

A new subgenus of the genus *Amara* Bonelli, 1810 (Coleoptera: Carabidae) from northeastern Tibet, China

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Abstract

A new monotypic subgenus, *Tibetamara* **subgen. n.**, is established for *Amara validula* Tschitschérine, 1898, from Tibet. It shows some features unique among *Amara*: a very short right paramere with a simple tip and groups of long setae on the plantar surface of the tarsi. The position of the new subgenus within the genus *Amara* is discussed.

Key words: *Amara*, taxonomy, new subgenus, China, Tibet

Introduction

The genus *Amara* Bonelli, 1810 is a well-defined group of ground beetles encompassing 630 species in 47 subgenera (Hieke 2013, 2014). The genus reaches the greatest diversity in the Palaearctic, where 538 species from 46 subgenera have been recorded (Hieke 2017).

At the end of the 19th century, Tschitschérine described *A. validula* from Tibet (Amdo); but he did not include it into any of the subgenera of *Amara* known at the time: “Cette espèce ne peut non plus être classée dans aucun des sous-genres existants; elle paraît avoir des rapports avec les *Cyrtonotus*, mais en diffère considérablement par l’absence de dents au côté intérieur des tibias intermédiaires des ♂, par la forme relativement courte du corps, etc.” (Tschitschérine 1898: 217). Baliani (1940) described *Amara (Bradytus) breiti* Baliani, 1940 from the same region. Later, Heike (1975) proposed *A. breiti* as junior synonym of *A. validula*. Noting the morphological isolation of this taxon, he complained about the absence of important characters in the publication by Baliani and added a drawing of the tip of the right paramere of an *A. breiti* paratype to page 289. At the same time, Hieke did not change the subgeneric position of these taxa: “*Amara (Bradytus) breiti* Baliani, 1940 syn. nov. ad *Amara* (sg. ?) *validula* Tschitschérine, 1899” (Hieke 1975: 288). *Amara validula* was placed within the subgenus *Bradytus* only in a “Namensverzeichnis der Gattung *Amara* Bonelli, 1810” (Hieke 1995), but without any further comment.

When processing Palaearctic species of the subgenus *Bradytus* Stephens, 1827, the types of *Amara validula* Tschitschérine, 1898 were studied in the collection of the Zoological Institute of the Russian Academy of Sciences, St. Petersburg. The revision convinced us that *A. validula* deserved to be separated into an independent subgenus described below.

Material and methods

In preparing this work, in addition to material of *A. validula*, all Palaearctic species of the subgenus *Bradytus* and representatives of most from the subgenus *Amara* were studied using collections and literature data (Andrewes 1924; Antoine 1953; Baliani 1934; Bedel 1899; Ganglbauer 1891; Habu 1972; Hejkal 2008; Hieke 1970, 1975, 1976, 1978, 1983, 1984, 1988, 1993, 1995, 1996, 1999a, 1999b, 2000, 2001, 2002, 2003a, 2003b, 2003c, 2006,

2010; Iablokoff-Khnzorian 1975; Jeannel 1942; Kabak 1993; Kavanaugh *et al.* 2014; Kryzhanovskij 1965, 1968, 1974, 1975; Lafer 1978, 1980, 1989; Lutshnik 1927, 1935; Morita 1995; Sainte-Claire Deville 1906; Tanaka 1957; Tschitschérine 1894, 1898, 1899a, 1899b, 1903).

Standard methods were applied for treating the material. Genitalia were mounted on permanent slides using the Faure-Berlese medium. External and genitalic characters were studied under an MBS-1 or Leica M165C stereoscope. Pictures were taken with a Canon EOS 5D Mark III camera with a Canon MP-E 65 mm objective lens, while the extended focus images were stacked using Zerene Stacker software. Final illustrations were processed in Photoshop®. The material treated in this paper is stored in the collections of the Zoological Institute, Russian Academy of Sciences, St. Petersburg, Russia (ZIN).

The abbreviations used in text are as follows: EL—elytra length, measured from the posterior edge of the scutellum to elytral apex; EW—greatest width of elytra; HL—length of head, measured along the median line from fore margin of clypeus to rear edge of the temples; HW—greatest width of head; L—body length from fore margin of clypeus to elytral apex; Ls—sum of HL, PLt and EL; PA—width of pronotal apex; PB—width of pronotal base; PLm—length of pronotum, measured along the median line; PLt—greatest length of pronotum; PW—greatest width of pronotum; M—arithmetic mean.

***Tibetamara* Makarov et Sundukov, subgen. n.**

Type species: *Amara validula* Tschitschérine, 1898, designated herewith.

Species composition. *Amara validula* Tschitschérine, 1898.

Diagnosis. Body robust, rather large (10–11 mm), dark; antennae monochromous, reddish.

Head: two supraorbital pores; mentum tooth well-developed, bifid.

Prothorax: relatively large, transverse (about 1.5 times as wide as long), slightly trapezoidal, with two basal foveae on each side; outer basal fovea with a distinct lateral fold reaching the basal margin; two lateral setae; posterior angles distinct, pointed. Propleuron and prosternum punctate; prothorax of male and female of similar structure except punctuation being more or less strongly and longitudinally depressed between coxae. Prosternal intercoxal process not marginated and asetose apically.

