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***Amerizus* CHAUDOIR, 1868: description of six new species from China and material for a taxonomic revision (Coleoptera: Carabidae: Bembidiinae)**

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Abstract

A first attempt is made to summarize the knowledge of the Chinese species of *Amerizus* CHAUDOIR, 1868 (Coleoptera: Carabidae) in order to elucidate the infrasubgeneric systematics of the subgenus *Tiruka* ANDREWES, 1935. An updated checklist of the Palearctic species of the subgenus is also provided. The males of *A. mourzinei* DEUVE, 1998 and *A. hubeiensis* DEUVE, 2002 are described for the first time. The extreme polymorphism of some species of *Tiruka* suggests that systematic studies should be done using mainly male characters. The known Chinese species of the subgenus *Tiruka* are here divided in five species groups, mainly based on differences in the male genitalia. New species: *Anerizus (Tiruka) davidales* sp.n.; *A. (T.) farkaci* sp.n.; *A. (T.) lama* sp.n.; *A. (T.) panda* sp.n.; *A. (T.) puetzi* sp.n.; *A. (T.) schmidtii* sp.n.

Key words: Coleoptera, Carabidae, Bembidiinae, Bembidiina, *Amerizus*, *Tiruka*, Palearctic Region, taxonomy, key to species, checklist.

Introduction

Tiruka ANDREWES, 1935 is a subgenus of *Amerizus* CHAUDOIR, 1868, known only from Asia. Until few years ago this subgenus was known only from the Himalayan mountain chain, from Pir Penjal to Sikkim, but DEUVE (1998) described several species from China. Among abundant material recently studied we were able to discover some new species as well as 10 of the 16 species described by DEUVE (1998, 2002, 2004).

These new species are described herein, new faunistic data are recorded and the knowledge of the Chinese species of *Tiruka* is summarized.

Material and Methods

This paper is based on study of 282 specimens.

Sources of material are the collections of the following institutions and specialists:

CASO	Aleš Smetana Collection, Ottawa, Canada
CBUL	Petr Bulirsch Collection, Prague, Czech Republic
CCAS	Achille Casale Collection, Sassari, Italy
CFKP	Jan Farkač Collection, Prague, Czech Republic
CFPI	Sergio Facchini Collection, Piacenza, Italy
CJPH	Miroslav Janata Collection, Prague, Czech Republic
CKSB	Emil Kučera Collection, Sobeslav, Czech Republic
CMWT	Werner Marggi Collection, Thun, Switzerland
CPUE	Andreas Pütz Collection, Eisenhüttenstadt, Germany
CSMI	Riccardo Sciaky Collection, Milano, Italy
CSRG	Joachim Schmidt Collection, Rostock, Germany
CTVR	Luca Toledano Collection, Verona, Italy

CWBE	David W. Wrase Collection, Berlin, Germany
NHMB	Naturhistorisches Museum, Basel, Switzerland (Dr. Michel Brancucci, Dr. Eva Sprecher)
NMW	Naturhistorisches Museum Wien, Austria (Dr. Heinrich Schönmann, Dr. Manfred A. Jäch, Dr. Harald Schillhammer)

The measurements, made with a Leica MZ12 stereobinocular microscope at 25 x, are abbreviated as follows:

El/Ew	elytral length / elytral width ratio	Pw/Pl	pronotal width / pronotal length ratio
El/Pl	elytral length / pronotal length ratio	TI/Al	total length / antennal length ratio
Ew/Pw	elytral width / pronotal width ratio		

The body length of card-mounted specimens was measured from the front margin of the clypeus to the apex of the elytra, the antennal length from the base of antennomere 1 to the apex of antennomere 11. The pronotal length is generally measured along the mid-line.

Dissections were made using standard techniques. Genitalia and small parts were preserved in Euparal on acetate labels pinned underneath the specimens.

Habitus photographs were taken with a Nikon D200 digital camera equipped with an AF Micro-Nikkor 60 mm 1:2.8D lens and three extension tubes Kenko 36mm+12mm+20mm. Drawings of the aedeagi were made with a Nikon Coolpix 995 digital camera fitted to a Leica MZ12 stereobinocular microscope and then processed with Photoshop® Elements 3.0 on a Macintosh Powerbook G4 computer.

Checklist of the species of *Amerizus* subg. *Tiruka*

<i>barkamensis</i> ssp. <i>barkamensis</i> DEUVE, 1998 (Sichuan)	<i>ledouxii</i> PERRAULT, 1985 (Uttaranchal)
<i>barkamensis</i> ssp. <i>minshanensis</i> DEUVE, 2004 (Gansu)	<i>macrocephalus</i> QUEINNEC & PERREAU, 2002 (Nepal)
<i>barkamensis</i> ssp. <i>zhanglaensis</i> DEUVE, 2002 (Sichuan)	<i>maquensis</i> DEUVE, 2004 (Gansu)
<i>baxiensis</i> DEUVE, 1998 (Sichuan)	<i>markamensis</i> DEUVE, 1998 (Tibet)
<i>beatriciae</i> QUEINNEC & PERREAU, 2002 (Nepal)	<i>martensi</i> QUEINNEC & PERREAU, 2002 (Nepal)
<i>bhutanensis</i> MORVAN, 2004 (Bhutan)	<i>morvani</i> QUEINNEC & PERREAU, 2002 (Nepal)
<i>bolivari</i> ANDREWES, 1927 (Nepal, Sikkim)	<i>mourzinei</i> DEUVE, 1998 (Sichuan)
<i>camillae</i> QUEINNEC & PERREAU, 2002 (Nepal)	<i>panda</i> sp.n. (Sichuan)
<i>casalei</i> PERRAULT, 1985 (Sikkim)	<i>perraulti</i> DEUVE, 1998 (Sichuan, Hubei, Shaanxi, Yunnan)
<i>dauidales</i> sp.n. (Yunnan)	<i>puetzi</i> sp.n. (Sichuan)
<i>deuvei</i> PERRAULT, 1985 (Kashmir, Jammu)	<i>queinneci</i> DEUVE, 1998 (Gansu)
<i>eremita</i> QUEINNEC, 1984 (Nepal)	<i>sabinae</i> QUEINNEC & PERREAU, 2002 (Nepal)
<i>faizae</i> QUEINNEC & PERREAU, 2002 (Nepal)	<i>sarkimani</i> QUEINNEC & PERREAU, 2002 (Nepal)
<i>farkaci</i> sp.n. (Sichuan)	<i>schawalleri</i> QUEINNEC & PERREAU, 2002 (Nepal)
<i>ganesh</i> QUEINNEC, 1984 (Nepal)	<i>schmidti</i> sp.n. (Sichuan)
<i>garuda</i> QUEINNEC & PERREAU, 2002 (Nepal)	<i>shatanicus</i> DEUVE, 2004 (Gansu)
<i>gologensis</i> DEUVE, 2004 (Qinghai)	<i>songpanensis</i> DEUVE, 1998 (Sichuan)
<i>gongga</i> DEUVE, 1998 (Sichuan)	<i>tiani</i> DEUVE, 2004 (Sichuan)
<i>gosaikundensis</i> HABU, 1973 (Nepal)	<i>turnai</i> DEUVE, 1998 (Tibet)
<i>hubeiensis</i> DEUVE, 2002 (Hubei)	<i>wittmeri</i> QUEINNEC & PERREAU, 2002 (Nepal)
<i>indecorus</i> QUEINNEC & PERREAU, 2002 (Nepal)	<i>wolongensis</i> DEUVE, 2002 (Sichuan)
<i>kashmiricus</i> JEDLIČKA, 1938 (Kashmir, Jammu)	<i>wrzecionkoi</i> DEUVE, 1998 (Tibet)
<i>lama</i> sp.n. (Tibet)	
<i>lassallei</i> PERRAULT, 1985 (Nepal)	

