36, 48, 49, 75, 76, 86, 87, 110, 114–119, 128)

Pachyta serricornis Gebler, 1843: 39 ("In deserto ad lac. Alakul"). Type locality: Alakol (= Alakul) Lake [about 160 km E of Balkhash Lake, Kazakhstan] (according to the original description); Gebler, 1859: 507; Gemminger in Gemminger & Harold, 1872: 2860 [= *spinicornis* Gebler ("*serricornis*", misspelling)]; Heyden, 1881: 192 [= *spinicornis* Gebler ("*serricornis*", misspelling)].

Apatophysis serricornis: Aurivillius, 1912: 160 [= *tomentosa* Gebler; = *spinicornis* Gebler ("*serricornis*", misspelling); = *obtusicollis* Motschulsky]; Boppe, 1921: 46; Winkler, 1929: 1146; Plavilstshikov, 1932: 188; Wu, 1937: 684; Heyrovský, 1968: 235; Lobanov *et al*., 1981: 794; Hua, 1982: 10; Hua, 2002: 195; Wang & Hua, 2009: 163; Hua *et al*., 2009: 450.

Apatophysis (s. str.) *serricornis*: Danilevsky, 2008: 11; Löbl & Smetana, 2010: 142; Miroshnikov, 2014: 14.

Centrodera (*Apatophysis*) *serricornis*: Gressitt, 1951: 48, 49.

Toxotus? *tomentosus* Gebler, 1844: 105 ("Ad fl. Ajagus et Tschui"); Gebler, 1860: 30; Gemminger in Gemminger & Harold, 1872: 2859.

Apatophysis tomentosus: Faust, 1877: 113, 116 (= *Psilotarsus obtusicollis* Motschulsky; = *Apatophysis toxotoides* Chevrolat, mistakenly); Heyden, 1881: 192 (= *toxotoides* Chevrolat, mistakenly); Ganglbauer, 1882: 719 (= *toxotoides* Chevrolat, mistakenly; "Algier, Caucasus", mistakenly); Heyden *et al*., 1883: 183 (= *toxotoides* Chevrolat, mistakenly); Ganglbauer in Marseul, 1889: 466 [= *toxotoides* Chevrolat, mistakenly; "Casp." (Caspian coast), mistakenly]; Heyden, 1893: 179 ("Turcmenien", mistakenly); Pic, 1900: 12 [= *serricornis* Gebler, incorrectly; "Casp." (Caspian coast), mistakenly].

Apatophysis tomentosa: Ganglbauer, 1888: 193 ["Turcmenien (Transcaspischen Gebiete)", mistakenly]; Heyden *et al*., 1891: 338 (= *toxotoides* Chevrolat, mistakenly; = *serricornis* Gebler, incorrectly); Heyden *et al*., 1906: 502 (= *serricornis* Gebler, incorrectly); Plavilstshikov, 1936: 113, 494; Kostin, 1973: 131.

Apatophysis (s. str.) *tomentosa*: Semenov-Tian-Shanskij & Stshegoleva-Barovskaja, 1936: 69 (= *serricornis* Gebler, incorrectly).

Pachyta spinicornis: Renard, 1859: 427 ("*serricornis*", misspelling); Gebler, 1859: 349 ("in deserto ad lac. Alakul"; "*serricornis*", misspelling); Motschulsky, 1860: 538 ("*serricornis*", misspelling); Motschulsky, 1861: 444 ("*serricornis*", misspelling); Gemminger in Gemminger & Harold, 1872: 2860 [*serricornis* Gebler = *spinicornis* Gebler ("*serricornis*", misspelling)]; Kraatz, 1879a: 75 ("*serricornis*", misspelling); Kraatz, 1879 b: 79 ("*serricornis*", misspelling).

Apatophysis spinicornis: Winkler, 1929: 1146 ("*serricornis*", misspelling).

Psilotarsus obtusicollis Motschulsky, 1860: 538 ("steppes orientales des Kirghises"); Motschulsky, 1861: 444; Gemminger in Gemminger & Harold, 1872: 2758.

Apatophysis mongolica Semenov, 1901: 28 ("in Mongolia usque ad Dshungariae oram orientalem: des. Gobi int. Njursu et Dshandshicho. jug. Bajtyk-bogdo; Gutshen; Mongolia sept.-occid."); Aurivillius, 1912: 160; Boppe, 1921: 46; Winkler, 1929: 1146; Plavilstshikov, 1936: 115, 495; Wu, 1937: 683; Namhaidorzh, 1972: 499; Kostin, 1973: 131; Namhaidorzh, 1976: 202; Lobanov *et al*., 1981: 794; Hua, 1982: 10; Danilevsky, 1988: 128, 129 (larvae); Hua, 2002: 194; Wang, 2003: 60, Figs. (the figures do not depict *A. mongolica* at all, maybe not even an *Apatophysis*, thus representing a misidentification); Wang & Hua, 2009: 163; Hua *et al*., 2009: 450.

Apatophysis (s. str.) *mongolica*: Semenov-Tian-Shanskij & Stshegoleva-Barovskaja, 1936: 71 (probable synonymy: *tomentosa* Gebler = *mongolica* Semenov); Danilevsky, 2008: 11 (*serricornis* Gebler = *mongolica* Semenov).

Centrodera (*Apatophysis*) *mongolica*: Gressitt, 1951: 48, 49.

Apatophysis kadyrbekovi Kadlec, 2006: 1 ("SE Kazakhstan, r. Ili, env. Borandisu").

Apatophysis (s. str.) *kadyrbekovi*: Danilevsky, 2008: 12 (*serricornis* Gebler = *kadyrbekovi* Kadlec).

Materials examined. CHINA: 1 ♂ (ZIN), "Ordos, right bank of Yellow River, 22–25.V.[19]08, Kozlov's ex[pedition]." [in Russian] / "*Apatophysis mongolica* m. ♂ A. Semenov-Tian-Shansky det."; 1 ♂ (ZIN) (Fig. 21), "Ka-tu-hu [= Ka-tu-ku] [southern Alashan], 9.VII.[19]08, Kozlov's ex[pedition]." [in Russian] / "Coll. Semenov-Tian-Shansky"; 1 ♀ (ZIN), "Southern Alashan, Dolone-gol River valley, 13.VII.[19]08, Kozlov's ex[pedition]." [in Russian] / "*Apatophysis mongolica* m. ♀ A. Semenov-Tian-Shansky det., V.[19]22"; 1 ♂ (ZIN), "Chinese Turkestan, Barkul, VII.1910, Riukbeil leg." [in Russian] / "*Apatophysis barkulica* [nomen nudum] m., typ., G. Suvorov det." / "*Apatophysis baeckmanniana* Sem. W. Shawrow det."; 2 ♂♂ (ZIN), "Chinese Turkestan, Barkul, VII.1910, Riukbeil leg." [in Russian] / "Coll. Semenov-Tian-Shansky"; 1 ♂ (IZAS, IOZ(E) 1904870), Xinjiang, Mori Kazakh Autonomous County, 1,500 m, 21.V.1977 (unknown collector); 1 ♂ (IZAS, IOZ(E)1904871), Xinjiang, Fukang, Wucaiwan, 2011, Shuo Wang leg.; 1 ♂ (IZAS, IOZ(E)1904865), Inner Mongolia, Alxa League, Ejina Banner, 22.VI.1986, Feng Qiao leg.; 1 ♂ (IZAS), same data, but taken on 21.VI.1986; 1 ♂ (IZAS, IOZ(E)1904866), same data, but taken on 27.VI.1986, Lu-Tu Tao leg.; 1 ♂ (IZAS), same data, but taken on 20.VI.1986, Ge-Tu Tao leg.; 1 ♂ (IZAS, IOZ(E)1904867), Inner Mongolia, Alxa League, Right Banner, 20.VII.1986, Yong-Chang Zhang leg.; 1 ♀ (IZAS), same data, but taken on 27.VI.1986, Yong-Cai Lv leg.; 1 ♀ (IZAS), same locality, but taken on 1.VII.1986, Ming Ge leg.; 1 ♀ (IZAS), same locality, but taken on 5.VII.1986, Li-Zhu Zhang leg.; 1 ♂ (IZAS), same locality, but taken on 2007 (unknown collector); 1 ♂ (cSM) (Fig. 22), Inner Mongolia, E Bayan Hot, 1780 m, 29.VI.2011, S. Murzin leg.; 1 ♀ (cSM) (Fig. 36), 5 km S Bayan Hot, 30.VI.2011, S. Murzin leg.; 2 ♂♂ (IZAS, IOZ(E)1905320–21) (Figs. 18, 19), Guangdong, Nanling Baohuzhan, V–VIII.2009, Lei Gao leg. / *Apatophysis* ?*serricornis* (Gebler, 1843) ♂ det. A. Miroshnikov 2015. MONGOLIA: 2 ♂♂ (ZIN), "NW Mongolia, Shuryk near Uliasutai, 20.VIII.[1]887, Potanin leg." [in Russian]; lectotype of *A. mongolica*, ♂ (ZIN) (Fig. 12), "Gobi, between Niursu and Dzhandzhikho, 10.VIII.[18]98, Klements [leg.]" [in Russian] / "Coll. Semenov-Tian-Shansky" / silver circle / "Lectotypus *Apatophysis mongolica* Semenov, 1901 M. Danilevsky des., 2008" [see "Notes on the type series of *A. mongolica*" below] + "*Apatophysis serricornis* (Gebler, 1843) ♂ det. A. Miroshnikov 2017" (Fig. 13); para-

Figs. 42–53. Head (dorsal view) of *Apatophysis* spp. —— 42, *A. barbara* (P. H. LUCAS, 1858); 43, *A. komarowi* SEMENOV, 1889; 44, *A. baeckmanniana* SEMENOV, 1907; 45, *A. centralis* SEMENOV, 1901; 46, *A. hotanica* DANILEVSKY, 2008, holotype; 47, *A. xizangensis* MIROSHNIKOV et LIN, sp. nov., holotype; 48, 49, *A. serricornis* (GEBLER, 1843); 50, *A. kashgarica* SEMENOV, 1901, lectotype; 51, *A. roborowskii* SEMENOV, 1901, holotype; 52, *A. pavlovskii* PLAVILSTSHIKOV, 1954; 53, *A. sieversi* GANGLBAUER, 1887, the large-sized specimen. —— 42–48, 50–53, Males; 49, female.