Elytra: relatively short, only 1.3 times as long as wide, moderately convex; shoulder angle distinct, with a tooth; parascutellary pore absent; striae punctate; stria 7 with one preapical setiferous puncture.

Ventral side of meso- and metasterna densely and coarsely punctate.

Abdomen: sternites III–V each with one pair of setae; anal sternite with 2–4 setae in males and 4 setae in females.

Legs: claws long and slender; apical spur of protibia simple; dorsal side of protibia with 4–6 setae; middle femur with 2 setae along posterior margin; mesotibia in males with a row of small tubercles on inner side; metatibia of male on inner side with one additional row of rather long setae on apical third. Ventral sides of meso- and metatarsomeres 1–3 with lateral rows of long bifid or trifid setae (Figs 13, 14), this resulting in apical quarter of plantar surface of these tarsomeres and being entirely clothed with setae. At least some of the apical setae longer than apical width of tarsomere.

Aedeagus: median lobe without groove on right side; lamella long, narrow, tapering towards apex; right paramere robust, short, without apical hook.

Position within the genus. The subgeneric division of the genus *Amara* (Andrewes 1930; Bates 1873; Hieke 1978, 1983, 1990, 1994, 1999a, 2001, 2003c, 2005, 2006, 2012; Jeannel 1942; Lutshnik 1935) is mainly based on the chaetotaxy of the prothoracic process, legs, and abdominal sternites; the presence or absence of margination at the tip of the prothoracic process; the number of preapical setiferous punctures in elytral stria 7; the structure of the apical spur of the fore tibia; the sculpture and chaetotaxy of the middle of the prothorax, middle and hind tibiae in male; the shape and structure of the pronotum; the colour of the antennae; the presence or absence of a scutellary pore on the elytra; the structure of the aedeagus median lobe and right paramere in males, and of the gonostyles in female.

However, most of the characters listed above demonstrate similarities in different subgenera or are variable within one subgenus. As a result, there are exceptions or species with a transitional combination of features in

almost every subgenus, this often complicating their identification. In his first works on the genus *Amara*, Hieke (1978) already expressed cautiously the idea that we observe many characters of the subgenera and groups of species in *Amara* in the process of their formation. Therefore, features characteristic of all members of one subgenus can be found in other subgenera, albeit weakly expressed. A character such as a fovea on the male prothorax, which is characteristic of the subgenera *Xenocelia*, *Pseudocelia*, *Camptocelia*, *Cumeres*, *Bradytus* etc., exceptionally occurs in the nominative subgenus as well (Hieke 2002); the parascutellar pore present in all species of the subgenus *Zezea* is also found among *Amara* s. str. and *Celia*, etc. Later, Hieke returned to his idea and expressed it more clearly, proposing to broaden the interpretation of synapomorphism as the ability (potency) of a certain characteristic to emerge: "... eine Synapomorphie nicht der gemeinsame Besitz von apomorphen Merkmalen ist, sondern die gemeinsame genetische Potenz, ein bestimmtes apomorphes Merkmal auszubilden." (Hieke 2005: 149). One may disagree with that statement, but it is obvious that the genus *Amara* shows a very wide combinatorial set of diagnostic characters. A natural reflection of the distribution of features can be presented in a matrix (Table 1). This allows for a comparison between *Tibetamara* **subgen. n.** and all other subgenera of *Amara*.

Bradytus, which previously included *A. validula*, differs from *Tibetamara* **subgen. n.** in having a groove on the right side of the median lobe of aedeagus, margination on the prosternal intercoxal process, presence of a punctate area or a deep fossa in the middle of the male prothorax, fewer (1–3, rarely 4) setae on the dorsal side of the fore tibia, and a different structure of the tarsi.

The subgenus *Bradytulus* Tschitschérine, 1894, is similar to *Tibetamara* **subgen. n.** in many characters, but in *Bradytulus* the prosternal intercoxal process margined at least at the apex.

The subgenus *Pseudocelia* Lutshnik, 1935 differs from *Tibetamara* **subgen. n.** in having poorly developed or reduced outer basal foveae of the pronotum. Both *Reductocelia* Lafer, 1989 and *Xenocelia* Hieke, 2001 have sclerotized structures in the endophallus, usually 2–3 preapical setiferous punctures at the apex of elytral stria 7, and (in some *Reductocelia*, in all *Xenocelia*) 4 setae on the anal sternite in both sexes. In addition, in *Xenocelia*, the outer basal foveae of the pronotum are not separated from the lateral margin by a convex fold; males show a punctate area or a fovea in the middle of the prosternum, as well as a short groove on the right side of the median lobe of aedeagus.

Several subgeneric complexes differ from *Tibetamara* **subgen. n.** in having either a margined prosternal intercoxal process with additional setae (*Camptocelia* Jeannel, 1942, *Xanthamara* Bedel, 1899, *Leuris* Lutshnik, 1927, *Cumeres* Andrewes, 1924, *Heterodema* Tschitschérine, 1894, *Leiocnemis* C. Zimmermann, 1832, *Paracelia* Bedel, 1899, *Pseudoleiromorpha* Hieke, 1981, *Percosia* C. Zimmermann, 1832, *Phaenotrichus* Tschitschérine, 1898, *Neopercosia* Hieke, 1978, *Parapercosia* Tschitschérine, 1899, *Pseudoleirides* Kryzhanovskij, 1968, *Polysitamara* Kryzhanovskij, 1968, and *Harpalodema* Reitter, 1888) or additional setae on the prosternal process are combined with the absence of its margination (*Bradytodema* Hieke, 1983, some *Pseudoleirides* Kryzhanovskij, 1968 and *Pseudoleiromorpha* Hieke, 1981).