Amerizus subg. *Tiruka* ANDREWES, 1935

SYSTEMATIC NOTES: The species of the genus *Amerizus* are characterized by a peculiar main endophallic sclerite, somehow similar to the kernel of a walnut. We define it here as “kernel sclerite”. The inner sacs of some Chinese species of the subgenus *Tiruka* show only the kernel sclerite, while in some other species additional sclerites are present too. The complex of these

sclerites in the species known to us at present allows to split the Chinese species into at least four species groups. The species of the *queinneci* species group show the kernel sclerite isolated. In the single species of the *lama* species group the kernel sclerite, isolated, shows a dorsal process elongate, narrow and pointed at apex. In the *markamensis* species group the kernel sclerite has a strongly developed arcuate apicodorsal process, strongly sclerotized, with dorsal convexity, and a long and strongly sclerotized pack of scales apically to the kernel, as a rule parallel to the dorsal side of median lobe. The species of the *hubeiensis* species group show the kernel sclerite with an apical process, almost parallel to the ventral margin of median lobe, in a species (*A. perraulti*) together with a small pack of scales. Another species group dealt with here includes only *A. schmidt* sp.n. which shows a peculiar character, unique in the genus *Amerizus*, that is the completely pubescent elytra. Probably this species should be attributed to an independent subgenus, but unfortunately at present we cannot state the systematic position of this species for certain, described on a single male specimen lacking the male genitalia (see below).

In the past, a few species have been described only from female specimens (*A. baxiensis*, *A. gologensis*, *A. hubeiensis* and *A. mourzinei*). Perhaps the decision to describe new Chinese species of *Tiruka* without males is not without risk, since some species (e.g. *A. perraulti*, *A. davidales* sp.n.) are extremely polymorphic, showing variations in the proportions of antennae, pronotum and elytra. Sometimes, the comparison of single female specimens of different populations could suggest that they belong to different species, while the male specimens of the same populations show identical genitalia.

During this study, male specimens of *A. mourzinei* and *A. hubeiensis*, matching with the original descriptions have been discovered, therefore we could study the male genitalia of these species and attribute them to the groups mentioned above. For two species, *A. baxiensis* and *A. gologensis*, this is at present impossible because male specimens are unavailable. Therefore their systematic position remains unclear. For the same reason we refrain from describing a new species from a single female specimen collected in the Wolong Valley, in western Sichuan, even though the external characters suggest that this specimen could belong to a still undescribed taxon.

About *A. gongga* the describer wrote: “Le point le plus remarquable de la description de ce taxon est l’exacte similitude de son édage avec celui de *A. (T.) markamensis* sp.n., au point que l’on serait tenté de l’en tenir pour une simple sous-espèce. Cependant, *A. (T.) gongga* sp.n. est plus petit, ... Nonobstant les caractères de l’édage, la morphologie de ce nouveau taxon est si distincte de celle de *markamensis* qu’il est difficile de ne pas le considérer une espèce différente. Il faudra cependant le confirmer car il n’est pas impossible que des populations ‘transitionnelles’ soient découvertes dans l’avenir entre ces deux ‘espèces’ distantes de plus de 300 kilomètres” (DEUVE 1998). To confirm the opinion that these species sharing very similar aedeagi can be distinct, we can emphasize that also many species of the *queinneci* group show striking similarities in the aedeagi, while the external differences are rather evident. It seems that this group is a protagonist of a recent evolution, probably due to the difficult environmental conditions. The geographical barriers confining the distribution of these species isolate populations that in a relatively short time become genetically independent. At the elytral base there is a peculiar character shown by the species of *Tiruka*, perhaps important to demonstrate affinities of the genus *Amerizus* with other genera of Bembidiina. From the basal end of the scutellar striola to the basal end of stria 5, between the anterior margin of scutellum and the end of basal elytral margin, there is a transverse border, more or less raised, not distinctly margined but present in all species, and more developed in some (e.g. *A. davidales* sp.n.). There is a transverse depressed area connecting the basal beginning of each stria. In some specimens, it forms a transverse furrow. A similar structure is present in the anophthalmic Japanese genus *Caecidium* UENO, 1971 described as “transverse furrow on basal peduncle, the side border

seemingly terminating at the base of stria 7 though continuing inwards as an obtuse ridge to the base of scutellar striae" (UENO 1971). Although in the case of *Tiruka* the elytral border ends with a small hook in correspondance to the beginning of stria 5, not stria 7, this structure seems to be similar. Unfortunately during this study we were not able to study any specimens of genus *Caecidium* to confirm this hypothesis. The original drawing of the habitus and the aedeagus of the type species of *Caecidium* (*C. trechomorphum* UENO, 1971) and the original description of the aedeagus "Inner sac armed with two compact scale packets (LINDROTH's 1963 "brush") adjoining each other" (UENO 1971) are in our opinion corroborating a systematic relationship between these genera. These "packets" seem to correspond to the "kernel sclerite". Also the reduction of the eyes, extremely rare in the Bembidiina, is evident in a few species of *Amerizus* and certainly reaches its maximum development (absence of eyes) in *Caecidium*. Perhaps also *Caecidium* could be included in the transpacific complex of supraspecific groups probably strictly related to each other formed by *Amerizus* subg. *Amerizus* (North America), *Amerizus* subg. *Tiruka* (Nepal to southwestern China) and *Gnatholymnaeum* SHARP, 1903 (Hawaii).