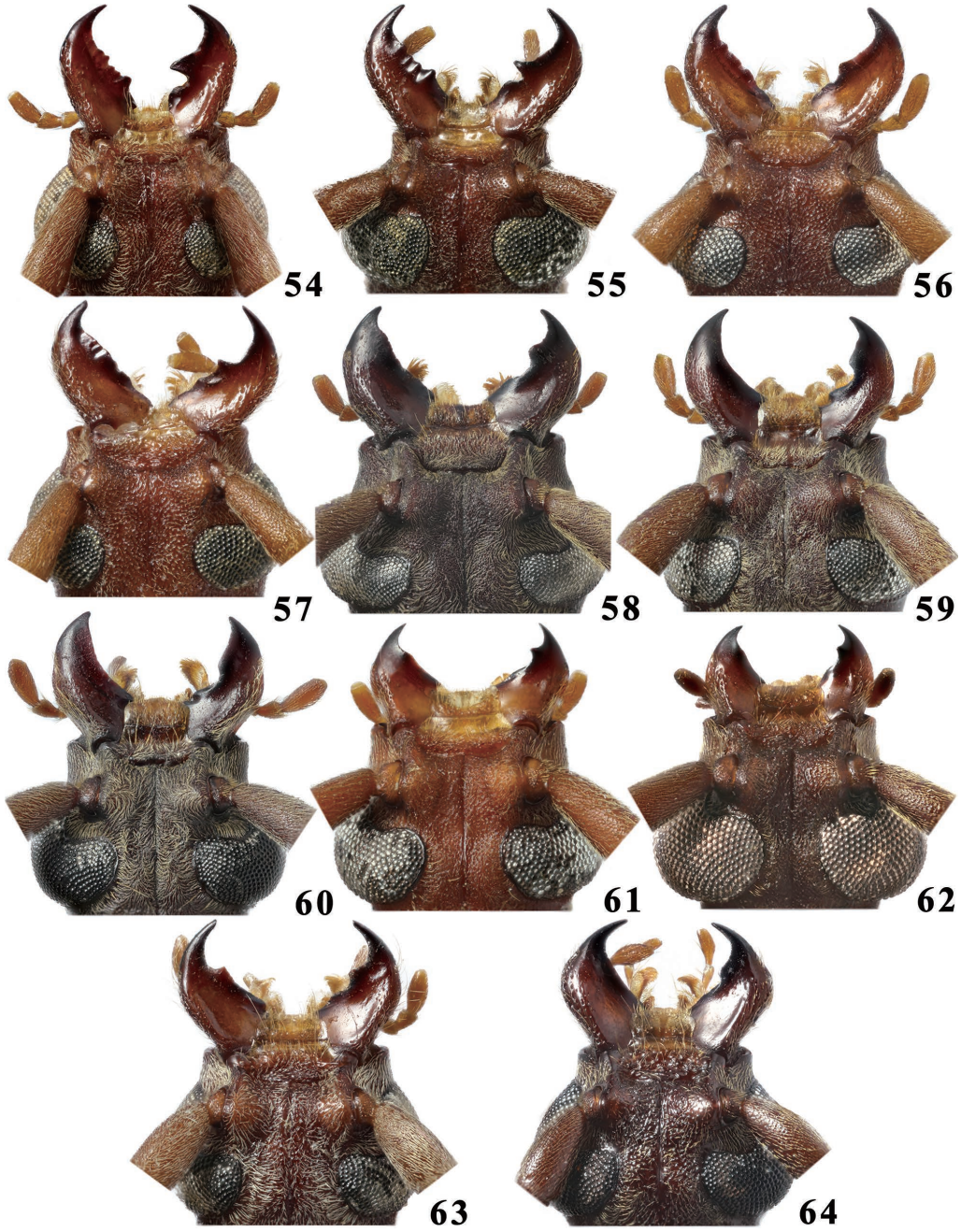
lectotype of *A. mongolica*, ♂ (ZIN), same labels as lectotype, but "Paralectotype male of *Apatophysis mongolica* Semenov, 1901, according to Danilevsky (2008: 12)" [see "Notes ..." below] (Fig. 16); paralectotype of *A. mongolica*, ♂ (ZIN) (Fig. 14), "Mongol. septent., Potanin, E. Mus. Acad. rec." (label is difficult to read) / "*Apatophysis tomentosa* Gebl., ♂ 5.XI.[18]88" / "*Apatophysis mongolica* m. typ. II.[19]01. A. Semenov det." / silver circle + "Paralectotype male of *Apatophysis mongolica* Semenov, 1901, according to Danilevsky (2008: 12)" [see "Notes ..." below)] / "*Apatophysis serricornis* (Gebler, 1843) M. Danilevsky det. 2008" (Fig. 15); paralectotype of *A. mongolica*, ♂ (ZIN), "Guchen, 13–24.VIII.[18]89, Grum-Grzhimailo leg." [in Russian] / "Coll. Semenov-Tian-Shansky" / silver circle + "Paralectotype male of *Apatophysis mongolica* Semenov, 1901, according to Danilevsky (2008: 12)" [see "Notes ..." below] + "*Apatophysis serricornis* (Gebler, 1843) ♂ det. A. Miroshnikov 2017" (Fig. 17); 1 ♂ (ZIN), "Central Mongolia, Tszosto, 28.VI–2.VII.[19]09, Kozlov's ex[pedition]." [in Russian] / "*Apatophysis mongolica* m. ♂ A. Semenov-Tian-Shansky det."; 1 ♂ (ZMUM), "Central Gobi, 1956 (unknown collector)"; 1 ♂, 1 ♀ (cAM), Khailastyn-Khuduk, Zagan oi, 19–20.VI.1971, B. Namkhaidorzh leg. [in Russian]; 8 ♂♂ (ZIN), Southern Gobi Aimak, Dzemgin-Gobi, 25 km SSW Khailastyn-Khuduk, 20.VI.1971, Kerzhner leg. [in Russian]; 1 ♂ (ZIN), Southern Gobi Aimak, Khushu-Sair, 25 km SW Khailastyn-Khuduk, 21.VI.1971, Emeljanov leg. [in Russian]; 1 ♀ (ZIN), Eastern Gobi Aimak, 5 km W Tenger-Nur Lake, 25.VI.1971, Emeljanov leg. [in Russian]; 1 ♀ (ZIN), same label, but Kozlov leg.; 1 ♂ (cSM), Kobdosskij Aimak, Elkhon, 20 km SE Altai, 1200 m, 31.VII.[19]76, L. Medvedev leg. KAZAKHSTAN: holotype of *A. tomentosa*, ♂, by monotypy (ZIN) (Fig. 10), "*Toxotus tomentosus* Gebl. Ajacus [Ajaguz]/Schrenk, F." / golden circle / "*Apatophysis serricornis* (Gebler, 1843) M. Danilevsky det. 2008" (Fig. 11); 1 ♂ (ZIN), "Dzharkent Distr., Temerlik-Kopaly, 14.VIII.1908, Zenkov leg." [in Russian] / "*Apatophysis komarovi* Sem. W. Shawrow det." / "*Apatophysis mongolica* Sem. M. Danilevsky det., 2001"; 1 ♂ (ZIN), "Dzharkent Distr., Ili River, V.[19]09, Riukbeil leg." [in Russian] / "Coll. Semenov-Tian-Shansky"; 1 ♂ (cSM), Dzharkent, 14.VIII.[19]36 [in Russian]; 1 ♂ (cSM), "40 km S Panfilov [now Dzharkent], Ili River, 21.VI.1988, V. Tuzov leg."; 2 ♂♂ (cAM), Almaty Prov., 22 km N Masak, 43°46'N, 78°27'E, 560 m, 16.VIII.1995, G. Fábián leg.; holotype of *A. kadyrbekovi*, ♂ (NMP) (photograph, Fig. 20), SE Kazakhstan, Ili River, Borandisu env., 29.VII.1994, Kadyrbekov leg.

Remarks. Body length of males 11.2–17.0 mm, humeral width 3.5–5.6 mm; body length of females 15.5–20.5 mm, humeral width 4.9–6.6 mm.

This species is characterized by very strong individual variability. Hardly surprisingly, some of its forms have been described as separate species (Semenov, 1901; Kadlec, 2006). Even Semenov-Tian-Shanskij and Stshegoleva-Barovskaja, (1936, p. 72) assumed that *A. mongolica* Semenov, 1901 he had established earlier (Semenov, 1901) could prove to be just a form of *A. tomentosa* (syn. pro *A. serricornis*).

The distribution area of *A. serricornis* covers a quite vast territory, ranging from the area of Lake Balkhash in the west (Semenov-Tian-Shanskij & Stshegoleva-Barovskaja, 1936; Plavilstshikov, 1936; Parfentjev, 1958; Kostin, 1973) to the banks of Huang He (Yellow River) in the environs of Ordos and the Alashan (Alxa) Mountain Range in the east and southeast (Semenov-Tian-Shanskij & Stshegoleva-Barovskaja, 1936; Plavilstshikov, 1936; the collections of the Zoological Institute, St. Petersburg and Sergey V. Murzin, Moscow).

Completely unexpected was the discovery of two males (Figs. 18, 19) from Guangdong Province in the IZAS collection, which were preliminarily identified by us as *A. serricornis*. Based on the finding of these specimens, the southernmost range limit of *Apatophysis* has recently been established (Miroshnikov, 2014) since some species from Vietnam and Laos previously attributed to this genus (Pic, 1912; Gressitt & Rondon, 1970) actually belong to other genera, and have been described as



Figs. 54–64. Head (dorsal view) of *Apatophysis* spp. —— 54, *A. sieversi* GANGLBAUER, 1887, the medium-sized specimen; 55, the same, but the small-sized specimen; 56, 57, *A. sieversi*; 58, *Apatophysis* sp. (? *sinica* SEMENOV, 1901) (from Wenxian, Gansu); 59, *A. sinica* SEMENOV, 1901; 60, *A. niisatoi* MIROSHNIKOV et LIN, sp. nov., holotype; 61, 62, *A. insolita* MIROSHNIKOV et LIN, sp. nov., paratypes; 63, 64, *A. margiana* SEMENOV-TIAN-SHANSKIJ et STSHEGOLEVA-BAROVSKAJA, 1936 and *A. modica* GAHAN, 1906 (the *richteri*-group), respectively. —— 54, 55, 59–64, Males; 56–58, females.

new (Miroshnikov, 2014).

