

A taxonomic study of Eastern Palaearctic Omiini (Coleoptera: Curculionidae: Entiminae)

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Abstract. A new monotypic genus, *Yunakovius* gen. nov., is described, based on *Y. orientalis* sp. nov. from China, Mongolia and Siberia. The genus *Omoiotus* Sharp, 1896 is recognized as a junior synonym of *Asphalmus* Sharp, 1896, which currently contains three species: *Asphalmus japonicus* Sharp, 1896, *A. ovatus* (Sharp, 1896), comb. nov., and *A. sharpi* sp. nov. (China). A lectotype is designated for *Omoiotus ovatus* Sharp, 1896. A key to *Asphalmus* species is given, the three species included are redescribed and illustrated, including male and female genitalia.

Key words. Coleoptera, Curculionidae, Entiminae, Omiini, taxonomy, new genus, new species, new synonymy, East Palaearctic region

Introduction

The present paper follows a previous study of the Omiini (BOROVEC 2006) and concerns mainly the material collected recently in China, Mongolia and Siberia. Moreover, type material of the Japanese genus *Omoiotus* Sharp, 1896 became available for the study, proving that its placement in the tribe Otiorhynchini (SHARP 1896, WINKLER 1932, LONA 1938, MORIMOTO 1962, ALONSO-ZARAZAGA & LYAL 1999, KOJIMA & MORIMOTO 2004) was incorrect. The number of genera and species of the Omiini in the eastern part of the Palaearctic Region thus increases from one genus and species to two genera with four species.

Material and methods

The body length was measured in profile from the front margin of the eye to the elytral apex. Female genitalia were embedded in Solakryl, male genitalia were mounted dry; both male and female genitalia were glued to the same card as the specimen. The terminology of the rostrum follows OBERPRIELER (1988), the terminology of female genitalia follows BOROVEC (2006).

Depositories of the examined material are cited using the following codens:

BMNH	Natural History Museum, London, U.K.;
ECRI	E. Colonnelli collection, Roma, Italy;
MKBC	M. Košťál collection, Brno, Czech Republic;
PKSC	P. Kresl collection, Spůle, Czech Republic;
RBSC	R. Borovec collection, Sloupno, Czech Republic;
ZIN	Zoological Institute, Russian Academy of Sciences, St. Petersburg, Russia.

Check-list of Eastern Palaearctic Omiini

Asphalmus Sharp, 1896

= *Omoiotus* Sharp, 1896, syn. nov.

<i>A. japonicus</i> Sharp, 1896	Russian Far East, Japan, Korea
<i>A. ovatus</i> (Sharp, 1896) comb. nov.	Japan
<i>A. sharpi</i> sp. nov.	China (Jiangxi)

Yunakovius gen. nov.

<i>Y. orientalis</i> sp. nov.	China (Shanxi, Hebei), Russian Far East, Mongolia
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Taxonomy

Yunakovius gen. nov.

(Figs. 1–7, 23)

Type species. *Yunakovius orientalis* sp. nov. by present designation.

Description. Body length (rostrum excluded): 2.68–3.52 mm.

Body dark brown, antennae and legs reddish brown. Elytra with erect and adherent piliform setae; striae with one row of short setae. Pronotum and head with short piliform adherent setae, pronotal setae transversally directed to midline (Fig. 23).

Rostrum very short and wide, regularly tapering anteriorly, with slightly concave sides. Epifrons significantly tapered posteriorly, with slightly concave sides. Epistome not differentiated, frons not separated from epifrons. Scrobes in dorsal view completely visible in anterior half of rostrum, in lateral view very short, not reaching eye, strikingly enlarged posteriorly, dorsal border subparallel with dorsal border of rostrum, directed above eye, ventral border directed towards ventral border of eye. Eyes small, strongly convex, distinctly protruding from outline of head, in lateral view placed in the middle of the head. Head and rostrum at the same level, epifrons in lateral view strongly vaulted (Figs. 1–2).

Antenna with short scape, reaching anterior border of pronotum, slightly curved in the middle, shorter than funicle. Antennomeres 1 and 2 markedly longer than antennomeres 3–7.

Pronotum narrow, with regularly arcuated sides (Fig. 3). Dorsal surface regularly vaulted, with double punctation, without any other structure (Fig. 23).

Procoxal cavities contiguous, semiglobular, proximal to the anterior border of the pronotum, rather than nearer.

Scutellum very small, triangular.

Elytra oblong, with regularly arcuated sides, widest at midlength (Fig. 3). Striae wide, punctate, placed in the same level as intervals, narrower than flat intervals (Fig. 23).

Mesocoxa semiglobular, mesosternal process narrow. Metacoxae transverse, metasternal process very wide, obtuse, wider than transversal diameter of metacoxa.

Femora edentate. Outer margin of protibia straight, inner margin of protibia sinuate, apex subtruncate with dense fringe of fine, short, yellow setae and one distinct tooth at internal angle. Meso- and metatibia armed with one short spine at internal angle. Metatibial corbels opened. Metatarsus more slender than protarsus. Tarsomere 3 of all tarsi deeply bilobed, wider than the others. Ultimate tarsomere strikingly longer than previous one, claws fused at basal half.

Abdominal ventrite I as long as ventrite II and about as long as ventrites III and IV combined. Suture 1 (between abdominal ventrites I and II) sinuose and fine, sutures II–IV straight, wide and deep (Fig. 4). Ventrites shiny, scarcely and finely punctate, with scarce, piliform, fine, semiadherent setae.

Male unknown.

Female genitalia. Apodeme of sternum VIII long, about three times as long as plate, apically contiguous inside of plate. Plate feebly sclerotised, narrow, without margo basalis and with indistinct margo apicalis, with apical setae (Fig. 7). Ovipositor feebly sclerotised, long and slender, tapered apically, with long subapical, laterally protruding setae at apex of very short styli, almost invisible (Fig. 6). Spermatheca C-shaped, with separated nodulus and ramus (Fig. 5).

Etymology. This new genus is dedicated, with great pleasure, to my friend Nikolai Yunakov from the Zoological Institute in St. Petersburg, a prominent specialist in short-nosed weevils. Gender masculine.

Included taxa. The genus is described as monotypic.