In the Palaearctic species of genus *Bembidion* LATREILLE, 1802 the main groups of subgenera are divided, among other characters, by the position of the discal elytral pores: the subgenera of the *Bembidion* s.str. complex have discal elytral pores in the third interval, while the subgenera of *Ocydromus* CLAIRVILLE, 1806 complex have discal pores adjoining stria 3. Usually in the systematics of the Bembidiina the position of the discal elytral pores is thought to be a character with phylogenetic importance, but not necessarily in the generic diagnosis (TOLEDANO 2000). In case of *Amerizus*, even though the species of this genus share with the *Bembidion* s.str. complex the position of discal elytral pores, the remaining characters (external and genitalic) seem to suggest that this is a matter of convergence only. The species of *Sinechostictus* MOTSCHULSKY, 1864, as a rule, share with *Amerizus* the position of the discal elytral pores. There is also a marked similarity in the pronotal structure, which usually is regarded as important from the phylogenetic perspective in the Bembidiina. On the other hand, at present it is very hard to state whether both genera share a strict phylogenetic relationship. Confirmation by DNA studies is probably needed in order to take nomenclatural decisions in this matter.

Provisional key to the Chinese species of *Tiruka*

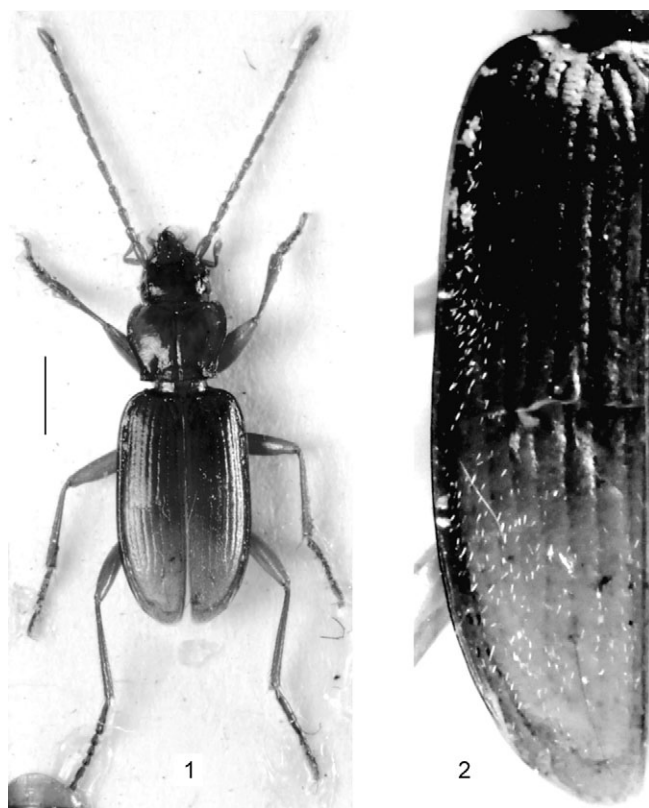
This is the first attempt to provide a key for the Chinese species of *Tiruka*, a need strongly felt by several colleagues in order to better understand this difficult group. This key is based mainly on the male genitalia. Some species showing similar male genitalia are very different from one another in habitus while other species show similar habitus with extremely different male genitalia. This complexity and the extreme polymorphism of some species does not allow us to build a more versatile key based mainly on external characters. Unfortunately the males of two species, *A. baxiensis* and *A. gologensis* are still unknown, therefore these species have not been included in the following key. For *A. barkamensis*, we include in the key only one of the three subspecies (*A. b. minshanensis*) because it is the only one we could examine. We have not been able to study any examples of the following three species, *A. maquensis*, *A. tiani* and *A. shatanicus*. Their inclusion in the key is based on characters used in the original descriptions.

- | | | |
|---|---|------------------------------|
| 1 | Elytra glabrous..... | 2 |
| – | Elytra completely covered with dense pubescence (Figs. 1, 2)..... | <i>schmidti</i> sp.n. |
| 2 | Inner sac of the aedeagus with kernel sclerite elongate or with additional sclerites (Figs. 28–35)... | 3 |
| – | Inner sac of the aedeagus showing only a normal kernel sclerite, more or less in the middle: (Figs. 19–27)..... | 9 |