Considering that Guangdong Province is very remote from the above-mentioned extreme southern and southeastern localities of *A. serricornis*, i.e. more than half of the currently known maximum extent of the general distribution area of this species, initially we believed that the Guangdong specimens most likely represent a new species of the *serricornis*-group. However, taking into account the strong individual variability of *A. serricornis*, all our attempts to find any significant stable differences between these males and those of *A. serricornis* from other parts of the distribution range have been unsuccessful yet. The following observation is noteworthy. In one of the Guangdong specimens, antennomere 4 is 2.65 times as long as antennomere 3, while in *A. serricornis* this ratio has so far been 1.8–2.4. However, in the other male, antennomere 4 is only 2.15 times as long as antennomere 3. The elytra of the Guangdong males are 2.05–2.07 times as long as the humeral width, while in *A. serricornis*, this ratio usually varies between 2.15–2.3. Yet in some other males the elytra can be about 1.9 times as long as the humeral width, as observed, for example, in the holotype of *A. kadyrbekovi* (syn. pro *A. serricornis*) (Fig. 20; see also notes below).

So we do not have any serious reasons so far to consider the record of *A. serricornis* in Guangdong Province as dubious, although per se it is very unusual in terms of the distribution of this species. Complete certainty seems to be achievable and should only be accepted after the discovery of additional relevant material and a detailed study.

Returning to the profound individual variability of *A. serricornis*, some very curious errors are also noteworthy which are available in the literature and require correction. Thus, several absurd photographs of this species were published by Danilevsky (2008, p. 45, figs. 2a, b, c, g), where the beetles are shown with unnaturally elongated bodies, and obviously with very strongly distorted habituses. Two of the specimens in the pictures of Danilevsky (2008, p. 45, figs. 2b, g) are kept in the collection of the Zoological Institute, St. Petersburg (ZIN) and we have restudied them. As one could expect, actually they are absolutely normal in structure, as is visible from the photographs presented here (Figs. 14, 33). Two other specimens (Danilevsky, 2008, p. 45, figs. 2a, c), although not re-examined by us, should also have the usual structure. Unfortunately, Danilevsky's absurd photographs have already been reproduced and used in some sources as corresponding to the reality, in particular, by certain specialized popular sites (see, for example, "A Photographic Catalog of the Cerambycidae of the World" by Larry G. Bezark). This requires correction as well.

Notes on the type series of A. mongolica. Danilevsky (2008) designated the lectotype and three paralectotypes in the section "Material studied" (p. 12) in the following way: «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». Further on, in the "Remarks" section (p. 15), the author noted: «... 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». However, in the caption to Fig. 2b (p. 45) Danilevsky stated: «2. *A. serricornis*: ...; b – male, paralectotype of *A. mongolica* Sem., "Mongol. septent."», i.e., instead of a photograph of the lectotype (which he referred to on page 15: « ... (Fig. 2b) ...»), with the relevant information on its label, he mistakenly presented a picture of one of the paralectotypes and reproduced its label. As noted above, this picture is thereby highly distorted and does in no way correspond to the actual habitus

of this specimen.

Through the courtesy of Mr. Andrey M. Shapovalov, in February 2017, the first author received, together with other material, all four specimens of the type series from the ZIN collection. When revising these specimens, the male with the above labels designated and illustrated by Danilevsky as a paralectotype, including "Mongol. septent., Potanin, E. Mus. Acad. rec.", in fact turned out to be equipped with the label "Lectotypus *Apatophysis mongolica* Semenov, 1901 M. Danilevsky des., 2008". This seems to explain the confusion arising from his publication. Without any doubt, at least this very specimen was initially mistakenly supplied by Danilevsky with the label "Lectotypus ...". It seems too unlikely that this label had been moved by chance to that specimen from another previously labeled individual. The following is noteworthy as well. The beetle proper carrying the labels "Mongol. septent., Potanin, E. Mus. Acad. rec." etc. is pasted on a rectangle of white cardboard and strongly displaced to the left from the pin which this rectangle is pinned with (Fig. 14). Therefore, on the label "Lectotypus ..." there is only one hole from the pin strongly displaced to the right, as in Fig. 13, i.e., the proper label (impaled on a pin) is located in more or less the same projection as the beetle, but not strongly shifted to the right. Both specimens with the identical labels reading "Gobi, between Niursu and Dzhandzhikho ..." etc. are neatly pinned on pins. This means that if only one of them was originally equipped by Danilevsky with the label "Lectotypus ...", then this label would have had one more pin hole (or at least its clear trace), but located closer to the longitudinal axis of the label proper. In practice it is too hard to believe that the label was originally pinned to the specimen (which is pinned properly) with such a position of the hole in the label as in Fig. 13.

The remaining three specimens of the type series have in no way been designated by Danilevsky.

In order to bring the designations of the specimens of the *A. mongolica* type series into full compliance with the published data of Danilevsky (2008), the first author of this paper has undertaken the following procedures. Firstly, he transferred the label "Lectotypus ..." from the above specimen (Fig. 14) to one (Fig. 12) of the two specimens with the labels (information on some of them was omitted by Danilevsky in his publication) reading "Gobi, between Niursu and Dzhandzhikho, 10.VIII.[18]98, Klements [leg.]" [in Russian] / "Coll. Semenov-Tian-Shansky" / silver circle (Fig. 13), the label "Lectotypus ..." is herewith transferred to the specified specimen in such a way that only single original hole from the previous pin remains there (see above). Secondly, he provided each of the remaining three specimens (as in Fig. 14) with a label reading "Paralectotype male of *Apatophysis mongolica* Semenov, 1901, according to Danilevsky (2008, p. 12)" (Figs. 15–17). It is in this form that all of those specimens have been returned to ZIN. By the way, the specimen indicated here as the lectotype (Fig. 12) was studied by the first author back in 2012 during one of his stays at ZIN. Information about this male has since been published (Miroshnikov, 2014, p. 14). At that time it still had none of Danilevsky's designations.

The lectotype and paralectotypes have the following body sizes: length 16.8 and 13.6–16.6 mm, humeral width 5.4 and 3.95–5.5 mm, respectively.

Notes on the picture of the holotype of A. kadyrbekovi. To avoid any misunderstanding when comparing the text of the links to the photograph of the holotype of *Apatophysis kadyrbekovi* Kadlec, 2006 given in the present paper (see Fig. 20) and some other publications, in particular, that of Danilevsky (2008), the following is noteworthy. This picture was kindly provided to us by its author, Mr. Luboš Dembický, Brno, Czech Republic, with the permission to publish in this paper, as noted in the introduction. At the same time, Danilevsky (2008, p. 45, fig. 2d), when using this very photograph in his work, mentioned no source, but added to the caption: "Photo by S. Kadlec" (instead of the correct entry: after Kadlec, 2006, note by A. Miroshnikov), while the original description of *A. kadyrbekovi*

clearly quotes the correct authorship of the picture under discussion: "Special thanks are due to L. Dembický for his digital photography" (Kadlec, 2006, p. 7).

Distribution. China: Xinjiang, Inner Mongolia, but obviously distributed much wider, since here the species is recorded, albeit with some reservations from Guangdong Province as well; Mongolia: most records are from the southern part, but to the north it reaches at least up to the Baityk-Bogdo Mountain Range in the environs of Uliastai; southeastern Kazakhstan; possibly also the adjacent areas of Kyrgyzstan.

Apatophysis kashgarica Semenov, 1901

(Figs. 6, 7, 50, 77, 88, 111, 120, 121)

Apatophysis kashgarica Semenov, 1901: 29 ("in Kashgaria merid.: ad fl. Jarkend-darja"). Type locality: Jarkend-darja [= Yarkant He] River [Xinjiang, China] (according to the original description and the label of the lectotype); Aurivillius, 1912: 160; Boppe, 1921: 46; Winkler, 1929: 1146; Hua, 1982: 10; Hua, 2002: 194; Wang & Hua, 2009: 162; Hua *et al*., 2009: 450.

Apatophysis (s. str.) *kashgarica*: Semenov-Tian-Shanskij & Stshegoleva-Barovskaja, 1936: 72; Danilevsky, 2008: 17; Löbl & Smetana, 2010: 142.

Centrodera (*Apatophysis*) *kashgarica*: Gressitt, 1951: 49.

Apatophysis cashgarica: Wang & Hua, 2009: 162 ("*kashgarica*", misspelling).

Materials examined. China: lectotype ♂ (ZIN) (Fig. 6), "S Kashg[aria].: Jarkend-daria, 22.VI–15.VII.[18]89, Pevtsov leg." [in Russian] / "*Apatophysis kashgarica* m. ♂ typ. II.[19]01. A. Semenov det." / silver circle / "Coll. Semenov-Tian-Shansky" / "Lectotypus *Apatophysis kashgarica* Semenov, 1901, M. Danilevsky des., 2008" (Fig. 7); paralectotype ♂ (ZIN), same labels as lectotype, but "Paralectotypus *Apatophysis kashgarica* Semenov, 1901, M. Danilevsky des., 2008"; 2 ♂♂ (IZAS, IOZ(E)1904868–69), Xinjiang, Korla, 13.VIII.1955, Shi-Jun Ma, Kai-Ling Xia & Yong-Lin Chen leg; 1 ♂ (IZAS), same label.

Remarks. Body length 11.2–15.5 mm, humeral width 3.7–4.95 mm, the holotype being the largest, while is one of two males occurring from Korla the smallest.

Distribution. China: Xinjiang.

Apatophysis roborowskii Semenov, 1901

(Figs. 8, 9, 51, 78, 89, 112)

Apatophysis roborowskii Semenov, 1901: 29 ["in Mongoliae ora occidental: inter Bugas (Chami) et Kara-tjube"]. Type locality: between Hami and Kara-tjube [about 70 km W of Hami] [Xinjiang, China] (according to the original description and the label of the holotype); Aurivillius, 1912: 160; Boppe, 1921: 46; Winkler, 1929: 1146; Wu, 1937: 683; Hua, 2002: 195; Wang & Hua, 2009: 163; Hua *et al*., 2009: 450.

Apatophysis (s. str.) *roborowskii*: Semenov-Tian-Shanskij & Stshegoleva-Barovskaja, 1936: 73; Danilevsky, 2008: 16; Löbl & Smetana, 2010: 142.

Centrodera (*Apatophysis*) *roborowskii*: Gressitt, 1951: 48, 49.