Finally, a number of subgenera with an unmarginated prosternal intercoxal process, as in *Tibetamara* **subgen. n.**, possess numerous additional setae on the femora of the middle and hind legs (*Phanerodonta* Tschitschérine, 1894, *Hyalamara* Tschitschérine, 1903, *Ammoxena* Tschitschérine, 1894, *Cribramara* Kryzhanovskij, 1964, *Amathitis* C. Zimmermann, 1832, *Allobradytus* Iablokoff-Khnzorian, 1975, *Ammoleirus* Tschitschérine, 1899, and *Zabroscelis* Putzeys, 1866).

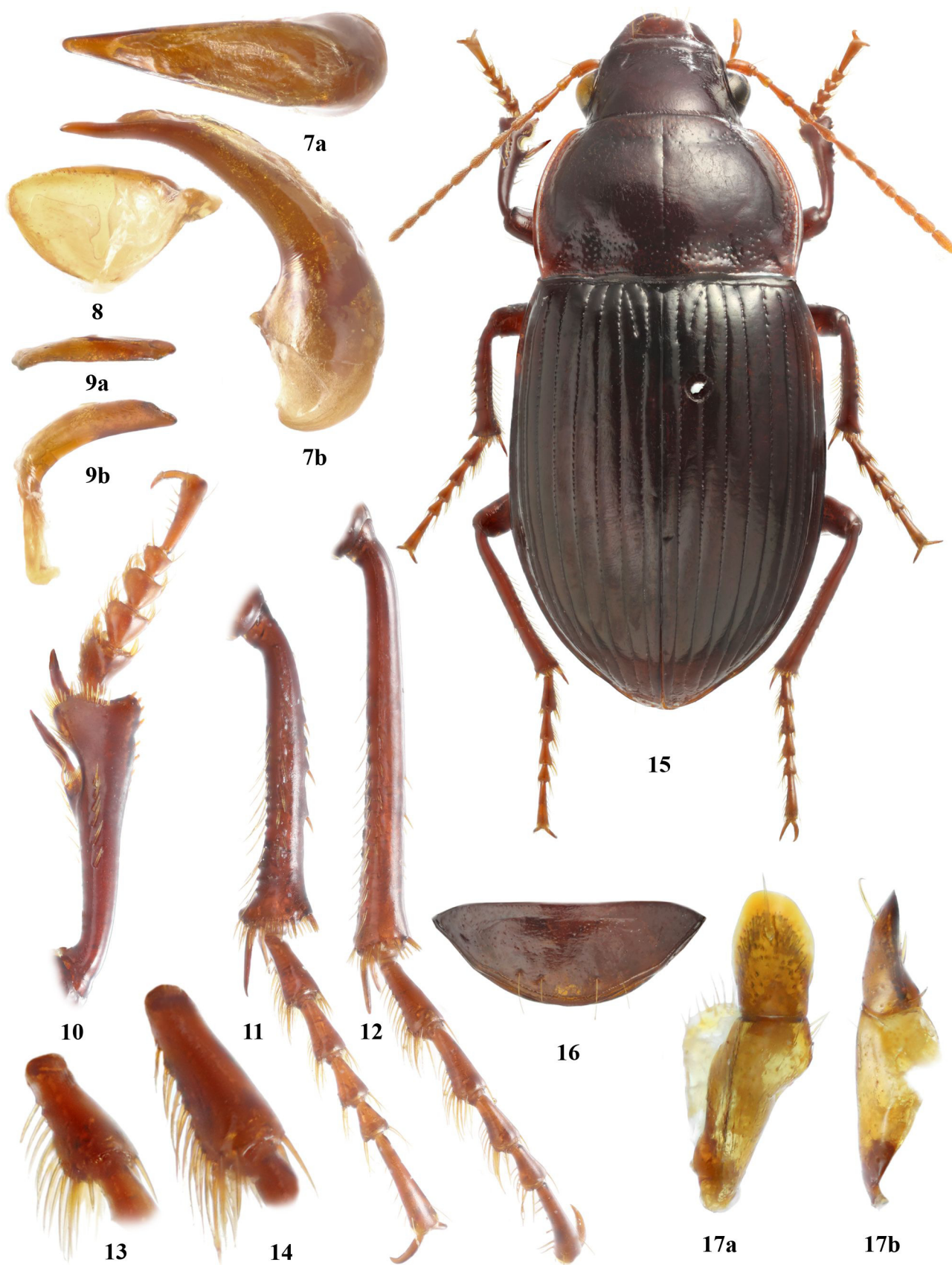
Often, the development of additional setae on the legs and ventral surface, apparently associated with a psammophilic lifestyle, is also accompanied by the complication of tarsal setae. In certain cases, apical groups of long setae are formed (*Harpalodema* Reitter, 1888, *Phanerodonta* Tschitschérine, 1894, some species of *Amathitis* C. Zimmermann, 1832), resembling the tarsi of *Tibetamara* **subgen. n.** in appearance. However, in all these other subgenera, it is not the number, but the length of the tarsal setae that is increased, and they remain arranged in regular lateral rows typical of the genus. An increased number of setae on the tarsi is described for *A. (Bradytus) pingshiangi* Jedlička, 1957 (Kavanaugh *et al.* 2014); however, as this species has an unmarginated prosternal intercoxal process and a fovea in the middle of the male prosternum is absent, its inclusion into the subgenus *Bradytus* is dubious (Hieke 1990).