- 3 Kernel sclerite with apical process elongate, almost parallel to the ventral margin of median lobe; large species (Figs. 17, 18, 33–35) 4
- Kernel sclerite rotated on its longitudinal axis, showing its dorsal surface, if seen from the left side of the median lobe; long and strongly sclerotized pack of scales apically to the kernel, as a rule parallel to the dorsal side of median lobe; species of varied size 5
- 4 Apex of median lobe elongate with ventral margin almost rectilinear. Kernel sclerite with apical process elongate together with small pack of scales (Figs. 17, 34, 35) **perraulti**
- Apex of median lobe arcuate, median lobe strongly widened at middle. Kernel sclerite with apical process triangular, elongate, pointed at apex; pack of scales not present (Figs. 18, 33) **hubeiensis**
- 5 Aedeagus with ventral margin almost rectilinear, then apex long, hooked. Pack of scales sinuate, “S-shaped” (Figs. 13, 30) **turnai**
- Apex of aedeagus not hooked, pack of scales more or less rectilinear 6
- 6 Species small (3.56–4.32 mm), pack of scales extending from the middle of aedeagus to its apical fifth, equidistant from ventral and dorsal margin (Figs. 16, 31) **farkaci sp.n.**
- Species with pack of scales diagonal, if not clearly diagonal, then less developed; larger species... 7
- 7 Aedeagus more arcuate, apex narrow, pack of scales longer and wider, extending more toward apex (Figs. 15, 32) **barkamensis minshanensis**
- Aedeagus less arcuate, apex, broader pack of scales shorter and extending less toward apex (Figs. 12, 14, 28, 29) 8
- 8 Elytra more oval, species less elongate; Sichuan, Gongga Shan, Shalui Shan (Figs. 14, 29) **gongga**
- Elytra slightly more elongate; E Tibet, Markam – Zogang road (Figs. 12, 28) **markamensis**
- 9 Sides of elytra markedly parallel; kernel sclerite with dorsal process elongate, narrow and pointed at apex (Figs. 10, 27) **lama sp.n.**
- Elytra more or less oval; kernel sclerite normal 10
- 10 Elytra depressed, eyes strongly reduced, smaller than temples 11
- Elytra convex, eyes less reduced 14
- 11 Pronotum less transverse ($Pw/Pl = 1.18$), elytral striae punctate **wrzecionkoi**
- Pronotum more transverse ($Pw/Pl = 1.27–1.28$), elytral striae only sulcate, punctures very faint.. 12
- 12 Smaller species (4.30–4.50 mm), ventral margin of aedeagus without median gibbosity 13
- Larger species (5.80 mm), ventral margin of aedeagus with median gibbosity (see DEUVE 2004: Fig. 14) (?) **maquensis**
- 13 Maximum elytral width behind middle; evident pronotal microsculpture in poorly transverse, convex sculpticells, median lobe of aedeagus less curved (Figs. 5, 21) **songpanensis**
- Maximum elytral width at the middle; superficial pronotal microsculpture in flat, transverse sculpticells, reduced or absent on disc; median lobe of aedeagus more curved (Figs. 7, 24) **wolongensis**
- 14 Small species (3.80–4.80 mm); median lobe of aedeagus as in Figs. 22, 23, 25; antennomere 1 red, 2 normally dark 15
- Larger species (4.98–5.30 mm); antennomeres 1–2 red; if smaller species (4.20–4.30 mm) then ventral margin of median lobe of aedeagus rectilinear, or shape of median lobe similar to the aedeagus of *perraulti* 16
- 15 Pronotum more elongate ($Pw/Pl = 1.20$) and sinuate at sides (Fig. 8); elytra shorter ($El/Ew = 1.42–1.43$); aedeagus (Fig. 25); Sichuan **panda sp.n.**

- Pronotum more transverse ($Pw/Pl = 1.24$) and less sinuate at sides (Figs. 6); elytra longer ($El/Ew = 1.50-1.60$); aedeagus (Figs. 22, 23); Yunnan *dauidales* sp.n.
- 16 Pronotum poorly sinuate at sides, maximum pronotal width at the anterior third (Figs. 3, 4) 17
- Pronotum strongly sinuate at sides (Fig. 10) 18
- 17 Body slender (Fig. 3), aedeagus (Fig. 19) *queinneci*
- Body wider (Fig. 4), aedeagus (Fig. 20) *mourzinei*
- 18 Aedeagus (Fig. 26) 19
- Aedeagus (see DEUVE 2004: Fig. 16) elongate, narrow, with maximum width near base and apex elongate and thin (external shape similar to the aedeagus of *perraulti*) (?) *tiani*
- 19 Ventral margin of aedeagus slightly curved (Figs. 9, 26) *puetzi* sp.n.
- Ventral margin of aedeagus rectilinear (see DEUVE 2004: Fig. 15) (?) *shatanicus*

Species groups: 1) *schmidtii* group (*schmidtii*); 2) *queinneci* group (*queinneci*, *mourzinei*, *songpanensis*, *dauidales*, *wolongensis*, *panda*, *puetzi*); 3) *lama* group (*lama*); 4) *markamensis* group (*markamensis*, *gongga*, *turnai*, *farkaci*, *markamensis*); 5) *hubeiensis* group (*hubeiensis*, *perraulti*).



Figs. 1–2: *Amerizus schmidtii* sp.n., holotype, 1) habitus, 2) detail of left elytron.

***Amerizus (Tiruka) schmidtii* sp.n.**
(Figs. 1, 2)

DIAGNOSIS: Large species (5.22 mm) markedly differing from the others in having completely pubescent elytra.

TYPE LOCALITY: China, Sichuan, Moxi, Luding County.

TYPE SERIES. Holotype ♂: "China, W-Sichuan, Moxi, Luding Co., 3000m, 20.5.1993" (CSRG).

DERIVATIO NOMINIS: The name of this species is dedicated to our dear friend Joachim Schmidt (Rostock, Germany), well known specialist of Carabidae from Himalaya, who kindly gave us the type specimen for description.

DESCRIPTION: Size large (length 5.22 mm), body reddish with head slightly darker.

Head wide, convex, with frontal sulci linear, superficial and smooth. Mandibles straight and rather long, eyes very small and flat, tempora slightly convex. Antennae elongate (TI/Al = 1.48).

Pronotum slightly transverse (Pw/Pl = 1.2), slightly constricted posteriorly; sides slightly sinuate before posterior angles; anterior angles evidently projecting forward, posterior angles large and square. Lateral gutter very wide and deep, well defined throughout; basal impression large, not very deep, rounded, almost impunctate, but wrinkled; median line deep and evident. El/Pl = 2.83, Ew/Pw = 1.33.

Elytra elongate (El/Ew = 1.77), parallel-sided and depressed, humeri rather square. Lateral margin slightly "hooked" at its basal end. Striae rather deep, evidently punctate, depth of punctures constant throughout length of striae, all striae reaching apex. Two discal pores in the third interval bearing very long setae.

Legs long and slender.

Microsculpture evident, with transverse sculpticells on elytra producing a strong iridescence; pronotum with microsculpture absent from disc, superficial laterally and present in scattered transverse sculpticells; head and neck with isodiametric sculpticells.