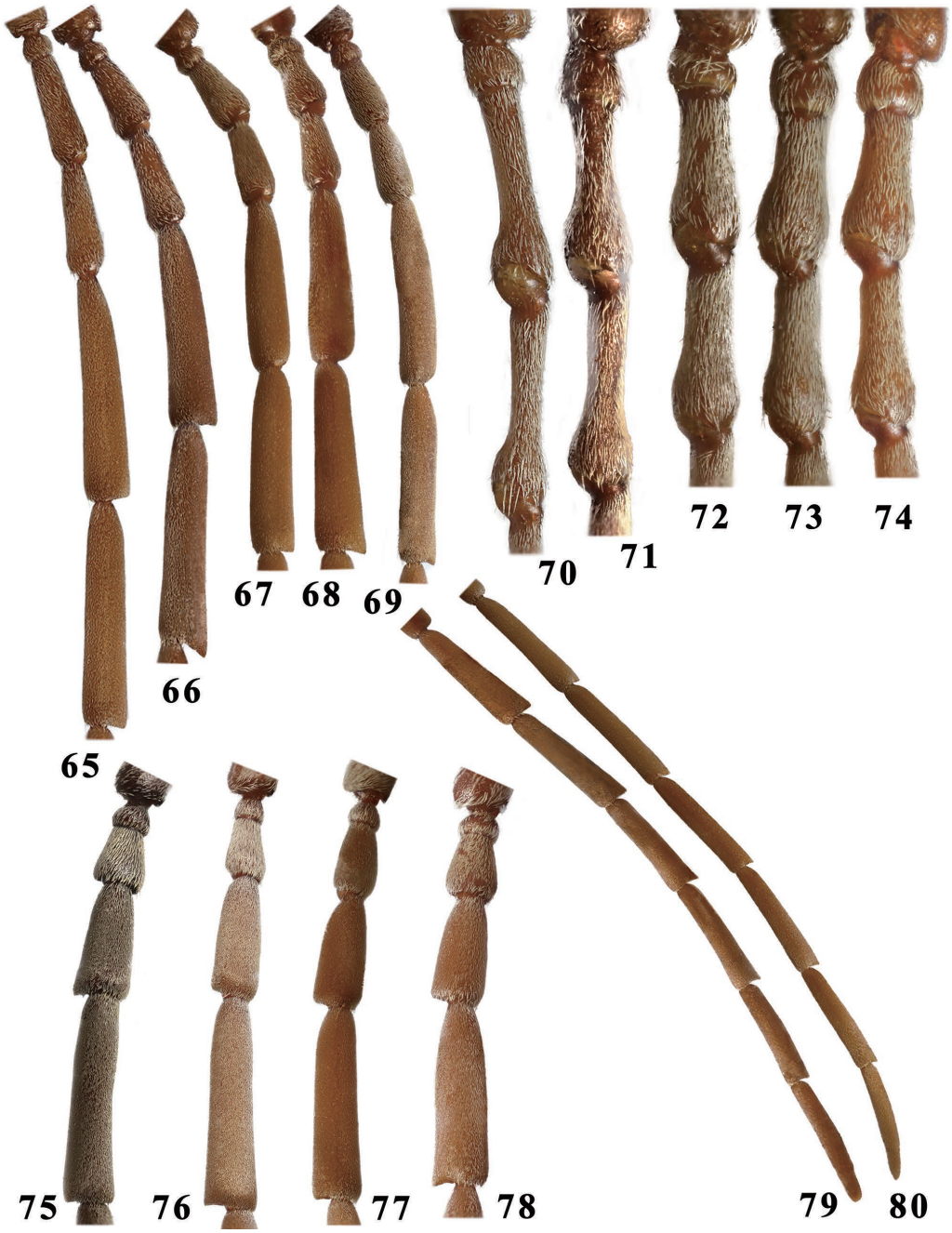
Apatophysis roborovskii: Hua, 1982: 10 ("*roborowskii*", misspelling).

Apatophysis robrowskii: Wang, 2003: 59, 60 ("*roborowskii*", misspelling).

Material examined. China: holotype ♂, by monotypy (ZIN) (Fig. 8), "Between Bugas (Hami) and Kara-tiube, 6–15.IX.[18]95, Robor[ovsky]. and Kozlov leg." [in Russian] / "*Apatophysis roborowskii* m. ♂ typ. un. II.[19]01. A. Semenov det." / silver circle / "Coll. Semenov-Tian-Shansky" + "Holotypus" (Fig. 9).

Remarks. Until now, this species is only known from the holotype, body length 15.6 mm, humeral width 4.9 mm.

Distribution. China: Xinjiang.



Figs. 65–80. Antennomeres of *Apatophysis* spp., males. —— 65, 70, *A. komarowi* SEMENOV, 1889; 66, 71, *A. baeckmanniana* SEMENOV, 1907; 67, 72–73, 80, *A. centralis* SEMENOV, 1901 (67, 72, lectotype); 68, 74, 79, *A. hotanica* DANILEVSKY, 2008, holotype; 69, *A. xizangensis* MIROSHNIKOV et LIN, sp. nov., holotype; 75, 76, *A. sericornis* (GEBLER, 1843) (76, lectotype of *A. mongolica* SEMENOV, 1901); 77, *A. kashgarica* SEMENOV, 1901, lectotype; 78, *A. roborowskii* SEMENOV, 1901, holotype. —— 65–69, Antennomeres 2–6, dorsal view; 70–74, antennomeres 2–4, lateral view; 75–78, antennomeres 2–5, dorsal view; 79–80, antennomeres 6–11, dorsal view.

The ***sinica***-group

Diagnosis. This group differs from all other groups of the genus, at least clearly so from their Chinese representatives, by the structure of the mandibles, particularly the more or less regularly curved and smooth inner margin of the left mandible, the latter devoid of a tooth (Figs. 59, 60); the somewhat peculiar emargination at the inner margin of the right mandible (Figs. 59, 60); the shapes of the mandibles at the apex, both sharpened into a comparatively wide short cone, as in Figs. 59 and 60. The *sinica*-group is also characterized by the following features, the combination of which makes it even more distinct compared to other groups: body from medium- to large-sized; pronotum with small, gentle, dense puncturation, without deep punctures; elytra with sharp and rough puncturation over their greater part, weakly or almost completely not hidden by recumbent setation; antennae long, considerably extending beyond apex of elytra, freely reaching the base of elytra by antennomere 4 (Figs. 23, 25), from antennomere 6 until 10th moderately serrate; length ratios of antennomeres 1 and 4 somewhat varying, but usually both are subequal or antennomere 4 barely longer than 1st, or vice versa; genae well-developed, as in Figs. 59 and 60, but even then the mandibles 2.8–2.9 times as long as genae, distinctly longer than the shortest distance between antennal cavities; abdominal ventrites without peculiar brushes in their apical parts; all tibiae either comparatively straight or meso- and metatibiae can be barely/slightly curved, without very dense setation ventrally; femora without spines ventrally, tibiae not dentate; in comparison with the *barbara*- and *serricornis*-groups, ventral setation of tarsi generally more strongly developed, at least protarsomeres 2 and 3 completely covered with pads that form no clear, longitudinal, median line.

Composition. The group consists of two Chinese species.

Apatophysis sinica Semenov, 1901

(Figs. 23, 24, 59, 94–96, 123)

Apatophysis sinica Semenov, 1901: 30 ["in Chinae prov. Se-tschuan: ad urb. Tsa-gu-tin (Tsa-ku-ting = Li-fan-fu)"]. Type locality: Weizhou (= "Li-fan-fu"), [31°28' N, 103°35' E], Sichuan [China] (according to the original description and the label of the holotype); Aurivillius, 1912: 160; Boppe, 1921: 46; Winkler, 1929: 1146; Wu, 1937: 684; Hua, 1982: 11; Chiang *et al*., 1985: 27, pl. II, fig. 18; Hua, 1987: 4; Hua, 2002: 194; Wang & Hua, 2009: 163; Hua *et al*., 2009: 7 (pl. VII, fig. 81), 134.

Apatophysis (s. str.) *sinica*: Semenov-Tian-Shanskij & Stshegoleva-Barovskaja, 1936: 82; Danilevsky, 2008: 20; Löbl & Smetana, 2010: 142.

Centrodera (*Apatophysis*) *sinica*: Gressitt, 1951: 48, 50.

Materials examined. China: holotype ♂, by monotypy (ZIN) (Fig. 23), "Li-Fan-Fu Mts. env., 17.VIII.[18]93, Potanin leg." [in Russian] / "*Apatophysis sinica* m. ♂ typ. un. II.[19]01. A. Semenov det." / silver circle / "Coll. Semenov-Tian-Shansky" + "Holotypus" (Fig. 24); 1 ♂ (cAM, ex cSM), Sichuan Province, Tonghua env., 1,900–2,000 m, 8.VIII.2001, S. Murzin leg.; 6 ♂♂ (cSM), Sichuan Province, Tonghua, 20 km W Wenchuan, 1,800 m, 7–9.VIII.2002, S. Murzin & I. Shokhin leg.

Remarks. Until now, this species is only known from males (see also below). Body length 15.0–21.0 mm, humeral width 4.8–6.8 mm, the holotype 18.2 and 5.9 mm, respectively.

There is a morphologically rather unusual female at our disposal (Fig. 39) coming from the extreme south of Gansu Province (Wenxian env., 1,300 m, 32°55'30"N / 104°41'09"E, 1–5.VI.2012, Mikhail Murzin leg. – cSM), which was kindly transferred to us for study by Dr. Sergey V. Murzin (Moscow, Russia). The length of its body is 26.6 mm, the humeral width is 7.8 mm. Even though it shows some very peculiar features, it seems to be especially similar to the male of *A. sinica*. The most important diagnostic differences of this female from the known females of all other species of *Apato-*

Figs. 81–99. Tarsi of *Apatophysis* spp. —— 81, *A. komarowi* SEMENOV, 1889; 82, *A. baeckmanniana* SEMENOV, 1907; 83, *A. centralis* SEMENOV, 1901, lectotype; 84, *A. hotanica* DANILEVSKY, 2008, holotype; 85, *A. xizangensis* MIROSHNIKOV et LIN, sp. nov., holotype; 86, 87, *A. serricornis* (GEBLER, 1843); 88, *A. kashgarica* SEMENOV, 1901, lectotype; 89, *A. roborowskii* SEMENOV, 1901, holotype; 90, *A. pavlovskii* PLAVILSTSHIKOV, 1954; 91–93, *Apatophysis* sp. (? *sinica* SEMENOV, 1901) (from Wenxian, Gansu); 94–96, *A. sinica* SEMENOV, 1901, holotype; 97–99, *A. niisatoi* MIROSHNIKOV et LIN, sp. nov., holotype. —— 81–89, 93, 96, 99, Metatarsi; 90, 91, 94, 97, protarsi; 92, 95, 98, mesotarsi. —— 81–90, 94–99, Males; 91–93, female.

physis lie in the structure of the protrusion of ventrite 1 that divides the metacoxae, and in the location of the metacoxae proper (set apart from each other). The protrusion of this ventrite in the female from Gansu is sharply narrowed toward the apex, conical, sharpened apically, as in Fig. 131, i.e. very similar to that observed in females of species of the genus *Protapatophysis* (Figs. 132, 133), while in females of *Apatophysis* it is obtuse lobe-shaped, wide or very wide, as in Figs. 125–128. At the same time, in the previously unknown and here described female of *A. sieversi* (see below), the protrusion of the ventrite is somewhat peculiar, triangular in shape, with an obtuse angle at the apex, as in Figs. 129 and 130, thus occupying what seems to be an intermediate position in the structure between the female from Gansu and females of the remaining *Apatophysis* species. However, based on the location of the metacoxae, the female of *A. sieversi* is comparatively more similar to females of other congeners than to the female from Gansu. At the same time, the location of the metacoxae of the female from Gansu occupies, in its turn, a position intermediate between the females of *Protapatophysis* and the known females of *Apatophysis* species. Interestingly, already Semenov-Tian-Shanskij and Stshegoleva-Barovskaja (1936, p. 83) assumed some similarity in the location of the metacoxae in the female of *A. sinica* and the females of *Protapatophysis*. Even though they mentioned in the above assumption the possible similarity to *Protapatophysis* males, there can be little doubt that those authors made a lapse and actually meant females of *Protapatophysis*, since the location of the metacoxae in *Apatophysis* and *Protapatophysis* males is very similar.