Differential diagnosis. The newly described genus belongs to the tribe Omiini based on the dorsally placed scrobes, fully visible in dorsal view, epifrons in basal part distinctly narrower than the space between the anterior borders of eyes, elytra without developed humeri and claws fused in basal half. In the tribe Omiini, *Yunakovius* gen. nov. is similar to the genus *Asphalmus* Sharp, 1896 mainly in regards to the genital structures. Female genitalia of both genera are different from the remaining genera of the Omiini known from the western part of the Palaearctic Region in having the female sternum VIII apically terminated inside of a plate which lacks a margo basalis. The remaining genera of the Omiini from the western part of the Palaearctic Region have female sternum VIII with an apodeme creating a distinct margo basalis, not terminated inside the plate. While *Asphalmus*, is in the form of the rostrum, similar to *Rhinomias* Reitter, 1894 known from the Balkan peninsula and southern and central Europe, the form of the rostrum of the newly described genus *Yunakovius* gen. nov. resembles that of the genus *Baromiamima* Borovec, 2006 known from the central and southern Europe. Based on available biological notes from locality labels, *Yunakovius* gen. nov. and *Asphalmus* inhabit similar ecological niche as *Rhinomias* and *Baromiamima*, i.e. they are living in plant debris and wood litter. Both genera are easily distinguishable according to the following characters, assumed as generic in the Omiini:

Asphalmus: Rostrum clearly separated from remaining part of the head by a wide and shallow transverse depression (Fig. 9). Femora of all legs dentate. Rostrum with strongly concave sides and laterally protruding scrobes, creating pterygia (Figs. 8, 14, 20). The entire elytral striae depressed, striae wider than the width of one interval in basal part of elytra. Elytra with semiadherent short setae. Sexually reproducing species.

Yunakovius gen. nov.: Rostrum at the same level as the rest of the head, not separated by a transverse depression (Fig. 2). Femora of all legs edentate. Rostrum with slightly concave sides and slightly protruding scrobes, not conspicuous in dorsal view (Fig. 1). Only the punctures of elytral striae depressed, striae narrower than width of one interval in basal part of the elytra. Elytra with raised long setae. Parthenogenetic species.

The new genus *Yunakovius* gen. nov. can be included to the latest key to the genera of the tribe Omiini (BOROVEC 2006), by modifying the couplet 10, as follows:

10. Eyes very small, in lateral view, placed just in the middle between the dorsal and ventral border of the head. Vertical diameter of the eye in lateral view subequal to width of the apex of the antennal scape. Body rusty or dark brownish, elongate oval. 10a
- Eyes large, in lateral view placed very near to the dorsal border of the head. Vertical diameter of the eye in lateral view distinctly larger than the width of the apex of the antennal scape. Body blackish, globose, oval or elongate oval. 11
- 10a. Body very small, shorter than 2.0 mm. Eyes inconspicuous in dorsal view. Ventral border of the antennal scrobe directed below the eye in lateral view. Hemisternite of the ovipositor without stylus, with scattered apical setae. Female sternum 8 with small oval plate, the apodeme not terminated inside the plate. *Nanomias* Yunakov, 2003
- Body larger, greater than 2.7 mm long. Eyes strongly prominent in dorsal view. Ventral border of the antennal scrobe directed towards ventral border of the eye. Hemisternite of the ovipositor with very short stylus armed with a brush of long setae placed on its apex. Female sternum 8 large, umbrella-shaped, apodeme terminated inside the plate. *Yunakovius* gen. nov.

Aside from the main diagnostic character (small eyes placed in the middle of the head in lateral view), *Yunakovius* gen. nov. can be distinguished from all other similar genera by following set of characters:

Baromiamima: Eyes flat in dorsal view, not prominent from the outline of the head. Elytra with long, erect setae in elytral striae. Spermatheca U-shaped, without differentiated nodulus and ramus. Hemisternite with long apical stylus. Female sternum 8 with small, oval plate and well distinguished margo basalis.

Yunakovius gen. nov.: Eyes significantly protruding from the outline of the head in dorsal view. Elytral striae with very short, adherent setae. Spermatheca C-shaped, with developed nodulus and ramus. Hemisternite with very short subapical stylus. Female sternum 8 with large, umbrella-shaped plate without margo basalis.

Euplatinus Desbrochers, 1907: Sides of the rostrum very strongly concave in dorsal view. Hemisternite of the ovipositor without styli, with irregularly scattered setae at apical portion. Female sternum 8 with conspicuously developed margo basalis.

Yunakovius gen. nov.: Sides of the rostrum very feebly concave in dorsal view. Hemisternite of the ovipositor with short subapical styli with a brush of long setae at apex. Female sternum 8 without margo basalis.

Omiamima Silfverberg, 1977: Rostrum with strongly concave sides in dorsal view. Interocular space less than 1.5 times larger than the space between the antennal insertions. Epifrons at midlength of the rostrum 0.5 times as wide as the rostrum. Hemisternite of the ovipositor short, without stylus. Female sternum 8 small, oval, with indistinct margo basalis.

Yunakovius gen. nov.: Rostrum with feebly concave sides in dorsal view. Interocular space almost two times larger than the space between antennal insertions. Epifrons at midlength of the rostrum 0.33 times as wide as the rostrum. Hemisternite of the ovipositor long, with short subapical stylus. Female sternum 8 large, umbrella-shaped, without margo basalis.

Omius Germar, 1817: Body and femora black. Elytra mostly globose to short-oval. Hemisternite of the ovipositor without stylus. Female sternum 8 in females with a small plate and apodeme not terminated inside the plate.

Yunakovius gen. nov.: Body and femora dark brown. Elytra elongate oval. Hemisternite of the ovipositor with a short subapical stylus. Female sternum 8 with a large plate and the apodeme terminated just inside the plate.