AFFINITIES: Unfortunately the holotype lacks the genitalia, perhaps because in the past a specialist unknown to us dissected it. For this reason it is impossible to state affinities with the other species of *Amerizus*. Its isolated position in an independent species group will require confirmation.

SYSTEMATIC NOTES: Elytral pubescence in Bembidiina is rarely developed. The maximum development of this character is present in the species of the genus *Asaphidion* GOZIS, 1886, where it is one of the main characters in the generic diagnosis. In the genus *Asaphidion* the completely pubescent elytra are associated with another important external character, the almost complete absence of elytral striae. In very few other species of Bembidiina this character is present, even though not so developed as in *Asaphidion* and never associated with the absence of elytral striae. Elytral setae as short as in *Asaphidion* but not so abundant can be seen in *Bembidion constricticollae* HAYWARD, 1897 a species from North America, where the supernumerary setae are present also on head and pronotum (as in the genus *Asaphidion*). Long supernumerary setae on the elytra only are present in a very few other species of the tribe: *Bembidion (Hydrium) levigatum* SAY, 1823, *B. (Hydriomicrus) semistriatum* (HALDEMAN, 1843), *B. (Antiperyphus) hirtipes* (JEANNEL, 1962). However, presence of these setae does not necessarily have a supraspecific value. For example, while *B. levigatum* is the only species of its subgenus, for *B. (Hydriomicrus) semistriatum* this character has been regarded as only specific (LINDROTH 1963), since all the remaining species of the subgenus *Hydriomicrus* CASEY, 1918 lack the supernumerary setae. The development of the elytral pubescence shown by *A. schmidtii*,

among the species mentioned above, resembles that of the elytra of *B. constricticollis*. The male genitalia of this last species seem to suggest systematic relationships with *B. nudipenne* LINDROTH, 1963, a species completely lacking this pubescence. For this reason, combined with the fact that the male genital armature of this species is unknown, we refrain from describing a new subgenus for *A. schmidtii* suspecting that also in the case of the species dealt with here the apomorphy could be due to a simple genetic mutation.

***Amerizus (Tiruka) queinneci* DEUVE, 1998**
(Figs. 3, 19)

MATERIAL EXAMINED: 2 ♂♂, China, N Sichuan, Zhangla 4700 m, 10.VII.1991 (NHMB, CSMI); 1 ♀ “cfr. *queinneci*”, China, W Sichuan, Dandò, 26.–28.VI.2005 (CBUL).

TAXONOMIC REMARKS: The type series of this species consisted of four specimens collected in southern Gansu and northern Sichuan. The two specimens we examined correspond perfectly to the original description and show that this species is rather widely distributed in the area, where it is sympatric with *A. perraulti*, *A. songpanensis* and *A. mourzine*.

***Amerizus (Tiruka) mourzine* DEUVE, 1998**
(Figs. 4, 20)

MATERIAL EXAMINED: 1 ♂, China, N Sichuan, 30 km W Nanping, Jiuzhaigou, 3100 m, 13–15.VI.1992 (CSMI).

MALE GENITALIA: Median lobe of aedeagus (Fig. 20) rather small, markedly arcuate in lateral view, inferior margin discontinuously curved; kernel sclerite rather large but stout, made up of a complex structure reaching middle, without groups of scales.

TAXONOMIC REMARKS: This species was known only from a female specimen from the same locality; we can now illustrate the aedeagus, pointing out that also this species has the inner sac of the aedeagus without groups of scales, and therefore belongs to the *queinneci* species group.

***Amerizus (Tiruka) songpanensis* DEUVE, 1998**
(Figs. 5, 21)

MATERIAL EXAMINED: 1 ♂, China, Sichuan, 50 km ENE Songpan, 3500 m, 19.VI.1992 (CTVR).

TAXONOMIC REMARKS: The type series of this species was composed of two specimens collected in the same locality as our one, but 500 m higher. Our specimen corresponds very well to the original description. Also in this species the inner sac of the aedeagus lacks groups of scales.

***Amerizus (Tiruka) davidales* sp.n.**
(Figs. 6, 22, 23)

DIAGNOSIS: A *Tiruka* of the *queinneci* group from Yunnan of small size (3.96–4.80 mm), dark brown, with legs and antennae short and robust, pronotum short and wide, with sides slightly sinuate, constricted and basal angles right.

TYPE LOCALITY: China (N Yunnan) Zhongdian County, 55 km N Zhongdian, 28°19.8'N 99°45.7'E, 3800 m.

TYPE SERIES: Holotype ♂ “China (N-Yunnan) Zhongdian Co., 55 km N Zhongdian, 28°19.8'N/99°45.7'E, 3800m (primary mixed forest, Rhodod., dead wood, leaf litter, mushrooms, moss) 18.VIII.2003 (07)” (CWBE). Paratypes:

17 ♂♂, 18 ♀♀, same date and locality as the holotype (CWBE, CTVR, CSMI, NMW); 1 ♂, "China (N-Yunnan) Zhongdian Co. 51 km SSE Zhongdian, 2970m, 27°25.3'N/99°56.5'E, (creek valley, mixed conif. forest with shrubby veget., bamboo), 16.VIII.2003, (04)" (CWBE); 1 ♂, 1 ♀, "China (N-Yunnan) Diqing Tibet Aut. Pref., Zhongdian Co., Xue Shan, 23 km S Zhongdian, 3675–3725m, 27°36.3'N/99°41.5'E, (devast. mixed forest, under stones /dead wood) 2.VI.2005 (02)" (CWBE); 4 ♂♂, 1 ♀, "China (N-Yunnan) Diqing Tibet Aut. Pref., Zhongdian Co., Xue Shan, 23 km S Zhongdian, 3675–3725m, 27°36.3'N/99°41.5'E, (devast. mixed forest, sifted from leaf litter /dead wood) 2.VI.2005 (02)" (CWBE); 3 ♂♂, 2 ♀♀, "China (N-Yunnan) Diqing Tibet Aut. Pref., Zhongdian Co., Xue Shan, near lake 23 km S Zhongdian, 3895m, 27°37.1'N/99°38.5'E (devast. mixed forest under/in dead wood) 5.6.15.VI.2005 (05)" (CWBE); 1 ♂, "China (N-Yunnan) Diqing Tibet Aut. Pref., Zhongdian Co., Xue Shan, near lake 23 km S Zhongdian, 3895m, 27°37.1'N/99°38.5'E (devast. mixed forest, sifted from leaf litter, dead wood) 5.VI.2005 (05)" (CWBE); 1 ♂, "China: N-Yunnan Diqing Tibet Aut. Pr., Zhongdian Co., Xue Shan, near lake 23 km S Zhongdian, 27°37.1'N 99°38.5'E, 3895m, 15.VI.2005 (C161)" (CASO); 2 ♀♀, "China (N-Yunnan) Diqing Tibet Aut. Pref., Zhongdian Co., Xue Shan, near lake 23 km S Zhongdian, 3895m, 27°37.1'N/99°38.5'E (alp. pasture with Azalea, under plants, stones, dry dung) 5.6.15.VI.2005 (05A)" (CWBE); 1 ♂, 2 ♀♀, "China (N-Yunnan) Diqing Tibet Aut. Pref., Zhongdian Co., Xue Shan, near lake 23 km S Zhongdian, 3895m, 27°37.1'N/99°38.5'E (devastated mixed forest, meadows, lake border, sifted from leaf litter, dead wood) 6.VI.2005 (05A)" (CWBE); 1 ♂, 3 ♀♀, "China (N-Yunnan) Diqing Tibet Aut. Pref., Zhongdian Co., Xue Shan, near lake 23 km S Zhongdian, 3895m, 27°37.1'N/99°38.5'E (devastated mixed forest, meadows, lake border, sifted from leaf litter, dead wood) 15.VI.2005 (05B)" (CWBE); 1 ♀, "China (N-Yunnan) Diqing Tibet Aut. Pref., Zhongdian Co., Xue Shan, near lake 23 km S Zhongdian, 3895m, 27°37.1'N/99°38.5'E (devastated mixed forest, meadows, pitfall traps, vinegar) 6.15.VI.2005 (05F)" (CWBE); 7 ♂♂, "China: N-Yunnan Diqing Tibet Aut. Pr. Zhongdian Co. Xue Shan, 23km S Zhongdian 27°38.3'N 99°41.5'E 3675–3725m 2.VI.2005 (C149)" (CASO); 3 ♂♂, 5 ♀♀, "China (N-Yunnan) Zhongdian Co., 36km ESE Zhongdian, 3500–3550m, 27°40.9'N/100°01.5'E (overgrown rock hillside with old mixed forest, bamboo, dead wood, leaf litter) 23./24.VIII.2003 (13)" (CWBE); 6 ♂♂, 1 ♀, "China (N-Yunnan) Zhongdian Co., 36km ESE Zhongdian, 3500–3550m, 27°40.9'N/100°01.5'E (overgrown rock hillside with old mixed forest, bamboo, dead wood, leaf litter) 23.VIII.2003 (13)" (CWBE); 7 ♂♂, 2 ♀♀, "China: N-Yunnan Zhongdian Co. 36 km ESE Zhongdian, 27°40.9'N 100°01.5'E, 3500–3550m 23.VIII.2003 (C133)" (CASO); 1 ♂, "China (N-Yunnan) Diqing Tibet Aut. Pref., Zhongdian Co., Bitai Hai Lake area, 29 km ESE Zhongdian, 3540m, 27°43.65'N/99°58.97'E (creek vall., devast. mixed forest, litter, moss, dead wood) 1.VI.2005 (01)" (CWBE); 2 ♀♀, "China (N-Yunnan) Diqing Tibet Aut. Pref., Zhongdian Co., Bitai Hai Lake area, 29 km ESE Zhongdian, 3540m, 27°43.65'N/99°58.97'E (creek vall., devast. mixed forest, litter, moss, dead wood) 1.VI.2005 (01)" (CWBE); 4 ♂♂, 7 ♀♀, "China: N-Yunnan Zhongdian Co. pass 28 km ESE Zhongdian, 27°43.9'N 99°58.2'E, 3700–3750m, 22.VIII.2003 (C131)" (CASO); 11 ♂♂, 14 ♀♀ "China (N-Yunnan) Zhongdian Co., pass 28 km ESE Zhongdian 3700 3750m, 27°43.9'N/99°58.2'E (devastated prim. forest with young Abies, Larix, Betula, Rhodod.) 22.VIII.2003 (12)" (CWBE, CTVR, CSMI, NMW); 2 ♂♂, 3 ♀♀, "China (N-Yunnan) Zhongdian Co., Xue Shan, 10 km SW Zhongdian, 3700–3800m, 27°46.5'N/99°36.5'E (primary mixed forest, leaf litter sifted) 20.VIII.2003 (10A)" (CWBE); 6 ♂♂, 3 ♀♀, "China: N-Yunnan Zhongdian Co. 10 km SW Zhongdian, Xue Shan, 27°46.5'N 99°36.5'E 3800m, 20.VIII.2003 (C129)" (CASO, CTVR, CSMI); 1 ♂, 3 ♀♀, "China: N Yunnan Xue Shan nr. Zhongdian, 4200m, 23.VI.1996, 27°49'N 99°34'E, C37" (CASO); 1 ♂, "China: N Yunnan Xue Shan nr. Zhongdian, 4050m, 24.VI.1996, 27°49'N 99°34'E, C39" (CASO); 1 ♀, "China: N Yunnan Xue Shan nr. Zhongdian, 4050m, 24.VI.1996, 27°49'N 99°34'E, C40" (CASO); 14 ♂♂, 11 ♀♀, "China: N Yunnan Xue Shan nr. Zhongdian, 3900m, 25.VI.1996, 27°49'N 99°34'E, C41" (CASO, CTVR, CSMI, NMW); 2 ♀♀, "China: N Yunnan Xue Shan nr. Zhongdian, 3800m, 26.VI.1996, 27°49'N 99°34'E, C43" (CASO); 1 ♂, 1 ♀, "China: N-Yunnan Zhongdian Co. 55km N Zhongdian 28°19.8'N 99°45.7'E, 3800m 18.VIII.2003 (C127)" (CASO); 3 ♂♂, 5 ♀♀, "China: N-Yunnan, Xue Shan nr. Zhongdian, 4000m 24-26.VI.1996, 27°49'N 99°34'E" (NHMB, CTVR, CSMI); 1 ♀, "N-Yunnan 23.VI.1994, 27.49'N 99.34'E, 4200-4700m, mts. 15 km W of Zhongdian" (CSMI); 1 ♂, 1 ♀, "China, 3500m, 10.-13.7.1994, NW Yunnan / SW Sichuan border aerea (sic!), road Xiangcheng-Zhongdian, pass 35 km S Xiangcheng, (15 km N Wengshui) alpine reg. and reg. Picea forest" (CSMI).