In the female from Gansu, the habitus in general and the shape of the elytra in particular are also somewhat different from those of the females of other *Apatophysis* species. The elytra of the Gansu female are subparallel-sided from the base to the distal third, as in Fig. 39, 2.1 times as long as the humeral width, while the shape of the elytra of the females of other *Apatophysis* species is usually somewhat different, as in Figs. 31–34, 36–38; they can be subparallel-sided only rarely, more often, on the contrary, they are clearly broadened at the middle and look somewhat less strongly elongated, 1.7–2.0 times as long as humeral width. It is noteworthy that the female from Gansu differs also from *Protapatophysis* females by the structure of the elytra, the latter being clearly broadened mainly near the distal two-thirds and quite similar in shape in differnt species of the genus, as in Figs. 40 and 41 and in Danilevsky (2011, p. 99). However, the picture of the female of *Protapatophysis vartianae* (Heyrovský, 1971), from the Muree Hills, Thobba, in the table in Danilevsky's paper was labeled "2c", while in the caption the same image was erroneously referred to as "Fig. 2 ...; c – male, Jhelum River (BMNH); ..." [Danilevsky missed the repository of this female, unlike that of all other specimens of *P. vartianae*, but apparently it is also kept in BMNH].

We have evaluated the degree of similarity of the Gansu female to the male of *A. sinica*, taking into account the known features of resemblance of the conspecific male and female general characteristic of the genus *Apatophysis*. The Gansu female is quite similar to the male of *A. sinica* by the large and robust body, its coloration, the structure of the pronotum (Figs. 122, 123), especially the shape of the lateral tubercles, the proportions of the basal antennomeres, the absence of longitudinal ribs on the elytra, the structure of the tarsi, including the proportions of their segments (Figs. 91–96), the moderately split tarsomere 3, the shape of their lobes at the apex, the peculiarities of the structure of tarsal pads, and the shape of the mesosternal process. Besides this, the structure of the mandibles of the female (Fig. 58) also largely resembles that of the *A. sinica* male (Fig. 59): at least the inner margin of the left mandible, although not quite regularly curved, has no evident tooth, while the inner margin of the right mandible is emarginate at the middle. However, the mandibles proper are noticeably longer in the female from Gansu than the shortest distance between the antennal cavities. The large punctuation of the elytra of that female is somewhat denser than that of the male of *A. sinica*, while the very small punctures form a well-visible microsculpture that generally creates a clearly expressed scabrous

Figs. 100–113. Tarsi and abdomen of *Apatophysis* spp., males. —— 100–102, *A. insolita* MIROSHNIKOV et LIN, sp. nov., holotype; 103–105, the same, but the paratype (from Shennonggu, Henan); 106–108, *A. sieversi* GANGLBAUER, 1887; 109, *A. centralis* SEMENOV, 1901, lectotype; 110, *A. serricornis* (GEBLER, 1843); 111, *A. kashgarica* SEMENOV, 1901, lectotype; 112, *A. roborowskii* SEMENOV, 1901, holotype; 113, *A. pavlovskii* PLAVILSTSHIKOV, 1954. —— 100, 103, 106, Protarsi; 101, 104, 107, mesotarsi; 102, 105, 108, metatarsi. —— 109–113, Lateral view.

surface which is not observed in the male of *A. sinica*. There can hardly be any doubt that these differences in the sculpture of the elytra are only sexual dimorphic characters, since they are detected in this or that way in some other *Apatophysis* species, including the type species *A. barbara*.

Considering all above, we believe that the female from Gansu very likely belongs to *A. sinica*. This assumption, however, can only be confirmed by indisputable facts. Nevertheless, already now it seems possible to assume that not only *A. sinica*, but obviously the entire *sinica*-group forms a most distinct link between *Apatophysis* and *Protapatophysis*. Besides elucidating the exact specific attribution of the female from Gansu, it would be extremely interesting to find the female of the other new species in this group described below from males alone. It seems likely to expect the females of both species to be rather similar morphologically, at least so in the structure of the protrusion of the 1st ventrite and in the location of the metacoxae.

Distribution. China: Sichuan, ?Gansu. The records from "Kiangsi (Kuling), Hopei (Peiping)" (Gressitt, 1951), Shandong and the very same Jiangxi and Hebei provinces (Hua, 2002) require confirmation.

Apatophysis niisatoi Miroshnikov et Lin, sp. nov.

(Figs. 25, 60, 97–99, 124)

Diagnosis. This new species seems to be especially similar to *A. sinica*, but differs clearly by the slenderer body and legs (Figs. 23, 25), the more narrowly conical and more sharply protruding lateral tubercles, as in Figs. 123 and 124, the clearly darker general coloration (Figs. 23, 25), the more strongly elongated tarsomeres 1 and 2 (Figs. 94–99), and on the average a smaller body size.

Description. Male: Body length 13.6–18.5 mm, humeral width 4.1–5.4 mm; the holotype is the largest. Reddish brown, head dorsally and pronotum darcker.

Head at eye level barely narrower than pronotum at level of lateral tubercles; antennal tubercles well-developed; median longitudinal groove between eyes clearly visible, with a small, predominantly shallow puncturation; eyes strongly convex, shallowly emarginate; genae moderately long; mandibles of a peculiar structure as in Fig. 60 (see also the diagnosis of the *sinica*-group above), clearly longer than shortest distance between antennal cavities; submentum with a unclear scabrous sculpture; gula with several gentle transverse wrinkles, on either side of it with rough, predominantly rugose sculpture and irregular puncturation; antennae long, extending beyond apex of elytra by at least antennomere 9, from antennomere 6 until 10th moderately serrate; length ratio of antennomeres 1–11 (holotype taken as an example), 36 : 7 : 35 : 38 : 58 : 53 : 57 : 54 : 55 : 55 : 70; antennomere 2 slightly transverse; antennomere 1 can be subequal to or barely longer than 4th.

Pronotum clearly transverse, broadest at level of lateral tubercles where it is 1.22–1.27 times as wide as long, base 1.25–1.26 times as wide as width at apex, with a deep transverse depression between each pair of discal tubercles, provided with small, gentle, dense puncturation; lateral tubercles well-developed as in Fig. 124.

Scutellum distinctly narrowed toward apex, widely rounded apically, with unclear sculpture.

Elytra moderately narrowed toward apices, 2.23–2.3 times as long as the humeral width, with a very clear, partly rough, rather regular puncturation, well-developed at least in first two-thirds, and with very small, barely visible punctures.

Pro- and mesosterna with a clear, transverse, rugose sculpture; metasternum and abdominal ventrites with a small, dense puncturation. Abdomen with last ventrite strongly transverse, with or without a weak emargination apically.

Femora and tibiae without brushes, spines and denticles ventrally; tibiae straight; tarsi compara-

tively long, metatibia 1.3–1.4 times as long as metatarsus; metatarsomere 1, 2.9–3.0 times as long as the width.

Recumbent setation grayish, partly yellowish, most dense on head dorsally, pronotum and scutellum, on elytra poorly hiding their puncturation; setation of erect and suberect setae poorly developed in general.

Materials examined. Holotype: ♂ (IZAS, IOZ(E)1905324) (Fig. 25), China, Sichuan, Kanding County, Guzanzhen, 1,435 m, 21.V.2009, by light trap, Dong LIU leg. Paratypes: 2 ♂♂ (IZAS, IOZ(E)1905322–23), same label as the holotype; 1 ♂ (cAM, ex IZAS, IOZ(E)1905325), same label as the holotype.

Etymology. We are pleased to dedicate this species to our colleague, the famous cerambycidologist, Dr. Tatsuya NIISATO who celebrates the 60th birthday this year.

Distribution. China: Sichuan.

The ***sieversi***-group

Diagnosis. This group differs from all other groups of the genus by the meso- and metatibiae being more or less strongly curved (Figs. 26, 28) and dentate ventrally, the presence ventrally on the meso- and metafemora of small, but well- visible spines, the structure of the mandibles, in particular, a peculiarly dentate inner margin of the left mandible and usually a strongly or very strongly developed sharp tooth with a conspicuous emargination in front at the inner margin of the right mandible, as in Figs. 53–55. The *sieversi*-group is also characterized by the following features, the combination of which even more clearly sets it from each of the other groups: body from small to large; elytra with sharp rough puncturation over their greater part, poorly or nearly not concealed by recumbent setation, usually with well-expressed longitudinal ribs; antennae long, considerably extending beyond apex of elytra, freely reaching the base of elytra by antennomere 4 (Figs. 26, 28), from antennomere 6 until 10th relatively strongly serrate; length ratios of antennomeres 1 and 4 somewhat variable, antennomere 4 can be barely or slightly longer than antennomere 1, or vice versa, or both of these antennomeres subequal in length; genae relatively short, as in Figs. 53–55; mandibles 4.1–4.4 times as long as genae, as well as clearly or much longer than the shortest distance between antennal cavities; abdominal ventrites without peculiar brushes in their apical parts; in comparison with the *barbara*- and *serricornis*-groups, ventral setation of tarsi generally more strongly developed, at least protarsomeres 2 and 3 completely covered with pads forming no evident longitudinal median line; tarsomeres 1 and 2 at least of metatarsus rather elongate, as in Fig. 108.