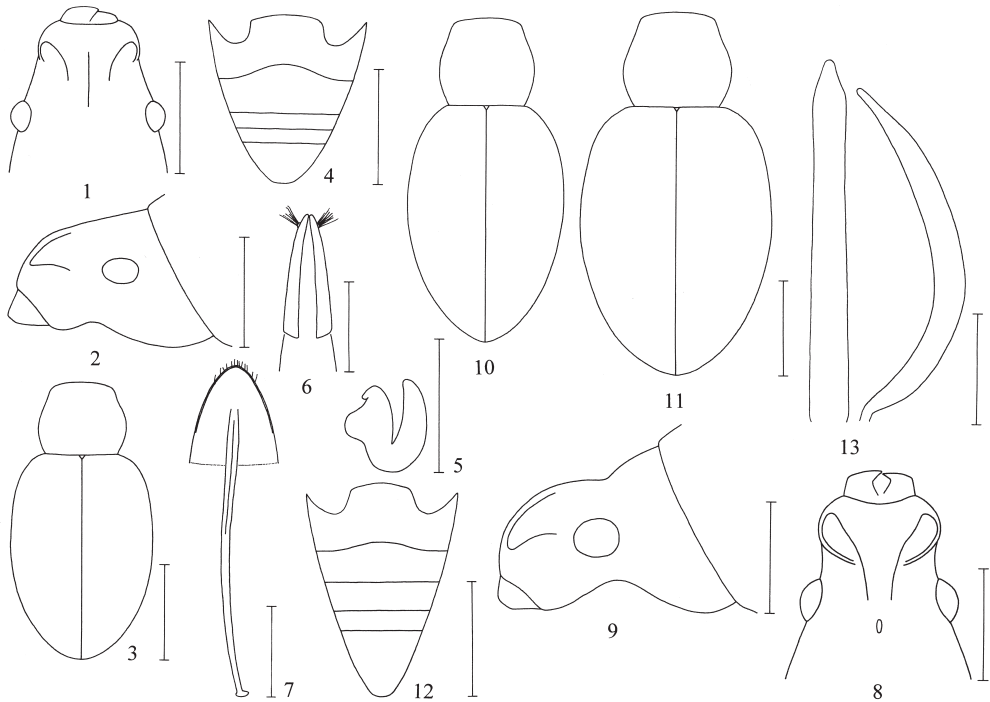
By the combination of the epifrons narrower than the space between eyes and fused tarsal claws, *Yunakovius* gen. nov. could be placed also in the tribe Phyllobiini. PESARINI (1979) defined the tribe Phyllobiini by four characters, from which only the first two characters are included in all the species of the tribe: (1) tarsal claws fused; (2) metacoxae very near to each other, metasternal process narrow, arrow-shaped; (3) shoulders angularly prominent at elytral base; and (4) elytral vestiture contains scales of different shape, often with metallic sheen. Some species of *Phyllobius* Germar, 1824, e.g. *P. roseipennis* Pesarini, 1973, or species in the genera *Oarius* Desbrochers, 1905 and *Argoptochus* Weise, 1883 lack shoulders and therefore resemble *Yunakovius* gen. nov. Some species of *Phyllobius* also have elytra without scales as in *Yunakovius* gen. nov. But *Yunakovius* gen. nov. has widely separated metacoxae and the metasternal process is very wide and obtuse. The same character is also found in the genus *Asphalmus*. An additional character for distinguishing *Yunakovius* from the Phyllobiini is the position of the eyes: eyes are small; in lateral view, placed just in the middle of the head in *Yunakovius* gen. nov., whereas they are large, placed just in upper part of the head in all genera of the Phyllobiini. The difference in the position of the eyes is most likely related to the different lifestyles: *Yunakovius* gen. nov. is terricolous, has cryptic life habits and may be collected by sifting, whereas all Phyllobiini taxa are arboricolous or herbivorous and may be easily collected by beating trees and shrubs or by sweeping of plants. The lifestyle menti-

oned above for *Yunakovius* gen. nov. is also shared by other omiine genera, e.g. *Asphalmus*, *Rhinomias*, *Urometopus* Formánek, 1904, *Baromiamima* and others.

***Yunakovius orientalis* sp. nov.**

(Figs. 1–7, 23)

Type material. HOLOTYPE: 1 ♀, ‘Russia, Primorskiy Terr., Lazovskiy Res., Proselochniy cordon, nr. Tumannaya Mt., 7 km SW Glazkovka Vill., 13.07.2005, K. Nadein (lgt.)’ (ZIN). PARATYPES: 20 ♀♀, same data as holotype; 13 ♀♀, ‘Russia, Primorskiy Terr., Lazovskiy Res., nr. Tumannaya Mt., 7 km SW Glazkovka Vill., 43 01 03 N, 134 07 27 E, 10.07.2005, K. Nadein (lgt.)’ (11 ♀♀ ZIN, 2 ♀♀ ECRI); 1 ♀, ‘Russia, Primorskiy Terr., Lazovskiy Res., between Proselochniy cordon and Glazkovka Vill., meadow, 43 01 03 N, 134 07 27 E, 11.07.2005, K. Nadein (lgt.)’, (ZIN); 1 ♀, ‘Russia, Primorskiy Terr., Lazovskiy Res., between Proselochniy cordon and Glazkovka Vill., 43 01 03 N, 134 07 27 E, 7.07.2005, underbrush in deciduous forest, *Quercus mongolica*, *Alnus* sp., *Juniperus manchurica*, *Betula* spp., *Salix* spp., K. Nadein (lgt.)’ (ZIN); 4 ♀♀, ‘Приморье, Лазовский р-н, окр. пос. Преображение, 15.-17.VII.2002, в почвенной ловушке, Р. В. Филимонов (lgt.)’ [= Primorie, Lazovskiy distr., environs of village Preobrazhenie,



Figs. 1–13. 1–7 – *Yunakovius orientalis* gen. & sp. nov., holotype. 1 – head and rostrum, dorsal view; 2 – head and rostrum, lateral view (scale = 0.50 mm); 3 – pronotum and elytra in female, dorsal view (scale = 1.00 mm); 4 – abdominal ventrites (scale = 1.00 mm); 5 – spermatheca (scale = 0.25 mm); 6 – ovipositor (scale = 0.25 mm); 7 – sternum 8 in female (scale = 0.50 mm). 8–13 – *Asphalmus japonicus* Sharp, 1896, Japan. 8 – head and rostrum, dorsal view; 9 – head and rostrum, lateral view (scale = 0.50 mm); 10 – pronotum and elytra in male, dorsal view; 11 – pronotum and elytra in female, dorsal view (scale = 1.00 mm); 12 – abdominal ventrites (scale = 1.00 mm); 13 – aedeagus, ventral and lateral view (scale = 0.25 mm).

in soil trap, R. V. Filimonov] (ZIN); 1 ♀, 'Russian Far East, Primorskij kraj, Ussurijskij Rayon, Kamenushka, 27.VII.-3.VIII.1992, leg. V. Karasjov' (RBSC); 6 ♀♀, 'Sibiria or., Primorskij kraj, O. Šauša leg., Arsenev env., 27.v.-5.vii.1991' (MKBC); 1 ♀, 'Монголия, Вост. Аймак, р. Нумрьегии-Гол., 32 км ЮВ г. Салхит, 24.VII.(1)971, Г. Медведев (Igt.)' [= Mongolia, Eastern Aimak, river Numregii, 32 km southeast of town Salkhit, G. Medvedev] (ZIN); 1 ♀, 'China, C. Shanxi, 15 km S Pingyao, 37.1 N, 112.2 E, 7.VI.2000, Jaroslav Turna leg.' (RBSC); 1 ♀, 'China, Fenanina env., NW slope of Yunwu Shan, alt. 1200 m, 3.6.2000, Zdeněk Jindra leg.' (PKSC).

Description. Body length (rostrum excluded): 2.68–3.52 mm (holotype 3.15 mm).

Entire body dark brownish, antennae and legs visibly lighter, reddish brown. Elytra on each interval with one irregular, dense row of erect, yellowish brown piliform setae, about as long as the interval width and with 2–3 irregular rows of semiadherent, yellowish brown piliform setae, distinctly shorter than half of the width of the interval. Each puncture of elytral striae with one short seta inside. Pronotum and head with only adherent setae, similar to the elytral ones, only somewhat shorter, pronotal setae transversally directed to midline (Fig. 23).

Rostrum very short and wide, 1.61–1.80 times as wide as long, visibly tapering anteriorly with feebly concave sides, at base 1.13–1.17 times wider than at the apex. Epifrons strikingly tapering posteriorly, at interocular space about as wide as a third of the rostral width in the same place, with slightly concave sides and with a shallow, longitudinal furrow anteriorly (Fig. 1). Head and rostrum matt, densely punctate, distance between punctures significantly shorter than their diameter. Only the frons with smaller punctures, somewhat shiny. Interocular space with small fovea.