Therefore, the subgenus *Tibetamara* **subgen. n.** possesses a predominantly plesiomorphic (according to Hieke, 1978, 1983, 2005) set of characters and, in their combination, it is similar to the "*Curtonotus*-Komplex" sensu Hieke (1978). It seems noteworthy that Tschitschérine (1898: 217) already noted the similarity between *A. validula* and *Curtonotus* Stephens, 1827, when describing the former. The subgenera of this complex differ from *Tibetamara*

subgen. n. by the presence of large tubercles or teeth on the middle tibia of males, as well as of two lateral rows of short spinules on the ventral surface of the tarsus. Their right paramere is long, with a narrow tip (*Curtonotus*, *Armatoleirides* Tanaka, 1957) or with a hook (*Leirides* Putzeys, 1866, *Microleirus* Kryzhanovskij, 1974, *Leiramara* Hieke, 1988, and *Leironotus* Ganglbauer, 1891). In addition, unlike *Tibetamara* **subgen. n.**, species of *Leirides*, *Microleirus*, and *Leiramara* have a marginated prosternal intercoxal process, and the male prosternum of *Armatoleirides* has a punctate fovea in the middle.



FIGURES 1–6. *Amara (Tibetamara) validula* Tschitschérine, 1898, male, lectotype: 1—habitus, dorsal view, 2—habitus, dorsolateral view, 3—head, ventral view, 4—labial palpomeres, 5—prothorax, lateral view, 6—habitus, ventral view.



FIGURES 7–17. *Amara (Tibetamara) validula* Tschitschérine, 1898: 7—median lobe of aedeagus (a—dorsal view, b—lateral view), 8—left paramere, 9—right paramere (a—dorsal view, b—lateral view), 10–12—tarsus and tibia of fore (10), middle (11) and hind (12) legs, 13–14—first mesotarsomere of female (13) and male (14), 15—female, dorsal habitus, 16—anal ventrite, 17—gonocoxite and gonostylus (a—dorsal view, b—lateral view); 7–12—lectotype, 15–17—a paralectotype.

TABLE 1. Diagnostic features subgenera of *Amara* *

subgenus	number of setae on ventrites 3-5	number of setae on metafemur	number of setae on mesofemur	setae on prosternal intercoxal process	edging of prosternal intercoxal process	number of setae in stria 7 ¹	right para mere	male metathibia	fovea on pro sternum of male	number of setae on anal sternite (f m)	groove on right side of penis	male mesothibia	number of supra-orbital setae	number of lateral setae on pronotum	Antenna coloring	parascutellary pore	medial protibial spurs
<i>Microleirus</i>	2	2	2	0	-	0	bH	O	-	2 4	-	sG	2	b	UC	-	S
<i>Eoleirides</i> ²	2	2	2	0	-	1-2	?	?	-	? 4	-	?	2	b	UC	-	S
<i>Leirides</i>	2	2	2	0	-	1	O	O	-	2 4	-	sT bT	1	b	UC	-	S
<i>Curtonotus</i>	2	2	2	0	-	1	O	O ³	-	2 4	-	bT	2 (1)	b (p)	UC	-	S
<i>Amarocelia</i>	2	2	2	0	+	2 (1)	sH	O	- (+)	2 4	-	O	2	b	BC	-	S
<i>Zezea</i>	2	2	2	0	+	2 (1)	sH	TB	-	2 4	-	O	2	b	BC	+	T
<i>Amara</i>	2	2	2	0	+	1-2	sH	TB	- ⁴	2 2-4	-	O	2	b	BC	+	S
<i>Celia</i>	2	2	2	0	+	1	sH bH	O	- (+)	2 4	-	O	2	b	UC	+	S
<i>Leironotus</i>	2	2	2	0	-	0-1	sH O	O SH	- ⁵	2-4 4	-	O	2	b	UC	-	S
<i>Paraleirides</i>	2	2	2	0	-	1	sH	O	+	2 4	-	bT	2	b	UC	-	S
<i>Harpaloamara</i>	2	2	2	0	-	1	bH	SH	+	2 4	-	sG	2	b	UC	-	S
<i>Armatoleirides</i>	2	2	2	0	-	1	bH	SH	+	2 4	-	O sG	2	b	UC	-	S
<i>Tibetamara</i>	2	2	2	0	-	1	T	SH	-	2 (4) 4	-	sG	2	b	UC	-	S
<i>Pseudocelia</i>	2	2	2	0	+ ⁶	1	O (sH bH ⁷)	O SH TB	+	2-4 4	+	O	2	b	UC	-	S
<i>Pseudoamara</i>	2	2	2	0	+	1	sH	SH	+	2 4	-	O	2	b	BC	-	S
<i>Bradytus</i>	2	2	2 ⁸	0	+ (-)	1	O bH sH	SH TB	+	2 (4)	+	sG	2	b	UC	-	S
<i>Xenocelia</i>	2	2	2	0	+	1 (2)	bH	SH (O)	+	4 4	+	O	2	b	UC	-	S
<i>Leiramara</i>	2	2	2	0	+ ⁻	1	bH	SH	-	4 4	-	sG	2	b	UC	-	S
<i>Bradytulus</i>	2	2	2	0	+ ⁶	1 (2)	sH O	SH TB	-	2 4	+	sG sT	2 (1)	b (p)	UC	-	S
<i>Reductocelia</i>	2	2	2	0	+	1 (2)	bH	O	-	2 4	+	O	2	b (p)	UC	-	S
<i>Atlantocnemis</i>	2	2	2	2	+	1	sH	O	-	2 4	-	O	2	b	UC	-	S
<i>Lauris</i>	2	2	2	2	+	1	?bH	O	-	2 4	-	sG	0	n (p)	UC	-	S