DERIVATIO NOMINIS: The name of this species is dedicated to our dear friends David Wrase (Berlin), one of the world's most competent Carabidae specialists, and Aleš Smetana (Agriculture and Agri-Food Canada Biodiversity, Ottawa), a leading authority on Staphylinidae. The name derives from the fusion of their given names.

DESCRIPTION: Size small (length 3.96–4.80 mm), colour dark brown; in some specimens elytral suture and borders and pronotal borders reddish-brown; legs reddish brown, antennae piceous to brown, only antennomere 1 red and 11 lighter at the apex.

Head wide, convex, with frontal sulci linear, deep and wrinkled. Some wrinkles extending to the median, convex part of frons between sulci. Mandibles straight but relatively short, eyes rather small and flat, tempora slightly convex. Antennomeres very short ($TI/Al = 2.06-2.14$).

Pronotum transverse ($Pw/Pl = 1.24$) and convex, slightly constricted posteriorly; sides only slightly sinuate before posterior angles; anterior angles very slightly projecting forward, posterior angles small and right, slightly obtuse in few paratypes. Lateral gutter narrow, well-defined all along its length; basal foveae not very deep, rounded, almost impunctate but wrinkled in some specimens, punctate in the others; median line deep and clearly evident. $El/Pl = 2.54-2.59$, $Ew/Pw = 1.31-1.37$.

Elytra oval, short ($El/Ew = 1.50-1.60$), rather wide at base and rounded at sides, humeri relatively square. Striae rather deep, almost impunctate, progressively more superficial in the apical third. Two discal elytral pores in the third interval.

Legs rather short and stout.

Microsculpture in transverse, narrow and flat sculpticells giving to elytra and pronotum a marked iridescence, more superficial, in some specimens absent, on the pronotal disc. Isodiametric, very convex sculpticells on the entire head.

Male genitalia. Median lobe of aedeagus (Figs. 22, 23) rather small, markedly arcuate in lateral view, ventral margin evidently angulate in some specimens (Fig. 22, holotype), discontinuously curved in the others (Fig. 23).

INTRASPECIFIC VARIABILITY: The abundant type series of *A. davidales* includes specimens of two distinct forms. The form "a" (Fig. 6), which includes the holotype, is slightly more slender, lighter in colour and has the pronotal base wrinkled, not punctured. More frequently the second antennomere is red. Its aedeagus is slightly angulate (Fig. 22). In the form "b" the body is slightly broader, darker and the pronotal base is punctured. The second antennomere as a rule is dark. The aedeagus of the form "b" (Fig. 23) is discontinuously curved. The presence of intermediate specimens in the type series (body "a" and aedeagus "b" and vice versa) does not allow us to describe two distinct taxa, even though we suspect that the intermediate forms could be referred to as hybrid specimens.

AFFINITIES: This species resembles, in overall structure of body, the small species like *A. markamensis* DEUVE, 1998, but the absence of scales in the inner sac of the aedeagus seems to indicate an isolated position.

***Amerizus (Tiruka) wolongensis* DEUVE, 2002**
(Figs. 7, 24)

MATERIAL EXAMINED. 4 ♂♂, China W-Sichuan, Aba Tibetan Aut. Pref. Weizhou Co., Qionglai Shan, Wolong Valley, 69 km WSW Guanxian, 3900 m, 30°53'67"N 102°54'67"E, 15.VII.1999 (CWBE, CPUE, CTVR); 8 ♂♂, 7 ♀♀, China, C-Sichuan, Jintang, Jiajin Shan 4200 m, N 30°22'45" E 102°16'64", 6.VII.2001 (CJPH, CTVR, CSMI); 1 ♂, China, N-Sichuan, pass Zhangla – Nanping, 22.VI.1996, 4000 m (CJPH); 2 ♂♂, China – Sichuan, Jitiang, 3.VII.–14.VII.2001 (CKSB, CTVR); 1 ♂, China, C-Sichuan (Wenchuan), Jinding Shan, 31°25'60N 103°40'98E, 3200 m, 4.VII.2000 (CTVR).

BIOGEOGRAPHIC NOTE: This species was known from the type series collected on Qionglai Shan, between Wolong and Kiaoljn. These new records extend its distribution about 200 km eastward.

TAXONOMIC REMARKS: The similarity of the aedeagi in the *queinneci* group seems to suggest that the species of this group share a common ancestor. Among the species of this group,

A. wolongensis seems to belong, together with *A. songpanensis* to a subgroup characterized by relatively flat elytra.

***Amerizus (Tiruka) panda* sp.n.**
(Figs. 8, 25)

DIAGNOSIS: A very small *Tiruka* from Western Sichuan of the *queinneci* group with oval and strongly convex elytra and very convex pronotum.

TYPE LOCALITY: China, Western Sichuan, Qionglai Shan, Wolong valley, 69 km WSW Guanxian, 3500 m, 30.53.57N 102.58.63E.

TYPE SERIES: Holotype ♂, "China: W-Sichuan, Aba Tibetan Aut. Pref. Weizhou Co., Qionglai Shan, Wolong valley, 69 km WSW Guanxian, 3500m, 30.53.57N, 102.58.63E, 15.VII.1999, mix. forest sifting" (CPUE). Paratype ♀, "China W.Sichuan, Aba Tibet. Aut. Pref., Weizhou Co., Qionglai Shan, Wolong valley, 69 km WSW Dujiangyan, 3500m, 30°54'N/102°59'E (mix. forest) 15.VII.1999" (CWBE).