Antennal scape short, visibly curved in the middle, regularly enlarged in anterior half, at apex slightly narrower than antennal club. Antennomere 1 long, twice as long as wide and 1.3–1.4 times as long as antennomere 2. Antennomeres 3–6 1.3–1.4 times as wide as long, antennomere 7 1.5 times as wide as long.

Pronotum 1.14–1.21 times as wide as long, widest at midlength, anteriorly only slightly more tapering than posteriorly (Fig. 3). Dorsal surface densely punctate with punctures only slightly larger than the punctures of the head, distance between punctures shorter than their diameter, with very small and fine punctures between large punctures (Fig. 23). Pronotum in lateral view vaulted.

Elytra 1.33–1.46 times as long as wide, with feebly arched base (Fig. 3), shiny. Striae wide, about a third of the width of an elytral interval, punctate, punctures significantly larger than the pronotal punctures (Fig. 23).

Tarsi long and slender. Protarsomere 2 1.3–1.4 times as wide as long, protarsomere 3 1.6 times as wide as long and 1.4–1.5 times as wide as protarsomere 2; ungular protarsomere 1.6 times as long as protarsomere 3. Metatarsomere 2 1.2–1.3 times as wide as long, metatarsomere 3 1.6 times as wide as long and 1.3 times as wide as metatarsomere 2; ungular metatarsomere 1.8 times as long as metatarsomere 3.

Female genitalia. Sternum 8 with narrow umbrella-shaped plate, feebly sclerotised, apodeme apically contiguous (Fig. 7). Ovipositor long and slender, tapered apically (Fig. 6). Spermatheca with slender cornu, corpus large, nodulus and ramus short, ramus somewhat wider and longer than nodulus (Fig. 5).

Differential diagnosis. Same as of the genus *Yunakovius* gen. nov. (see above). *Yunakovius orientalis* sp. nov. is the only known species of the genus.

Etymology. *Orientalis*, *-is*, *-e*, a Latin adjective meaning ‘eastern’, referring to the distribution of the species.

Biology. Unknown. Part of the material from the Russian Far East was collected in forest and also by pitfall traps.

Distribution. China (Shanxi, Hebei), Russian Far East, Mongolia.

Asphalmus Sharp, 1896

(Figs. 8–22, 24–26)

Asphalmus Sharp, 1896: 94.

Asphalmus: WINKLER (1932: 1452); LONA (1938: 507); MORIMOTO (1962: 52); ALONSO-ZARAZAGA & LYAL (1999: 166); KOJIMA & MORIMOTO (2004: 124); BOROVEC (2006: 26).

Omoiotus Sharp, 1896: 95, **syn. nov.**

Omoiotus: WINKLER (1932: 1452); LONA (1938: 507); MORIMOTO (1962: 52); ALONSO-ZARAZAGA & LYAL (1999: 166); KOJIMA & MORIMOTO (2004: 124).

Redescription. Body length (rostrum excluded): 2.96–4.06 mm.

Body brown to dark brownish with antennae and legs yellowish to reddish brown. Elytra with one row of semiadherent, piliform setae and 4–5 irregular rows of adherent, piliform to long-oval setae or only with adherent setae. Pronotum and head with indistinct, scarce, adherent, short, piliform setae, pronotal setae transversally directed to midline (Figs. 24–26). Antennae and legs with scarce, semiadherent or adherent piliform setae.

Rostrum short to longer, in basal half feebly or strongly tapered anteriorly, in apical half strongly enlarged with strongly rounded sides. Epistome not differentiated. Epifrons distad strongly tapered, with concave sides, at rostral base very narrow, as wide as a third to a quarter of the rostral width in the same place. Frons large, U-shaped, curved ventrally, slightly angular in lateral view, reaching posterior border of pit-shaped scrobes, shiny or matt, with very fine microsculpture, shallowly feebly depressed. Epifrons elevated as compared to rostrum, the latter separated from rest of head by wide, shallow transversal depression. Interocular space with fovea in the middle. Rostrum in lateral view strongly vaulted. Scrobes in dorsal view fully visible and open, in lateral view with dorsal border subparallel with the dorsal border of the rostrum, directly visible above the eye with the ventral border directed towards the middle or ventral border of eye. Eyes strongly convex, protruding from outline of head. Head tapered anteriorly (Figs. 8, 9, 14, 20). Head and rostrum finely and densely punctate, distance between punctures shorter than their diameter.

Antenna with scape as long as funicle, feebly exceeding anterior border of pronotum. Antennal funicle slender, with long antennomeres 1 and 2.

Pronotum slender, regularly vaulted, with regularly rounded sides (Figs. 10, 11, 15, 16, 21). Dorsal surface finely or coarsely, densely punctate. Distance between punctures strikingly shorter than their diameter, sometimes with very small and fine punctures between larger punctures (Figs. 24–26).

Procoxal cavities contiguous, semiglobular, situated at midlength of pronotum.

Scutellum very small or larger, triangular.

Elytra long-oval, in males more slender than in females (Figs. 10, 11, 15, 16, 21). Striae wide, distinctly punctate, in dorsal part only somewhat narrower than the intervals or equally as wide (Figs. 24–26).

Mesocoxa semiglobular, mesosternal process narrow. Metacoxa transverse, metasternal process wide, obtuse, only indistinctly wider than transversal diameter of metacoxa.

All femora dentate. Dent of profemur in males larger than in females or equally as large, larger in pro- and mesofemur than on the metafemur, small to large, dent on metafemur sometimes hardly visible. Protibia slender and very long, strongly enlarged mesally and straight laterally, apex rounded or obliquely subtruncate, with a fringe of very short, fine, yellow setae and with one tooth at internal angle. Mesal edge of protibia sinuate with scarce, long erect setae. Meso- and metatibia armed with one short spine at internal angle. Metatibial corbels opened. Metatarsi more slender than protarsi. Tarsomeres 3 of all tarsi deeply bilobed, wider than the others. Ultimate tarsomere strikingly longer than penultimate, claws fused at basal half.

Abdominal ventrite I as long as ventrite II and about as long as ventrites III and IV combined. Suture 1 (between abdominal ventrites I and II) sinuose and fine, sutures 2–4 straight, wide and deep (Fig. 12). Ventrites shiny, scarcely and finely punctate, with scarce, piliform, fine, semiadherent setae.

Male genitalia. Very long and slender, in ventral view very feebly, regularly tapered apically. In lateral view aedeagus regularly curved and tapered apically.

Female genitalia. Apodeme of sternum 8 long, 3–5 times as long as plate, apically contiguous inside of plate. Plate feebly sclerotised, umbrella-shaped, without margo basalis and with slender, almost indistinct margo apicalis, with apical setae (Fig. 19). Ovipositor long and slender, tapered apically, with very short, hardly visible, laterally orientated stylus with long apical setae (Fig. 18). Spermatheca C-shaped, with separated ramus and nodulus.