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TABLE 1. (Continued)

subgenus	number of setae on ventrites 3-5	number of setae on metafemur	number of setae on mesofemur	setae on prosternal intercoxal process	edging of prosternal intercoxal process	number of setae in stria 7 ¹	right para mere	male metathibia	fovea on pro sternum of male	number of setae on anal sternite (f m)	groove on right side of penis	male mesothibia	number of supra-orbital setae	number of lateral setae on pronotum	Antenna coloring	parascutellary pore	medial protibial spurs
Leiromorpha	2	2	2	2	+	0-1	bH	O	-	2 4	-	O	2	b	UC	-	S
Camptocelia	2	2	2	2 (4)	+	1 (2)	O (sH)	O	-	2 4	+	O sG	2	b	UC	-	S
Cumeres	2	2	4	2	+	1 (0)	sH	O	+	2 ⁸ 4	-	O	2	b	UC	-	S
Leiocnemis	2	2	3-5	2 (3)	+	1 (0)	O sH bH	O	-	2 4	-	O sG	2	b	UC	-	S
Paracelia	2	2	4	2	+	1 (2)	sH	O	-	2 4	-	O	2	b	UC	-	S
Pseudoleiromorpha	2	2	3-5	2 >	+-	1	sH	O	-	2 4	-	O	2	b	UC	-	S
Phaenotrichus	2	2	4-5	4-6	+	1-2	O	O	+	2 4	-	O	2	b	UC	-	S
Neopercosia	2	2-3	4 >	4-6	+	1	O	O	-	2 4	-	O	2	b	UC	-	S
Acorius	2	2	4	0	-	2	sH	O	-	2 4	-	sG	2	b	UC	-	S ¹⁰
Allobradytus	2	2	6-8	4-6	-	1	O	O	-	2 4	-	sT bT	2	b	UC	-	S
Ammoleirus	2	4	4	0	-	1 (2)	sH	O	-	2 4	-	sT bT	2	b	UC	-	S
Ammoxena	2	2	6-8	4-6	-	0	O	SH	-	4 4	-	sT	2	b	UC	-	S
Heterodema	2	2-4	2-6	2 >	+	1	O	O	-	4 4	+	O	2	b	UC	-	S
Pseudoleirides	2	2-5	4-6	2 >	+- ¹¹	1 (2)	O sH	O	s	2-4 4-6	-	O sG	2	b	UC	-	S
Xanthamara	4-6	4-6	4-6	2-4	+	1	sH	O	-	2 4	-	sG	2	b	UC	-	S
Percosia	2 (>)	2-8	4-10	4-10	+	1 (2)	sH	O	-	4 6	-	O	2	b	UC	-	S
Zabroscelis	2	5-6	2-3	0	+ ¹³	1	bH	SH	+	2 4	-	sG	2	b	UC	-	S
Amathitis	2	4-10	4-10	0 ¹⁴	+(-)	1	sH bH	O SH TB	+	2 4	+-	O sG	2	b	UC	-	S
Phanerodonta ¹⁵	4-6 >	6-8	6-8	0	+ ¹⁶	1-4	bH	TB	+	6-8 6-8	-	sT	2	b	UC	-	S
Cribramara	4-6 >	5 >	5 >	0	+	1	O	O SH	+	2 4	+	O	2	b	UC	-	S
Hyalamara	8-12	4-6	4-6	0	+	0-1	O sH	SH	s	4-6 6	+	O sG	2	b	UC	-	S

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TABLE 1. (Continued)

subgenus	number of setae on ventrites 3-5	number of setae on metafemur	number of setae on mesofemur	setae on prosternal intercoxal process	edging of prosternal intercoxal process	number of setae in stria 7 ¹	right paramere	male metatibia	fovea on pro sternum of male	number of setae on anal sternite (f m)	groove on right side of penis	male mesotibia	number of supra- orbital setae	number of lateral setae on pronotum	Antenna coloring	parascutellary pore	medial protibial spurs
Bradytodema	4-6	6-8	6-8	4-8	-	2-3	bH	O	+	4 4	-	O	2	b	UC	-	S
Polysitamara	10- 20	4-6	6-8	8-10	+	1	O	O	-	2-4 2-4	-	O	2	a	UC	-	S
Harpalodema	15- 20	8-18	8-12	4-10	+	2 (1)	O	O	+	6-8 6-8	-	O	2	b	UC	-	S
Parapercosia	4-8	4-8	4 >	4-10	+	2 (1)	O	O	-	2 4	-	O	2	b	UC	-	S

* The table does not include the subgenus *Shumichius*, known to us only from the literature.