Composition. The group includes a single Chinese species.

Apatophysis sieversi GANGLBAUER, 1887

(Figs. 26–28, 37, 38, 53–57, 106–108, 129, 130)

Apatophysis sieversi GANGLBAUER, 1887: 21 ("Peking"). Type locality: Beijing (= Peking) [China] (according to the original description and the label of the holotype); AURIVILLIUS, 1912: 160; BOPPE, 1921: 46; WINKLER, 1929: 1146; WU, 1937: 683; HUA, 2002: 194; WANG, 2003: 61, Figs. (as "*sinica*"; both figures depict males, thus the picture on the right is not a female); HUA *et al*., 2009: 450.

Apatophysis (s. str.) *sieversi*: SEMENOV-TIAN-SHANSKIJ & STSHEGOLEVA-BAROVSKAJA, 1936: 83; DANILEVSKY, 2008: 21; LÖBL & SMETANA, 2010: 142.

Centrodera (*Apatophysis*) *sieversi*: GRESSITT, 1951: 48, 50.

Apatophysis siversi: HUA, 1982: 11 ("*sieversi*", misspelling); WANG & HUA, 2009: 163 ("*sieversi*", misspelling).

Materials examined. CHINA: Beijing: holotype ♂, by monotypy (ZIN) (Fig. 26), "Peking

(Herz)" / "*Apatophysis sieversi* Gglb. Typ." / "Sievers!" / "103" + "Holotypus" (Fig. 27); 1 ♂ (ZMUM), "Peking, Westberge, Exp. Stötzner"; 1 ♂ (IZAS, IOZ(E)1904886), "PeiPing, 13.VII.1937, T. P. Chang leg."; 2 ♂♂ (IZAS), same label; 1 ♂ (IZAS, IOZ(E)1904885), Beianhe, Qinghualinchang, 7.VI.1973, You-Qiao Liu leg.; 1 ♂ (IZAS), same label; 2 ♂♂ (IZAS), same label, but taken on 8.VI.1973; 1 ♂ (IZAS, IOZ(E)1904877), Sanbao, 24.VI.1976, You-Wei Zhang leg.; 3 ♂♂ (IZAS, IOZ(E)1904873–74, 1904876), same label, but taken on 25.VI.1976; 8 ♂♂ (IZAS), same label as No. 1904876; 1 ♂ (cAM, ex IZAS, IOZ(E)1904875) (Fig. 28), same, but taken on 10.VII.1976, Jian-Ming Zhao leg.; 6 ♂♂ (IZAS), same label; 1 ♂ (IZAS, IOZ(E)1904884), Shangfangshan, 12.VIII.1981 (unknown collector); 2 ♂♂ (IZAS, IOZ(E)1904880–81), same, but taken on 10.VI.1982, by light trap, Su-Bai Liao leg.; 2 ♂♂ (IZAS), same, but taken on 9–11.VI.1982; 1 ♂ (IZAS, IOZ(E)1904879), same label, but taken on 11.VI.1982; 1 ♂ (cAM, ex IZAS, IOZ(E)1904878), same label; 2 ♂♂ (IZAS, IOZ(E)1904882–83), same label, but taken on 19.VI.1982; 1 ♂ (IZAS), Badaling, 24.VI.1957 (unknown collector). Hebei: 1 ♂ (IZAS, IOZ(E)1904887), Jinxian, Xishicun, 12.V.1951 (unknown collector); 1 ♂ (IZAS, IOZ(E)1904889), Luanxian, Guoshuchang, 11.VI.1977 (unknown collector); 1 ♂ (IZAS, IOZ(E)1904888), Dongfenchang, 5.V.1981, Yu-Jun Jin leg. Shandong: 1 ♂ (IZAS, IOZ(E) 1904891), Pingyi, VIII.1984, Hui-Ling Cheng leg.; 1 ♀ (IZAS, IOZ(E)1905318), same label; 1 ♂ (IZAS, IOZ(E)1904890), Heze, Dian-Ying Feng leg. (unknown date, but after 1970); 1 ♂ (IZAS, IOZ (E)1905316), same label; 1 ♀ (IZAS, IOZ(E)1905317), same label. Henan: 1 ♂ (IZAS, IOZ(E) 1904892), "Honan [= Henan], 5.V.1936 (unknown collector)"; 1 ♂ (IZAS, IOZ(E)1904893), Neihuanglinchang, 1975, Meng-Xi Zhang leg. Sichuan: 1 ♂ (IZAS, IOZ(E)1904894), Nianshipangou, 24.VI.1985, Guo-Zhu Liu leg.

Remarks. This species was described from a single male (Ganglbauer, 1887) which is kept in the ZIN. Another male is in the ZMMU collection. Besides these two specimens (with a body length of 18.3 and 18.5 mm, respectively), we have restudied and also known from the literature (*e.g.* Ganglbauer, 1887; Semenov-Tian-Shanskij & Stshegoleva-Barovskaja, 1936), *A. sieversi* has also been recorded based on males by Wang (2003), but under the name "*A. sinica*". The body lengths noted by the author are 13–19 mm. Until now, the female has remained unknown.

The study of a large and diverse series of males of *A. sieversi*, kept in IZAS, has allowed us not only to clarify body size variations, but also to reveal some other important morphological features and individual variability traits. Besides this, the IZAS collection contains two very small females that belong to *A. sieversi*. Thus, the female of this species is described here for the first time.

Morphological notes on the male (Figs. 26, 28, 53–55, 106–108). Body length 12.9–21.5 mm, humeral width 4.2–7.1 mm, thereby a more or less gradual transition in their body size, from the smallest to the largest, has been found. Coloration somewhat variable, larger specimens sometimes darker, while smaller ones, on the contrary, lighter, thereby the elytra in the latter can be entirely yellow, without reddish tone; elytra usually with well-visible or strong shine, but sometimes with indistinct shine.

Head sometimes with eyes more convex than in the holotype; the structure of the mandibles (previously not described in detail in the literature, same as in other species) is rather peculiar (see diagnosis of the *sieversi*-group), thereby in larger specimens the number of clearly expressed denticles at the inner margin of the left mandible is usually higher than in smaller specimens, as in Figs. 53, 55.

Pronotum with somewhat variable lateral tubercles from very well to moderately developed, from obtuse to sharper apically; transverse depression in front of discal tubercles in basal part on either side of midline from very weak to very well-expressed.

Elytra barely or slightly narrowed toward apex, but not more than that (in the holotype, they are strongly deformed and appear to be more strongly narrowed toward the apex); longitudinal ribs from

Figs. 114–124. Pronotum of *Apatophysis* spp. —— 114–119, *A. serricornis* (GEBLER, 1843) (114, from Bayan Hot, Inner Mongolia; 115, from Wucaiwan, Xinjiang; 116, from Ordos, Inner Mongolia; 117, from southern Alashan; 118, from Barkul = Barkol, Xinjiang; 119, lectotype of *A. mongolica* SEMENOV, 1901); 120, 121, *A. kashgarica* SEMENOV, 1901 (120, lectotype; 121, from Korla, Xinjiang); 122, *Apatophysis* sp. (? *sinica* SEMENOV, 1901) (from Wenxian, Gansu); 123, *A. sinica* SEMENOV, 1901, holotype; 124, *A. niisatoi* MIROSHNIKOV et LIN, sp. nov., holotype. —— 114–121, 123, 124, Males; 122, female.

very well-expressed (as in the holotype) to almost invisible, thereby such variations are observed in specimens of various sizes.

The structure of the meso- and metafemora, as well as the meso- and metatibiae is as described in the diagnosis of the *sieversi*-group, always clear.

Description of female (Figs. 37, 38, 56, 57, 129, 130). Body length 11.5– 12.3 mm, humeral width 3.85–3.9 mm (without any doubt, females can be larger in the sizes). Coloration is similar to male.

Head at eye level barely narrower than pronotum at level of lateral tubercles, with a gentle, but distinct median groove; genae moderately short; mandibles as in Figs. 56 and 57, unlike in male, inner margin of left mandible without a large tooth in basal part, with a clearly less strongly expressed denticles, while median tooth at inner margin of right mandible only more or less moderately developed, with a much less deep emargination in front of it; antennae noticeably longer than elytra, extending beyond their apices by penultimate antennomere (as it seems, this is the peculiar feature for the genus); length ratio of antennomeres 1–11 (specimen with entire left antenna taken as an example), 49 : 9 : 43 : 41 : 58 : 57 : 56 : 51 : 42 : 48 : 69 (in another female, antennomere 1 also about 1.2 times as long as antennomere 4); antennomere 2 clearly transverse; from antennomere 6 until 10th moderately serrate.

Pronotum 1.26–1.37 times as wide as long, at base noticeably wider than at apex, with more or less well-expressed obtuse lateral tubercles, as in Figs. 37 and 38; disc with two weak or more visible tubercles in basal part on either sides of midline, with clear, rough, dense, in places confluent punctuation.

Elytra behind humeri subparallel-sided by about 1/6, then very clearly broadened toward middle, as in Figs. 37 and 38, 1.9 times as long as the humeral width; disc with rough, irregular, partly rugose puncturation and small sparse punctures, well-visible almost to apex.