Sexual dimorphism. Males have more slender elytra, antennal funicle and tarsi, in *A. japonicus* males have also larger dents on pro-, meso- and metafemora than females.

Differential diagnosis. *Asphalmus*, together with genus *Rhinomias* Reitter, 1894, are the only genera in the whole tribe Omiini with the epifrons elevated above the surface of the rostrum, with the rostrum separated from the rest of the head by a wide and distinct transversal furrow. *Asphalmus* may be easily distinguished from *Rhinomias* by dentate femora, while all other *Rhinomias* species have all femora edentate.

Biology. *Asphalmus sharpi* sp. nov. was collected in forest litter; it is probable that the whole genus lives in similar conditions as the similar European genus *Rhinomias* Reitter, 1894.

Asphalmus japonicus Sharp, 1896

(Figs. 8–13, 24)

Asphalmus japonicus Sharp, 1896: 95.

Asphalmus japonicus: WINKLER (1932: 1452); LONA (1938: 507); ALONSO-ZARAZAGA & LYAL (1999: 166); KOJIMA & MORIMOTO (2004: 124); BOROVEC (2006: 26).

Type material examined. Seven specimens of the species were examined from the Sharp collection (BMNH), one of them was labelled as the lectotype, two as paralectotypes (see BOROVEC (2006) for details).

Redescription. Body length (rostrum excluded): 3.62–4.06 mm.

Body dark brownish, antennae and legs reddish brown. Elytral intervals with 4–5 irregular rows of semiadherent, grey, piliform setae as long as a third to a quarter of width of interval. Pronotum and head scarcely and indistinctly covered by the same adherent setae as elytra, pronotal setae transversally directed to midline (Fig. 24). Antennae and legs with

scarce, adherent, brown piliform setae, only antennal funicle and inner edge of tibiae with semiadherent ones.

Rostrum 1.37–1.40 times as wide as long, at base equally as wide as at the apex and 1.05–1.07 times as wide as in median narrowest part. Rostrum short, in basal half indistinctly tapered anteriorly, in apical half strongly enlarged with strongly rounded sides, correspondingly arched as lateral margins of scrobes. Epifrons distally strongly tapered, with strongly concave sides, at rostral base about as wide as a quarter of rostral width in the same place. Frons large, U-shaped, curved ventrally, slightly angular in lateral view, reaching posterior border of pit-shaped scrobes, matt, with fine microsculpture, finely and densely punctate, shallowly depressed. Epifrons elevated as compared to the rostrum, the latter separated from the rest of the head by a wide, shallow transversal furrow. Interocular space with small but deep fovea in the middle. Rostrum in lateral view strongly vaulted. Scrobes in dorsal view visible and open, in lateral view large, dorsal border subparallel with dorsal border of rostrum, directly visible above the eye, ventral border directed towards the middle of the eye. Eyes large, strongly convex, protruding from the outline of the head. Head tapered anteriorly (Figs. 8, 9). Head and rostrum matt, finely and densely punctate, distance between punctures strikingly shorter than their diameter.

Antennae slender, in males somewhat more so than in females. Antennal scape short, strongly curved in the middle of its length, regularly enlarged to apex and here equally wide as antennal club. Antennomere 1 in males 1.7 times as long as wide and shorter than antennomere 2, 2.2–2.3 times as long as wide; antennomeres 3–6 isodiametric; antennomere 7 1.1 times as wide as long. Antennomere 1 in females 1.4 times as long as wide and shorter than antennomere 2, twice as long as wide; antennomeres 3–5 isodiametric; antennomere 6 1.1–1.2 times as wide as long; antennomere 7 1.2–1.3 times as wide as long.

Pronotum slender, 1.03–1.06 times as wide as long, regularly vaulted, with regularly rounded sides, widest just behind the middle (Figs. 10, 11). Dorsal surface matt, irregularly, but very finely and densely punctate. Distance between punctures strikingly shorter than their diameter, with very small and fine punctures between larger punctures (Fig. 24).

Scutellum very small, hardly visible.

Elytra long-oval, in males more slender than in females (in males 1.51–1.55 times, in females 1.36–1.39 times as long as wide), widest in midlength (Figs. 10, 11). Striae wide, distinctly punctate, in dorsal part only indistinctly narrower than strongly elevated intervals (Fig. 24).

All femora dentate. Dent of profemur in males small, triangular, somewhat larger than tooth at internal angle of protibia. Dent on metafemur half as large as the dent on the profemur. Dents of the profemur in females very small, on metafemur hardly visible. Protibia slender and very long, strongly enlarged mesally and straight laterally, apex rounded with a fringe of very short, fine, yellow setae and with one tooth at internal angle. Mesal edge of protibia sinuate with scarce, long erect setae. All tarsi in females more slender than in males, in both sexes protarsi more robust than metatarsi. In males protarsomere 2 1.4 times as wide as long; protarsomere 3 1.4–1.5 times as wide as long and 1.4–1.5 times as wide as protarsomere 2; ungular tarsomere as long as protarsomere 3. Metatarsomere 2 1.3 times as wide as long; metatarsomere 3 1.3–1.4 times as wide as long and 1.4 times as wide as metatarsomere 2; ungular metatarsomere 1.1 times as long as metatarsomere 3. In females protarsomere 2 1.3

times as wide as long; protarsomere 3 1.4–1.5 times as wide as long and 1.5 times as wide as protarsomere 2; ungular tarsomere 1.3–1.4 times as long as protarsomere 3. Metatarsomere 2 1.3 times as wide as long; metatarsomere 3 1.4 times as wide as long and 1.5 times as wide as metatarsomere 2; ungular metatarsomere 1.5 times as long as metatarsomere 3.

Male genitalia. Very long and slender, in ventral view very feebly, regularly tapered apically, apex in short distance regularly pointed, triangular. In lateral view aedeagus regularly curved and at apex tapered apically (Fig. 13).

Female genitalia. Plate of sternum 8 narrow, about triangular. Ramus of spermatheca somewhat longer and narrower than nodulus.

Differential diagnosis. *Asphalmus japonicus* is very similar to *A. ovatus*. It is very easily distinguishable from it by having rostrum short, equally wide at the base and at the apex, frons and pronotum matt, pronotum densely and finely punctured, scutellum hardly visible and aedeagus symmetrical.

Biology. Unknown.

Distribution. Russian Far East, Japan, Korea.

Asphalmus ovatus (Sharp, 1896) comb. nov.

(Figs. 14–19, 25)

Omoiotus ovatus Sharp, 1896: 96.

Omoiotus ovatus: WINKLER (1932: 1452); LONA (1938: 507); ALONSO-ZARAZAGA & LYAL (1999: 166); KOJIMA & MORIMOTO (2004: 124).