ABBREVIATIONS. All columns in parentheses indicate the rare condition of the feature; “+”—present, “-”—absent. Right paramere: O—simple; T—truncated; sH—with small apical hook, bH—with big apical hook; Number of lateral setae on pronotum: b—both, a—anterior only, p—basal only, n—none; Antenna coloring: UC—unichromatic; BC—bicolor, with light basal antennomeres; Medial protibial spurs: S—simple, T—trifid; fovea of prosternum of male: “+”—present, “-”—absent, s—sculptured area; Males metatibia: O—ordinary; SH—sparse hairs, TB—thick brush-like patch; Males mesotibia: O—ordinary; sG—small grains, sT—small teeth; bT—large teeth; Number of setae on last abdominal ventrite: females | males.

NOTES. ¹ The number of setae in the stria 7 is indicated without a small apical seta, which is poorly visible in many species and it is often not clear to which stria it belongs. ² subgenus *Eoleirides* is known only from females. ³ with a distinct subapical tooth. ⁴ *A. biarticulata* has a small fovea. ⁵ exclusion of *A. glabrata* with very small punctate fovea. ⁶ sometimes the edging is indistinct or present only at the apex of the process. ⁷ big hook only at *A. chinensis* Tschitscherine, 1894. ⁸ rarely 3–5 setae. ⁹ exception: *A. lamia* with 4 setiferous pore punctures. ¹⁰ transitional state, the apical spur of the protibia on the inner side forms an additional denticle (Lutshnik, 1927). ¹¹ absent from *A. transcaspica* and *A. hermoniensis*. ¹² *A. infuscata* often has only two setae. ¹³ the edging is very thin. ¹⁴ with the exception of some specimens of *A. fedtschenkoi*. ¹⁵ characteristics drawn up on the basis of *A. murgabica* and *A. punctipennis*; *A. kirgisica* differs significantly from them. ¹⁶ in *A. pseudofulva* is not bordered.

As a result, we consider the structure of the aedeagus, primarily a very short right paramere with a blunt tip (Fig. 9), as well as the chaetotaxy of the tarsi, to be the unique features (autapomorphies) among *Amara* that warrant the recognition of a new subgenus, based on *A. validula* alone.

Etymology. The name is derived from combining the name of the mountainous plateau Tibet, whence *A. validula* is reliably known, with the generic name *Amara*. Feminine.

Amara (Tibetamara) validula Tschitschérine, 1898

(Figs 1–17)

Amara validula Tschitschérine, 1898: 214–217. Type locality: “Nord-Est du Thibet, plateau d’Amdo: riv. Namyngug (col élevé de 12.000 pieds, entre le village Schoen-pyn et le monastère Labran); village Ndämi; monastère Gumbum; lac Kuku-nor”, Qinghai, China.

Amara (Bradytus) breiti Baliani, 1940: 215. Type locality: “Tibet: Kuku-nor, 3200 m”, Qinghai, China; synonymy by Hieke, 1975: 288.