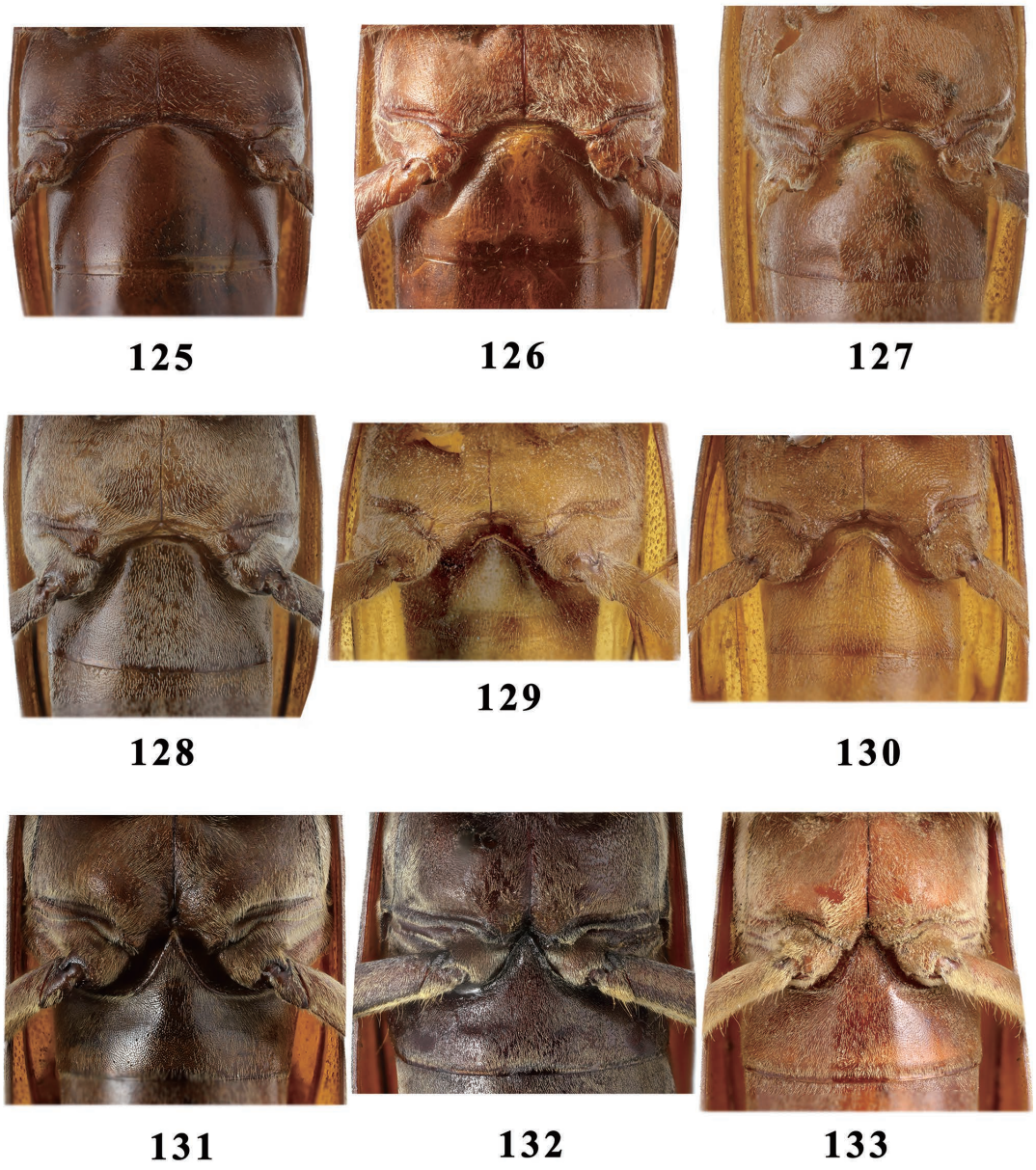
Shape of protrusion of ventrite 1, dividing metacoxae, and location of metacoxae proper (described in remarks to *A. sinica*, see above) as in Figs. 129 and 130.

Meso- and metafemora without spines ventrally, most of these femora also ventrally, starting from base, rather narrow, like in male; meso- and metatibae barely curved, without clear denticles ventrally or partly very weakly dentate.

Notes. The female described here is in many characters clearly similar to the known females of the other *Apatophysis* species (discarding the female from Gansu with a still unestablished specific attribution), but differs at least by the long antennae (none of all other congeners seems to have the female with the antennae that extend this or that way beyond the apex of the elytra, Figs. 31–34, 36; at most they can only slightly fail to reach the apex), the somewhat peculiar shape of the protrusion of the 1st ventrite, and the slightly or barely more closely positioned metacoxae.

Semenov-Tian-Shanskij and Stshegoleva-Barovskaja (1936, pp. 83–84) believed that, based on males, *A. sieversi* is very close to *A. sinica*, and assumed that the females of these species can be similar in the location of the metacoxae. In this case, in their opinion, "*A. sieversi* and *A. sinica* would have to form a separate group in the subgenus *Apatophysis* [s. str.]" (in Russian). However, at present, based on the results of additional studies which concern diverse material, it is clear that the males of these species, albeit characterized by some similar features, show a number of important differences, most of which are shown above. This does not seem to allow us to place these species within the same group. And if we conditionally refer to *A. sinica* the female from Gansu described above and compare it in detail with two females of *A. sieversi*, then the character of differences between them will only favour our conclusions.

Distribution. China: Beijing, Liaoning, Hebei, Shandong, Henan, and Sichuan. Above are the



Figs. 125–133. Metacoxae and 1st ventrite of *Apatophysis* and *Protapatophysis* spp., females. —— 125, *A. barbara* (P. H. LUCAS, 1858); 126, *A. caspica* SEMENOV, 1901; 127, *A. centralis* SEMENOV, 1901, paralectotype; 128, *A. serricornis* (GEBLER, 1843); 129–130, *A. sieversi* GANGLBAUER, 1887; 131, *Apatophysis* sp. (? *sinica* SEMENOV, 1901) (from Wenxian, Gansu); 132, *P. kashmiriana* (SEMENOV, 1901), paralectotype; 133, *P. montana* (GAHAN, 1906).

first records from the latter four provinces.

The ***insolita***-group

Diagnosis. This group, in comparison with all other groups of the genus (Figs. 42–48, 50–55, 59, 60, 63, 64, 81–90, 94–99, 106–108), has the most poorly developed mandibles, as in Figs. 61 and 62, in length only 2.0–2.2 times exceeding the genae, tarsomere 3 being the most deeply split, as in Figs. 100–105. The *insolita*-group is also characterized by the following features, the combination of which even more clearly sets it from each of the other groups: body from small to large; elytra strongly elongated, up to about 2.4 times as long as the humeral width (such a great index of the length to width ratio of the elytra can only be observed in certain species of the *barbara*-group absent from China), with a sharp rough puncturation over their greater part, almost or completely not hidden by recumbent setation; antennae long, considerably extending beyond apices of elytra, freely reaching the bases of elytra by antennomere 4, from antennomere 6 until 10th relatively moderately serrate; length ratio of antennomeres 1 and 4 varying, but either they are usually subequal or antennomere 4 barely or slightly longer than 1st, or vice versa (see also the description below); genae relatively well-developed, as in Figs. 61 and 62; mandibles distinctly shorter than the shortest distance between antennal cavities, as in Figs. 61 and 62; abdominal ventrites without peculiar brushes in apical parts; all tibiae relatively straight, without strong curvature, ventrally neither dentate nor with brushes; femora without spines ventrally; ventral setation of tarsi generally even more strongly developed than in the *sinica*- and *sieversi*-groups; tarsomeres 1 and 2, at least metatarsus, rather elongate, as in Figs. 102 and 105.

Composition. The group includes a single Chinese species.

Apatophysis insolita Miroshnikov et Lin, sp. nov.

(Figs. 29, 30, 61, 62, 100–105)

Diagnosis. This new species seems to be especially similar to *Apatophysis niisatoi* sp. nov., but differs by the shorter and somewhat peculiar shape of the mandibles (Figs. 60–62), which are distinctly shorter than the shortest distance between the antennal cavities (see the diagnoses of both the *sinica*- and *insolita*-groups above); the more distinct puncturation on the pronotal disk, the more deeply split tarsomere 3 (Figs. 97–105), the slightly more elongated tarsomere 1 of at least the posterior tarsus (Figs. 99, 102, 105), the often more elongate elytra, the peculiar coloration of the body, same as of its setation.

Description. Male. Body length 13.1–18.2 mm, humeral width 3.65–5.8 mm, herewith the holotype is 16.0 and 5.35 mm, respectively. Rufous or dark rufous, partly reddish or dark reddish.

Head at eye level barely or clearly narrower than pronotum at level of lateral tubercles; antennal tubercles well-developed, median longitudinal groove between them and eyes usually clearly visible, with a shallow, but well-expressed, dense, partly confluent puncturation and more or less distinct microsculpture; eyes strongly (Fig. 61) or very strongly (Fig. 62) convex, shallowly emarginate; genae moderately long; mandibles relatively short, as in Figs. 61 and 62 (see the diagnosis of the *insolita*-group above), sharpened apically, each of them at inner margin strongly curved before apex, thereby on left mandible with a weak or barely expressed obtuse protrusion in middle part, while on right mandible with a more or less well-developed obtuse tooth, as in Figs. 61 and 62; submentum with a scabrous, often rugose sculpture; gula with gentle, transverse wrinkles, on either side of it with coarse, irregular punctures; antennae long, extending beyond apex of elytra by antennomere 9, from antenno-

mere 6 (sometimes from 7th, see below) until 10th moderately serrate; length ratio of antennomeres 1–11 (holotype taken as an example), 35 : 7 : 31 : 36 : 52 : 48 : 49 : 47 : 48 : 48 : 67; antennomere 1 very rarely noticeably longer than antennomere 4, but less than 1.26 times; antennomere 2 from slightly transverse to subequal in length and width; apical external angle of antennomere 6 variable in shape, can be about straight or clearly serrate.

Pronotum clearly, sometimes strongly transverse, broadest at level of lateral tubercles where it is 1.23–1.47 times as wide as long, base 1.11–1.27 times as wide as width at apex; lateral tubercles moderately or strongly developed, as in Figs. 29 and 30; discal tubercles before base clearly or much more strongly developed than tubercles in apical part, sometimes with a smooth, shiny, median area at base, with a shallow, but clear, very dense, partly confluent puncturation and a well-visible microsculpture.

Scutellum distinctly narrowed toward apex, widely rounded apically, with unclear sculpture.

Elytra moderately or weakly narrowed toward apex, 2.24–2.43 times as long as the humeral width; disk with a very clear, partly rough, rather regular puncturation, well-developed at least in first two-thirds, and a more or less distinct microsculpture.

Pro- and mesosterna with a clear, transverse, rugose sculpture; mesosternal process from rather narrow to wider; metasternum and abdominal ventrites with a distinct, dense puncturation, partly rugose on metasternum. Abdomen with last ventrite strongly transverse, widely truncated apically.

Femora and tibiae without brushes, spines and denticles ventrally; tibiae stright, sometimes metatibiae slightly curved inwards; tarsi comparatively long, metatibia 1.26–1.35 times as long as metatarsus; metatarsomere 1, 3.45–3.86 times as long as the width.

Recumbent setation yellowish, with a golden tint, most dense on pronotum and often on head dorsally and scutellum while on elytra weakly hiding their puncturation; setation of erect and suberect setae poorly developed in general.