Type material examined. SHARP (1896) stated in his original description: “Two specimens were found, but the exact locality has not been recorded”. I have found three males and two females in Sharp collection (BMNH). One specimen, indicated as the type by Sharp is here designated as the lectotype. It is a well preserved male, 3.37 mm long, bearing the following labels: “*Omoiotus ovatus*. Type D. S. Japan. Lewis [handwritten on the same card on which the specimen is glued] / Type [printed, circular label with red margins] / Japan. G. Lewis [printed] / Sharp Coll.-313. [printed] / LECTOTYPUS *Omoiotus ovatus* Sharp, R. Borovec desig. 2008 [red, printed] / *Asphalmus ovatus* (Sharp), R. Borovec det. 2008 [printed]”.

Each of the remaining four specimens (two males and two females) bears the following labels: “Japan. G. Lewis [printed] / Sharp Coll. 1905-313. [printed]”. Because the species was described on the basis of two specimens only, I did not designate the remaining specimens as paralectotypes.

Redescription. Body length (rostrum excluded): 3.18–3.56 mm.

Body brown, antennae and legs brownish yellow. Elytra with 4–5 irregular rows of adherent, yellowish grey, piliform setae, as long as a quarter of width of interval. Pronotum and head with indistinct, adherent, yellowish grey, short setae, identical as elytral adherent setae, pronotal setae transversally directed to midline (Fig. 25). Antennae and legs with scarce, adherent, piliform yellow setae, only antennal funicle and inner edge of tibiae with erect setae.

Rostrum 1.18–1.25 times as wide as long, at base 1.06–1.14 times as wide as at apex and 1.25–1.39 times as wide as in median narrowest part. Rostrum long, in basal half distinctly tapered anteriorly, in apical half strongly enlarged with strongly rounded sides, correspondingly arched as lateral margins of scrobes. Epifrons distally strongly tapered, with concave sides, at rostral base about as wide as a third of rostral width in the same place. Frons large, U-shaped, curved ventrally, slightly angular in lateral view, reaching posterior border of pit-shaped scrobes, shiny, with very fine microsculpture, shallowly

feebly depressed. Epifrons elevated as compared to rostrum, the latter separated from rest of head by wide, shallow transversal furrow. Interocular space with very large fovea in the middle. Rostrum in lateral view strongly vaulted. Scrobes in dorsal view fully visible, open, in lateral view short, dorsal border subparallel with dorsal border of the rostrum, directed visible above the eye, ventral border short, directed towards the ventral border of the eye. Eyes large, strongly convex, protruding from outline of the head. Head tapered anteriorly (Fig. 14). Head and rostrum shiny, finely and densely punctate, distance between punctures shorter than their diameter.

Antenna slender, in males somewhat more so than in females. Antennal scape short, curved in the middle of its length, enlarged mainly in the apical half and here equally as wide as the antennal club. Antennomere 1 in males twice as long as wide, equally long as antennomere 2, 2.4–2.5 times as long as wide; antennomeres 3 and 4 1.2 times as long as wide; antennomere 5 1.1–1.2 times as long as wide; antennomeres 6 and 7 1.1 times as long as wide. Antennomere 1 in females twice as long as wide, equally long as antennomere 2, 2.2 times as long as wide; antennomeres 3 and 4 1.1 times as long as wide; antennomeres 5 and 6 isodiametric; antennomere 7 1.2 times as wide as long.

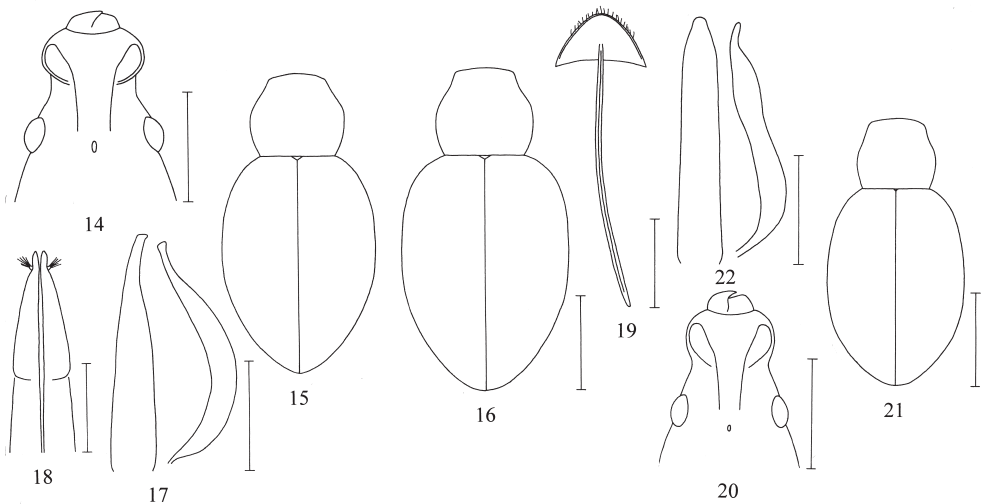
Pronotum slender, 1.05–1.12 times as wide as long, regularly vaulted, with regularly rounded sides, widest in midlength (Figs. 15, 16). Dorsal surface shiny, regularly, scarcely and finely punctate. Distance between punctures somewhat shorter than their diameter, with several very small and fine punctures between larger punctures (Fig. 25).

Scutellum large, triangular, prominent.

Elytra long-oval, in males more slender than in females (in males 1.50–1.53 times, in females 1.43–1.46 times as long as wide), widest in midlength (Figs. 15, 16). Striae wide, distinctly punctate, in dorsal part somewhat wider than vaulted intervals (Fig. 25).

All femora dentate. Dent of profemur in both sexes similar, large, triangular, two times larger than the dent at internal angle of protibia. Dent on metafemur half as large as dent on the profemur. Protibia slender and very long, strongly enlarged mesally and straight laterally, apex rounded with a fringe of very short, fine, yellowish setae and with one dent at internal angle. Mesal edge of protibia sinuate with scarce, long erect setae. All tarsi in females more slender than in males, in both sexes protarsus more robust than metatarsus. In males protarsomere 2 1.4 times as wide as long; protarsomere 3 1.3–1.4 times as wide as long and 1.5 times as wide as protarsomere 2; ungular tarsomere 1.4 times as long as protarsomere 3. Metatarsomere 2 1.2 times as wide as long; metatarsomere 3 1.2–1.3 times as wide as long and 1.4 times as wide as metatarsomere 2; ungular metatarsomere 1.5 times as long as metatarsomere 3. In females protarsomere 2 1.1 times as wide as long; protarsomere 3 1.3–1.4 times as wide as long and 1.6 times as wide as protarsomere 2; ungular tarsomere 1.3–1.4 times as long as protarsomere 2. Metatarsomere 2 isodiametric; metatarsomere 3 1.2 times as wide as long and 1.4 times as wide as metatarsomere 2; ungular metatarsomere 1.6–1.7 times as long as metatarsomere 3.

Male genitalia. Long and slender, regularly tapered apically, in ventral view longly triangular with significantly asymmetrically turned slender apex. In lateral view regularly curved, apex lengthened to long, sharp, slender point (Fig. 17).