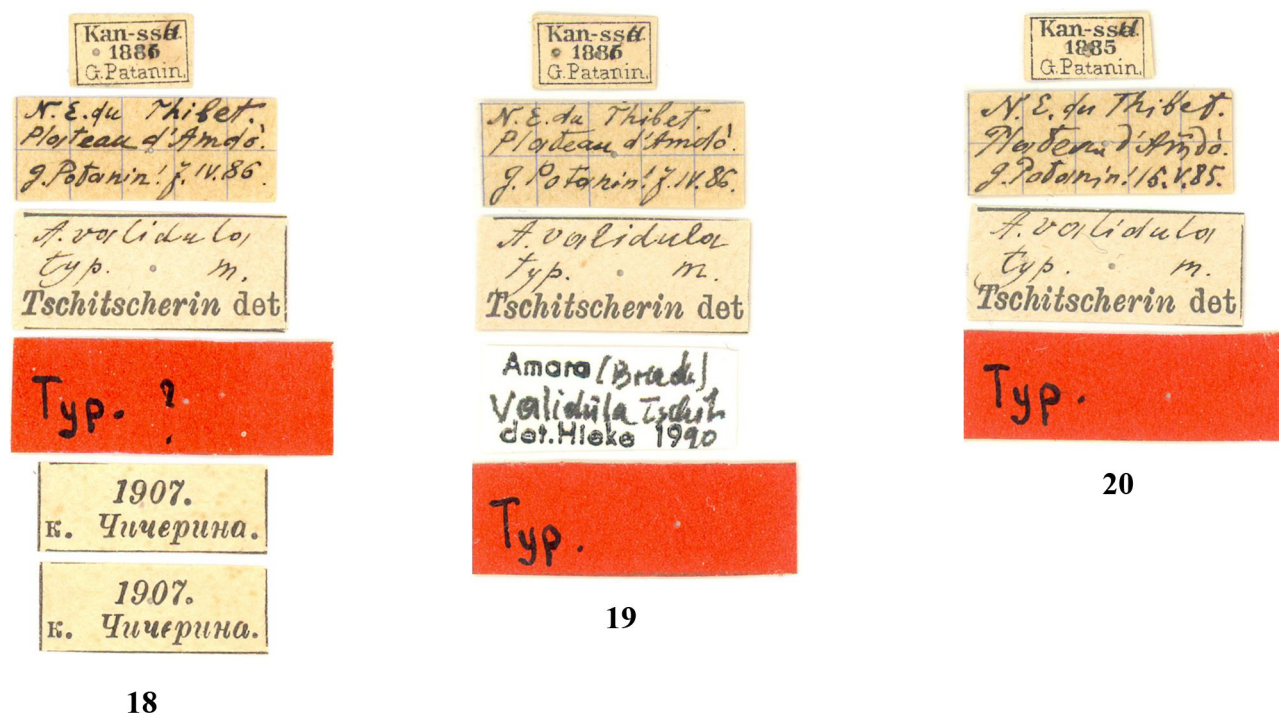
Type material. **Lectotype** (designated herewith): ♂, “Kan-ssu 1886 G. Patanin.” [white rectangle with a black frame; printed]; “N. E. du Thibet., Plateau d’Amdo. G. Potanin’. 7.IV.86.” [white rectangle on a checkered notebook sheet; handwritten]; “*A. validula* typ. m. Tschitscherin det.” [white rectangle; handwritten]; “Typ. ?” [red rectangle; handwritten]; “1907. к. Чичерина” [two white rectangles; printed]; red rectangle (printed) “LECTOTYPUS *Amara validula* Tschitschérine, 1898 design. K. Makarov et Yu. Sundukov, 2021”; “*Amara (Tibetamara) validula* Tschitschérine, 1898 det. K. Makarov et Yu. Sundukov, 2021”.

Paralectotypes (designated herewith): ♀, “Kan-ssu 1886 G. Patanin.” [white rectangle with a black frame; printed]; “N. E. du Thibet., Plateau d’Amdo. G. Potanin’. 7.IV.86.” [white rectangle on a checkered notebook sheet; handwritten]; “*A. validula* typ. m. Tschitscherin det.” [white rectangle; handwritten]; “Typ.” [red rectangle; handwritten]; “*Amara (Brad.) validula* Tschit. det. Hieke 1990” [white rectangle; handwritten]; red rectangle (printed) “PARALECTOTYPUS *Amara validula* Tschitschérine, 1898 design. K. Makarov et Yu. Sundukov, 2021”; “*Amara (Tibetamara) validula* Tschitschérine, 1898 det. K. Makarov et Yu. Sundukov, 2021”. ♂, “Kan-ssu 1885 G. Patanin.” [white rectangle with a black frame; printed]; “N. E. du Thibet., Plateau d’Amdo. G. Potanin. 15.V.85.” [white rectangle on a checkered notebook sheet; handwritten]; “*A. validula* typ. m. Tschitscherin det.” [white rectangle; handwritten]; “Typ.” [red rectangle; handwritten]; red rectangle (printed) “PARALECTOTYPUS *Amara validula* Tschitschérine, 1898 design. K. Makarov et Yu. Sundukov, 2021”; “*Amara (Tibetamara) validula* Tschitschérine, 1898 det. K. Makarov et Yu. Sundukov, 2021”.

Other material. ♂, “Kan-ssu 1885 G. Patanin.” [white rectangle with a black frame; printed]; “*Amara (Brad.) validula* Tschit. det. Hieke 1990” [white rectangle; handwritten]; “*Amara (Tibetamara) validula* Tschitschérine, 1898 det. K. Makarov et Yu. Sundukov, 2021”; ♀, “Kan-ssu 1885 G. Patanin.” [white rectangle with a black frame; printed]; “*Amara* sp. Al.” [white rectangle; handwritten]; “*Am. validula* T. Tschit.” [white rectangle; handwritten]; “*Amara (Tibetamara) validula* Tschitschérine, 1898 det. K. Makarov et Yu. Sundukov, 2021”; ♂, “Kan-ssu 1885 G. Patanin.” [white rectangle with a black frame; printed]; “*Amara (Tibetamara) validula* Tschitschérine, 1898 det. K. Makarov et Yu. Sundukov, 2021”; ♂, “Kan-ssu 1885 G. Patanin.” [white rectangle with a black frame; printed]; “*Amara (Tibetamara) validula* Tschitschérine, 1898 det. K. Makarov et Yu. Sundukov, 2021”; mouthparts, “*A. validula* typ. m. Tschitscherin det.” [white rectangle with a black frame; printed]; “Typ. ?” [red rectangle; handwritten]; “*Amara (Tibetamara) validula* Tschitschérine, 1898 det. K. Makarov et Yu. Sundukov, 2021”.