Materials examined. China: Shaanxi: Holotype: ♂ (IZAS, IOZ(E)1905464) (Fig. 29), Zhouzhi County, Jixianzhen, Lixincun, 18.VII.2006, by light trap, Mei-Ying Lin leg.; paratypes: 8 ♂♂ (IZAS, IOZ(E)1905333–34, 1905459–63, 1905465), same label as the holotype; 1 ♂ (cAM, ex IZAS, IOZ(E)1905138), same label as the holotype; 2 ♂♂ (IZAS, IOZ(E)1905335, 1905458), same label as the holotype, but taken on 16.VII.2006; 6 ♂♂ (IZAS, IOZ(E)1905331–32, 1905454–57), Zhouzhi County, Banfangzi, 20.VII.2006, by light trap, Mei-Ying Lin leg.; 3 ♂♂ (IZAS, IOZ(E)1905137, 1905466–67), same label, but taken on 21.VII.2006; 1 ♂ (IZAS, IOZ(E)1905329), Foping, 950 m, 12.VII.1998, Jian Yao leg.; 1 ♂ (cAM, ex IZAS, IOZ(E)1905330), Liuba, Miaotaizi, 1,350 m, 21.VII.1998, Jian Yao leg.; 1 ♂ (IZAS, IOZ(E)1905453), Ankangshi, Ningshan County, Guanghuojiezhen, 1,178 m, 33°45'48"N, 108°46'15" E, 2.VII.2014, by light trap, Yuan-Yuan Lu leg.; 3 ♂♂ (IZAS, IOZ(E) 1905468–70), same, but 1,227 m, 33°46' 46" N, 108°47'27" E, 26.VII.2014; 1 ♂ (IZAS, IOZ (E)1905471), Shangluoshi, Zhashui County, Yingpanzhen, 955 m, 33°46' 35"N, 109°2'36"E, 29. VII.2014, by light trap, Yuan-Yuan Lu leg.; 2 ♂♂ (IZAS, IOZ(E)1905472–73), same, but 953 m, 33°45'48"N, 109°03'08"E, 30.VII.2014; 3 ♂♂ (IZAS, IOZ(E)1905474–76), same, but 995 m, 33°46'51"N, 109°01'57"E, 31.VII.2014; 1 ♂ (cAM, ex IZAS, IOZ(E)1905477), same label; 1 ♂ (NWAFU, CO025809), Chang'an, Nanwutai, 24.VII.1951, Io Chou (= Yao Zhou) leg.; 1 ♂ (NWAFU, CO025810), Chang'an, Cuihuashan, 28.VII.1951, Io Chou (= Yao Zhou) leg.; 12 ♂♂ (NWAFU, CO 025789–800), Zhouzhi, Louguantai, 2–5.VII.1954 (unknown collector); 1 ♂ (NWAFU, CO025802), Fengxian, 10.VII.1974 (unknown collector); 1 ♂ (NWAFU, CO028393), Qinling, 24.VII.1995 (unknown collector). Henan: Paratype: ♂ (IZAS, IOZ(E)1904895), Xinyang, Jigongshanlinchang, VI.1982 (unknown collector). Hunan: Paratypes: 1 ♂ (IZAS, IOZ(E)1905327), Shennonggu, 640 m, 5.VII.2008, by light trap, Zhuo Yang leg.; 1 ♂ (cAM, ex IZAS, IOZ(E)1905326) (Fig. 30), same label; 1 ♂ (IZAS, IOZ(E)1905328), Yanling, Taoyuandong, 5.VII.2008, by light trap, Hong-Bin Liang

leg. Jiangxi: Paratype: ♂ (IZAS, IOZ(E)1905319), Lushan, Mumachang, 15.VIII.1979 (unknown collector). Zhejiang: Paratype: ♂ (cNO), Xi-Tianmu Shan Mt., 15–30.VIII.2003, Hu and Tang leg. / "Geni-959".

Etymology. The name of this new species is associated with some of its morphological features noted above, which are not typical representatives of the genus *Apatophysis*; from "insolita" (Latin), meaning "unusual" or "peculiar".

Distribution. China: Shaanxi, Henan, Hunan, Jiangxi and Zhejiang.

Key to the Chinese Species of *Apatophysis*, Based on Male Characters

1. Ventrites 1–4 or 1–3 in apical part with dense, erect, partly twisted setae forming a peculiar brush, as in Figs. 110–113; lobes of at least tarsomere 3 very sharp apically, spine-shaped, as in Figs. 86–89 2
— Ventrites 1–4 without dense, erect setae forming a brush (Fig. 109); lobes of tarsomere 3 only more or less strongly narrowed toward apex, but not too very sharp apically (Figs. 83–85, 94–108) 4
2. Antennae longer, extending beyond apices of elytra by usually antennomere 9 (Figs. 6, 10, 12, 14, 18–22), sometimes by penultimate antennomere; head comparatively smaller, but with more strongly developed eyes, as in Figs. 6, 10, 12, 14, 18–22 3
— Antennae shorter, barely extending beyond apices of elytra by last antennomere (Fig. 8); head comparatively larger, but with less strongly developed eyes, as in Fig. 8 ..... *A. roborowskii* Semenov, 1901
3. Pronotum in area of midline usually with a clearly sparser (or in general very sparse) setation, than over remaining of disk surface, very often with a well-expressed, shiny, smooth area in basal part, but without characteristic separate naked punctures among setation in median part of disk (Figs. 114–119), usually with more strongly sharpened lateral tubercles; antennomere 3 relatively short, usually 1.3–1.7 times as long as width, sometimes even subequal in length and width; antennomere 4, 1.8–2.4 times (very rarely 2.65 times) as long as antennomere 3 ..... *A. serricornis* (Gebler, 1843)
— Pronotum with more or less uniform setation on disk, but with separate naked punctures in median part, as in Figs. 120 and 121, without a shiny, smooth area in basal part, with less strongly sharpened lateral tubercles; antennomere 3 relatively long, 1.6–1.9 times as long as width; antennomere 4, 1.45–1.8 times as long as antennomere 3 ..... *A. kashgarica* Semenov, 1901
4. All tibiae comparatively straight, meso- and metatibiae can be only barely/slightly curved; all femora without spines ventrally; ventral margin of meso- and metafemora of usual structure, not narrow; inner margin of left mandible non-dentate, can only be with large tooth near middle (Figs. 45–47, 59–62) 5
— Meso- and metatibiae comparatively strongly curved (Figs. 26, 28), dentate ventrally; meso- and metafemora with small spines ventrally; ventral margin of these femora, predominantly in basal part, rather narrow; inner margin of left mandible peculiarly dentate partly, as in Figs. 53–55 ..... *A. sieversi* Ganglbauer, 1887
5. Antennae shorter, barely extending beyond apices of elytra by only last antennomere, clearly or significantly not reach bases of elytra by antennomere 4 (Figs. 1, 3, 5), thereby antennomeres 3 and 4 much less strongly elongated (Figs. 1, 3, 5, 67–69, 72–74); antennomere 1, 1.37–1.41 times as long as antennomere 4; setation of elytra significantly or very strongly hiding their puncturation; inner margin of left mandible with a clear or large tooth in median part (Figs. 45–

47) 6

— Antennae longer, extending beyond apices of elytra by usually antennomere 9, freely reaching the bases of elytra by antennomere 4 (Figs. 23, 25, 29–30), thereby antennomeres 3 and 4 much more strongly elongated (Figs. 23, 25, 29– 30); lengths ratio of antennomeres 1 and 4 varies, but usually they subequal or antennomere 4 barely longer than antennomere 1, or vice versa, only very rarely antennomere 4 up to 1.26 (but not more) times as long as antennomere 1; setation of elytra not or very weakly hiding their puncturation; inner margin of left mandible without a clear or large tooth in median part (Figs. 59–62) 8

6. Pronotum less strongly transverse, with clearly weaker developed lateral tubercles (Figs. 1, 3); legs distinctly slenderer (Figs. 1, 3); meso- and metatibiae not dentate venrally; recumbent setation of venter much denser in general, strongly hiding its sculpture in considerable part; at least head dorsally, pronotum, scutellum, legs, and most of venter clearly lighter (Figs. 1, 3) 7

— Pronotum more strongly transverse, with clearly stronger developed lateral tubercles (Fig. 5); legs distinctly stronger (Fig. 5); meso- and metatibiae dentate venrally; recumbent setation of venter much sparser in general, mainly weakly hiding its sculpture; at least head dorsally, pronotum, scutellum, legs, and most of venter clearly darker (Fig. 5) ..... *A. xizangensis* sp. nov.

7. Antennomeres 6–9 weaker broadened toward apex, weakly serrate, as in Fig. 80; longitudinal ribs of elytra not or barely visible; recumbent setation of ventrites 1–4 in apical part, predominantly in middle area, somewhat denser than over their remaining surface ..... *A. centralis* SEMENOV, 1901

— Antennomeres 6–9 stronger broadened toward apex, stronger serrate, as in Fig. 79; longitudinal ribs of elytra more distinct; recumbent setation of ventrites 1–4 rather uniform, at least without fragments of denser setae in apical part than over their remaining surface ..... *A. hotanica* DANILEVSKY, 2008

8. Mandibles longer, 2.8–2.9 times as long as genae and clearly longer than shortest distance between antennal cavities; inner margin of left mandible more or less uniformly curved, while inner margin of right mandible with a peculiar emargination in middle part, as in Figs. 59 and 60; metatarsomere 1 comparatively less strongly elongated, as in Figs. 96, 99; tarsomere 3 less deeply split, as in Figs. 94–99; recumbent setation grayish or partly yellowish light gray, without a clear golden tint 9

— Mandibles shorter, only 2.0–2.2 times as long as genae and distinctly shorter than shortest distance between antennal cavities; inner margin of left mandible strongly curved before apex, while inner margin of right mandible without a peculiar emargination in middle part, as in Figs. 61 and 62; metatarsomere 1 comparatively more strongly elongated, as in Figs. 102, 105; tarsomere 3 more deeply split, as in Figs. 100–105; recumbent setation with a clear golden tint ..... *A. insolita* sp. nov.

9. Body and legs slenderer (Fig. 25); pronotum with narrower conical and more sharply protusive lateral tubercles, as in a Fig. 124; coloration clearly darker in general (Fig. 25); body length 13.6–18.5 mm ..... *A. niisatoi* sp. nov.

— Body and legs more robust (Fig. 23); pronotum with wider conical and less sharply protusive lateral tubercles, as in Fig. 123; coloration clearly lighter in general (Fig. 23); body length 15.0–21.1 mm ..... *A. sinica* SEMENOV, 1901

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