Figs. 14–22. 14–19 – *Asphalmus ovatus* (Sharp, 1896), Japan. 14 – head and rostrum, dorsal view (scale = 0.50 mm); 15 – pronotum and elytra in male, dorsal view; 16 – pronotum and elytra in female, dorsal view (scale = 1.00 mm); 17 – aedeagus, ventral and lateral view (scale = 0.25 mm); 18 – ovipositor (scale = 0.25 mm); 19 – sternum 8 in female (scale = 0.50 mm). 20–22 – *A. sharpi* sp. nov., holotype. 20 – head and rostrum, dorsal view (scale = 0.50 mm); 21 – pronotum and elytra in male, dorsal view (scale = 1.00 mm); 22 – aedeagus, ventral and lateral view. (scale = 0.25 mm).

Female genitalia. Plate of sternum 8 wide, umbrella-shaped (Fig. 19). Spermatheca not examined.

Differential diagnosis. For the differential diagnosis from *A. japonicus*, see under that species, for the characters distinguishing it from *A. sharpi* sp. nov. see the identification key.

Biology. Unknown.

Distribution. Japan.

Asphalmus sharpi sp. nov.

(Figs. 20–22, 26)

Type material. HOLOTYPE: ♂, 'China, Jiangxi Province, Wuyi Shan N.R., N 27 83, E 117 76, Haungganshan, 5.vi.2001, Hardwood + bamboo litter, leg. J. Cooter' (BMNH).

Description. Body length (rostrum excluded): 2.96 mm.

Body dark brown, antennae and legs reddish brown, femora and basal part of antennal club darker. Elytra with one row of semiadherent, grey, piliform setae, about equally long as width of interval and with 3–4 irregular rows of adherent, dense, long-oval and distad pointed, tear-drop shaped, grey scales with feeble greenish metallic sheen. Pronotum and head with indistinct adherent, short, grey piliform setae, pronotal setae transversally directed to midline (Fig. 26). Antennae and legs with scarce, erect, brown piliform setae.

Rostrum long, 1.16 times as wide as long, at base 1.12 times as wide as at apex and 1.27 times as wide as in median narrowest part. Rostrum in basal third strikingly tapered anteriorly, in apical two thirds strikingly enlarged anteriorly with rounded sides. Epifrons distally strongly tapered, with feebly concave sides, at rostral base narrower than a third of the rostral width in the same place. Frons large, U-shaped, curved ventrally, slightly angular in lateral view, reaching posterior border of pit-shaped scrobes, shiny, with several very fine punctures, shallowly feebly depressed. Epifrons elevated compared to the rostrum, the latter separated from the rest of head by a wide and distinct transversal furrow. Interocular space with small fovea in the middle. Rostrum in lateral view strongly vaulted. Scrobes in dorsal view well visible and open, in lateral view large, dorsal border subparallel with dorsal border of rostrum, directly visibly above eye, ventral border directed below ventral border of eye. Eyes small, convex, protruding from outline of head. Head tapered anteriorly (Fig. 20). Head and rostrum matt, very finely and densely punctate, distance between punctures strikingly shorter than their diameter.

Antenna with short scape, regularly curved at the middle, enlarged mainly in apical half, at apex distinctly narrower than apical club. Antennomere 1 1.6 times as long as wide and 1.1 times as long as antennomere 2, 1.8 times as long as wide; antennomeres 3–6 1.1 times as wide as long; antennomere 7 1.3 times as wide as long.

Pronotum slender, 1.06 times as wide as long, regularly vaulted, with regularly rounded sides, widest behind the midlength (Fig. 21). Dorsal surface irregularly, coarsely and densely punctate, with small, ill-defined apunctate region medially. Distance between punctures strikingly shorter than their diameter (Fig. 26).

Scutellum very small, hardly visible.

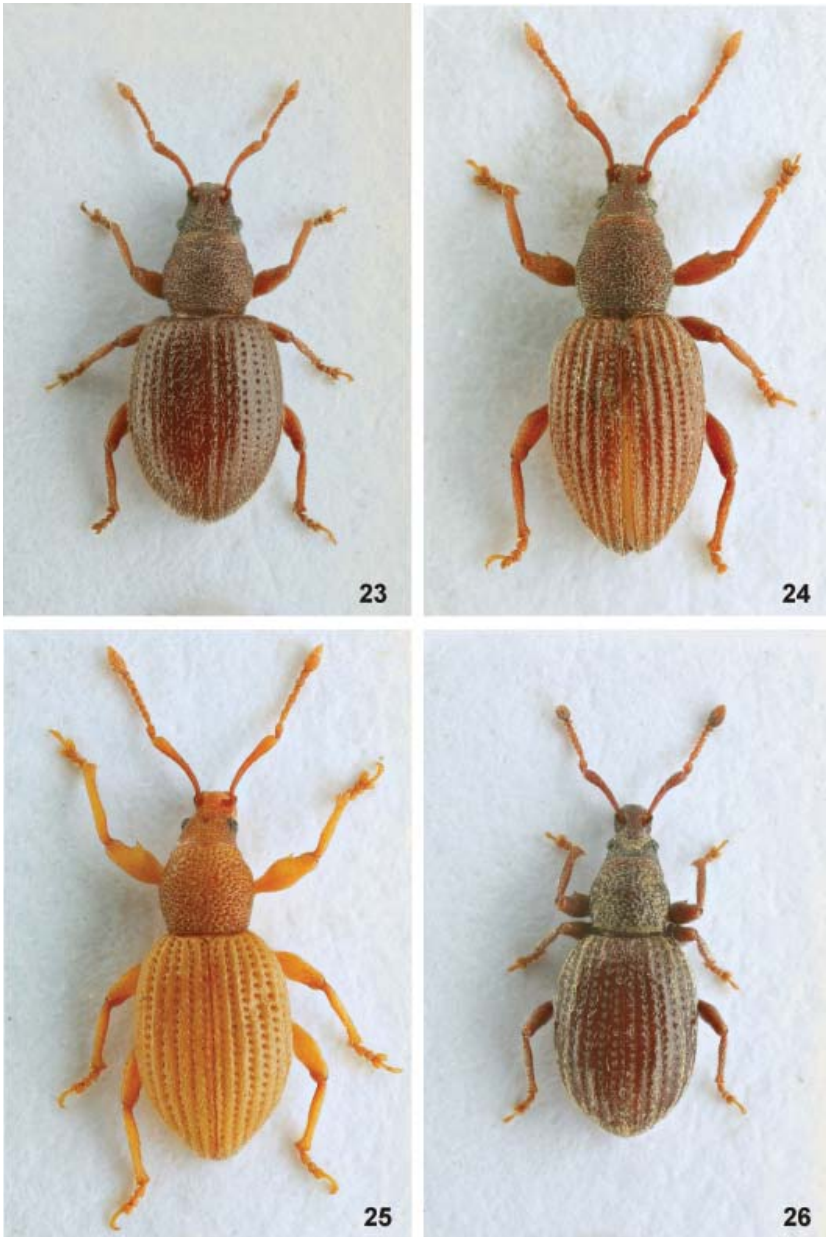
Elytra long-oval, 1.41 times as long as wide, widest in midlength (Fig. 21). Striae very wide, distinctly punctate, in dorsal part about as wide as intervals. Intervals feebly elevated, in basal part odd intervals slightly more elevated than even ones (Fig. 26).