Notes on the type material. *Amara validula* was originally described based on 2 males and 2 females from the Tschitschérine Collection (ZIN) and 1 female from the Koltze Collection (Leibniz Centre for Agricultural Landscape Research, Müncheberg, Germany) (Tschitschérine 1898: 216; Hieke 1975: 289). There are 7 specimens labeled “Kan-ssu 1885 G. Patanin” and 1 plate with glued oral organs (right maxilla and labium) which Tschitschérine labeled as “*A. validula* typ. m.”, all in the ZIN collection. Among the syntypes, we selected 2 males and 1 female, the geographical and identification labels of which fully correspond to the first description (Figs 18–20) and are written by Tschitschérine’s hand. Perhaps the plate with glued oral organs and labeled by Tschitschérine as “*A. validula* typ. m. Tschitscherin det.” is also part of the type series and represents the missing female from “village Ndami, G. Potanin! 21.V.1885 (coll. Tschitschérine)” (Tschitschérine 1898: 216). Due to the lack of a geographical label and the inability to determine the sex of the beetle, we did not include this specimen in the type series. As the remain-

ing 4 specimens have no labels provided by Tschitscherine's hand, nor any was labeled by him later, they were not considered as syntypes.



FIGURES 18–20. Labels of the lectotype (18) and paralectotypes (19–20).

Diagnosis. Body (Figs 1, 15) robust ((PL+EL)/PW = 2.16–2.23; M 2.19); dark brown or almost black; antennae light red or red; legs dark red completely or only tarsi red. Dorsal side glossy, without microsculpture in both sexes.

Head (Figs 1, 15) large, finely punctate, with rather long mandibles; mentum tooth bifid (Fig. 3); submentum with one seta on each side (Fig. 3).

Pronotum (Figs 1, 15) slightly trapezoidal (PB/PA = 1.27–1.45; M 1.39), 1.51–1.62 (M 1.57) times wider than long at median line, with greatest width slightly posterior to middle; anterior angles not protruding; lateral margin relatively narrow all along or slightly expanding in apical half; lateral sides in front of posterior angles slightly concave or rectilinear; posterior angles rectilinear or slightly obtuse, with a large sharp tooth; base slightly undulating; outer folds at basal foveae strongly diverging basad, reaching the basal margin mesal to posterior seta; basal foveae wide and deep, separated by a faint convexity; punctures everywhere large, dense at base and in front, sparse on lateral sides; outer folds at basal foveae not punctate or with separate punctures. Prothorax ventrally completely, rather densely and coarsely punctate (Figs 5, 6); prosternal intercoxal process truncate, unmarginated and rather densely punctate (Fig. 6).

Elytra (Figs 1, 2, 15) relatively short (EL/EW = 1.30–1.37; M 1.33), their lateral sides almost parallel; striae deep, finely punctate; bases of striae 1 and 2 separate, a shortened stria located in 1st or 2nd interval; one preapical puncture on top of stria 7; series umbilicata consisting of 12–13 setae: 5 in humeral group, 5–6 in middle, and 2 at apex (Fig. 2); intervals impunctate.

Ventral sides of meso- and metasterna densely and coarsely punctate.

Abdomen: abdominal sternites III–V each with one pair of setae; sternites I–II laterally densely and coarsely punctate; middle of sternite II, lateral sides of sternites III–V, and anal sternite sparsely and finely punctate; anal abdominal sternite with 2 (2 specimens) or 4 (2 specimens) setae in males and 4 setae in females (Fig. 16).

Legs: external top corner of front tibia moderately protruding (Fig. 10); mesotibia at apex markedly widened from outside; tarsomere 5 ventrally with long and thin setae, reaching approximately 1/2 length of claw; dorsal side of protibia with 4–6 setae (Fig. 10); male front legs moderately expanded (Fig. 10); 2 setae at ventral margin of mesofemur (Fig. 6); posterior coxa with 2 setae (Fig. 6).

Aedeagus (Figs 7–9): median lobe rather slightly curved, with a massive basal part, without groove on right side

(in many of Hieke's articles, this fold is indicated as being on the left side); lamella long, narrow, tapering towards apex; endophallus without visible sclerotized structures; right paramere robust, short (roughly equal to length of left paramere), without apical hook.

Female genitalia with broadly oval gonostyli (Fig. 17).

Standard measurements (in mm). HW = 2.53–2.80 (M 2.63); HL = 1.15–1.45 (M 1.26); PA = 2.60–2.83 (M 2.69); PW = 3.85–4.30 (M 4.06); PB = 3.55–3.90 (M 3.73); PLt = 2.58–2.75 (M 2.65); PLm = 2.45–2.70 (M 2.59); EW = 4.55–5.05 (M 4.73); EL = 6.05–6.65 (M 6.29); Ls = 9.75–10.75 (M 10.14); L = 10.1–11.1 (M 10.6).

Sexual dimorphism. Males differ from females by forelegs moderately expanded with adhesive soles (Fig. 10), their mesotibia medially with a number of small tubercles (Fig. 11), metatibia medially with one additional row of rather long setae in apical third (Fig. 12).

Distribution. China: Gansu, Qinghai, Sichuan, ?Hebei, ?Jiangsu, ?Zhejiang; ?North Korea (Hieke 2003a, 2017).

Comments. We have failed to find any information in the literature concerning *A. validula* records in the eastern provinces of China and in Korea, as indicated in the 1st and 2nd editions of Catalogue of Palaearctic Coleoptera (Hieke 2003a, 2017). Perhaps the distribution of this species is restricted to northeastern Tibet.

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