All femora feebly dentate. Dent of profemur small, hump-shaped, twice shorter than tooth at internal angle of protibia. Dent of metafemur hardly visible. Protibia slender and long, strongly enlarged mesally and straight laterally, apex obliquely subtruncate with a fringe of very short and fine yellow setae and with one distinct, long tooth at internal angle. Mesal edge of protibia sinuate, with scarce, long erect setae. Protarsi more robust than metatarsi. Protarsomere 2 1.4 times as wide as long; protarsomere 3 1.4 times as wide as long and 1.4 times as wide as protarsomere 2; ungular tarsomere 1.4 times as long as protarsomere 3. Metatarsomere 2 1.1 times as wide as long; metatarsomere 3 1.2 times as wide as long and 1.5 times as wide as metatarsomere 2; ungular metatarsomere 1.4 times as long as metatarsomere 3.

Male genitalia. Aedeagus long and slender, regularly tapered apically, apex in ventral view slender, regularly arcuated, in lateral view irregularly straight in middle part, lengthened to long, sharp, slender point (Fig. 22).

Female unknown.

Differential diagnosis. *Asphalmus sharpi* sp. nov. is easily distinguishable from both remaining species of the genus by the elytral vestiture, small tooth on the profemur and by the small body size.



Figs. 23–26. Habitus. 23 – *Yunakovius orientalis* gen. & sp. nov. (paratype ♀, 3.1 mm, ZIN); 24 – *Asphalmus japonicus* Sharp, 1896 (♂, 3.8 mm, BMNH); 25 – *A. ovatus* (Sharp, 1896) (♂, 3.4 mm, BMNH); 26 – *A. sharpi* sp. nov. (holotype ♂, 3.0 mm, BMNH).

Etymology. The newly described species is dedicated to David Sharp (1840–1922), an English physician and entomologist, who described the two remaining species of the *Asphalmus*.

Biology. The holotype was collected from litter in a forest with bamboo.

Distribution. China (Jiangxi).

Key to the species of *Asphalmus*

1. Rostrum short, 1.37–1.40 times as wide as long, equally wide at base and at apex. Basal half of rostrum indistinctly tapered anteriorly (Fig. 8). Frons matt. Pronotum matt, finely punctate (Fig. 24). Larger species, 3.6–4.1 mm. *A. japonicus* Sharp, 1896
- Rostrum longer, 1.16–1.25 times as wide as long, at base wider than at apex. Basal half of rostrum distinctly tapered anteriorly (Figs. 14, 20). Frons shiny. Pronotum shiny, coarsely punctate (Figs. 25–26). Smaller species, 3.0–3.6 mm. 2
2. Elytral adherent setae dense, elongate, drop-shaped, creating distinct stripes on elytral intervals (Fig. 26). Scutellum very small, hardly visible (Fig. 26). Antennal funicle of males shorter, antennomere 2 1.8 times as long as wide, antennomeres 3–7 wider than long. Dent on profemur small, half the size of the tooth at the internal angle of the protibia (Fig. 26). Aedeagus symmetrical, pointed just on apex (Fig. 22). 3.0 mm. *A. sharpi* sp. nov.
- Elytral adherent setae scarce, piliform, indistinct on intervals (Fig. 25). Scutellum large, and prominent (Fig. 25). Antennal funicle of males longer, antennomere 2 2.4–2.5 times as long as wide, antennomeres 3–7 longer than wide. Dent on profemur large, somewhat longer and twice the size of the tooth of the internal angle of the protibia (Fig. 25). Aedeagus distinctly asymmetrical, pointed in the whole apical half (Fig. 17). 3.2–3.6 mm. *A. ovatus* (Sharp, 1896)

Discussion

The availability of numerous new localities and the improved mobility of present-day collectors in combination with a more frequent use of sifting and other less popular collecting methods in previous years, has resulted in an abundance of new material containing lesser known weevil groups including the short nosed terricolous genera and tribes. The genus *Brachysomus* Schoenherr, 1823 is a good example, as the number of species within the genus has increased from ca. 35 to 60 during the last five years (BIALOOKI 2007, YUNAKOV 2006, WANAT & MAZUR 2005). The newly collected material contains an abundance of new taxa not only at the specific, but also at the generic level. The transition to the hidden, terricolous mode often results in flightless and fairly immobile species. Furthermore often living in these very specific conditions, results in an ample numbers of species, which may be separated at the generic level. At present, no phylogenetic studies have been performed to understand the phylogeny of the Entiminae and many monotypic genera were described based on the large amount of recently collected material. For example ten new monotypic genera from different tribes were described in the last ten years: *Achradidiomimus* Pelletier, 2001, *Achradidiomorphus* Pelletier, 2001, *Andrion* Velázquez, 2007, *Borovecia* Pierotti & Bellò, 2001, *Bosporomias* Yunakov & Korotyaev, 2005, *Nanomias* Yunakov, 2003, *Otiiorhynchomorphus* Magnano, 2001, *Pseudoholcorhinus* Pelletier, 2006, *Solarhinomias* Yunakov & Nadein,

2006, and *Turanomias* Yunakov & Nadein, 2006 (MAGNANAO 2001; PELLETIER 2001, 2006; PIEROTTI & BELLÒ 2001; YUNAKOV 2003; YUNAKOV & KOROTYAEV 2005; YUNAKOV & NADEIN 2006; VELÁZQUEZ DE CASTRO 2007). Concurrently, many small genera containing 2–5 species were also described. On the other hand, the high number of recently described genera of the Entiminae is not caused only by the absence of the material in previous years, but foremost by the existence of a large number of very peculiar forms evolved under unique conditions of the often isolated localities. There is an apparent disproportion between the number of monotypic and small genera in terricolous and arboricolous/herbiculous weevils (see e.g. the catalogue by WINKLER (1932)): the number of such genera is much higher in terricolous members (and also xylophagous ones, e.g. in the Onycholipini). The disproportion also concerns the distributional pattern when terricolous and arboricolous/herbiculous groups are compared. Many herbicolous genera are distributed both in northern and southern hemispheres (OSELLA et al. 1998, COLONNELLI 2006, CALDARA 2003). In contrast, the groups containing predominantly terricolous weevils are either limited to the southern (e.g., Embrithini and Oosomini) or the northern hemisphere (e.g., Holcorhinini and Omiini) or at least do not contain widely distributed genera (e.g. Trachyphloeini: BOROVEC, in press).

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