DERIVATIO NOMINIS: The specific epithet is chosen because the new species was collected in the habitat of *Bembidion (Bembidromus) panda* TOLEDANO, 2000 in the Wolong valley, Sichuan, home to the Giant Panda, *Ailuropoda melanoleuca* DAVID, 1869.

DESCRIPTION: Size very small (length 3.80 mm), body entirely dark brown, except for clypeus and labrum, which are reddish; legs reddish brown, antennomere 1 red, 2–4 piceous, 5–10 progressively lighter, 11 reddish.

Head very wide, convex, with frontal sulci linear, rather deep and impunctate. Mandibles straight and long, eyes small and relatively convex, tempora very convex. Antennomeres very short, almost moniliform ($TI/Al = 2.02$).

Pronotum evidently transverse ($Pw/Pl = 1.20$), strongly constricted posteriorly; sides very slightly sinuate before posterior angles; anterior angles not projecting forward, posterior angles small, right and sharp. Lateral gutter narrow; basal foveae almost triangular, not deep, base sparsely but deeply punctate; median line not deep but evident. $El/Pl = 2.36$, $Ew/Pw = 1.37$.

Elytra oval, short ($El/Ew = 1.42$), very convex, strongly rounded at sides, humeri rounded. Striae deeply punctate, more superficial in the basal half. Two discal elytral pores in the third interval.

Legs rather long and slender.

Microsculpture evident, here and there on elytra and pronotum in very narrow and sharp transverse sculpticells, with strong iridescence. Head with coarse, isodiametric microsculpture with convex sculpticells.

Male genitalia. Median lobe of aedeagus (Fig. 25) small, slightly arcuate in lateral view, inferior margin discontinuously curved; kernel sclerite rather large and stout.

AFFINITIES: Within the *queinneci* group this species seems rather isolated because of its strongly convex body and the elytral striae being punctate and not sulcate.

***Amerizus (Tiruka) puetzi* sp.n.**
(Figs. 9, 26)

DIAGNOSIS: A relatively large species (about 5 mm) of *Tiruka* from western Sichuan, of the *queinneci* group with oval, convex elytra; systematically near *shatanicus*, but with median lobe of aedeagus slightly more curved than in the latter.

TYPE LOCALITY: China, Western Sichuan, Yajiang County, Shalui Shan, 32 km WNW Yajiang, 4300 m, 30°08'N 100°42'E.

TYPE SERIES: Holotype ♂, "China: W-Sichuan, Ganzi Tibet, Aut. Pref. Yajiang Co., Shalui Shan, Waldrest [forest remnant] 32 km WNW Yajiang, 4300m, 30°08'N, 100°42'E, Nadelstreu, 4.VII.1999" (CWBE). Paratypes: 2 ♂♂, 1 ♀, "China, prov. Sichuan, Ganzi Tibetan Auton. Pref., Yajiang Co., Shalui Shan, 32 km WNW Yajiang, 4300m, 30.08.07N, 100.42.36E, 2.VII.1999" (CWBE, CPUE, CTVR).

DERIVATIO NOMINIS: The name of this species is dedicated to our friend Andreas Pütz of Eisenhüttenstadt, well known specialist of Byrrhidae.

DESCRIPTION: Medium sized (length 4.98–5.04 mm), colour dark brown; legs and antennae reddish brown.

Head wide, convex, with frontal sulci linear, rather deep, uneven and rugose. Mandibles straight and long, eyes relatively wide, if compared with the other species of subg. *Tiruka*, and flat, tempora short and convex. Antennomeres relatively elongate ($TI/Al = 1.83-2.03$).

Pronotum large, slightly transverse ($Pw/Pl = 1.17-1.21$), slightly constricted posteriorly; sides sinuate before posterior angles; anterior angles not projecting forward, posterior angles right-angled or subacute, sharp. Lateral gutter rather wide, narrowing in the anterior third; basal foveae wide, rather deep, rounded, deeply punctate; median line deep and clearly evident. $El/Pl = 2.57-2.58$, $Ew/Pw = 1.41-1.49$.

Elytra ovate ($El/Ew = 1.51-1.52$), very convex, humeri rounded. Striae deeply punctate-sulcate, more superficial in the apical third. Two discal elytral pores in the third interval.

Legs rather long and slender.

Microsculpture in very fine, transverse rows of sculpticells on elytra and pronotum, absent from pronotal disc. Some strong iridescence here and there on elytra and pronotum. Head with evident, convex isodiametric microcells.

Male genitalia. Median lobe of aedeagus (Fig. 26) relatively small in respect to the body side, slightly arcuate in lateral view; kernel sclerite relatively small.

AFFINITIES: According to the description of *A. shatanicus* (DEUVE 2004), *A. puetzi* seems very closely related with this species, possibly a subspecies of it.

***Amerizus (Tiruka) lama* sp.n.**
(Figs. 10, 27)

DIAGNOSIS: A dark, medium sized Tibetan *Tiruka* (5.40 mm) of the *queinneci* group, characterized by a narrow body, with feebly ovate elytra and striae deeply punctured, almost crenate. Pronotum with sides feebly and briefly sinuate before the hind angles, which are slightly obtuse. Median lobe of aedeagus rather small, slightly arcuate in lateral view; kernel sclerite with a long and narrow process pointed at apex.

TYPE LOCALITY: China, Tibet, Mt. Namchawarwa, 4400 m.

TYPE SERIES: Holotype ♂, "China, Tibet, Mt. Namchawarwa, 4400 m, VI.1998" (CFKP).

DERIVATIO NOMINIS: The name of this species refers to Buddhist monks.

DESCRIPTION: Medium sized (length 5.40 mm), colour dark brown; legs reddish brown, antennae blackish, only antennomere 1 reddish-brown and 11 lighter at the apex.

Head wide, convex, with frontal sulci short, linear, rather deep and impunctate. Mandibles straight and long, eyes rather small and convex, tempora very long and slightly convex. Antennomeres rather elongate ($TI/Al = 2.13$).

Pronotum slightly transverse ($Pw/Pl = 1.20$), slightly constricted posteriorly; sides very slightly sinuate before posterior angles; anterior angles not projecting forward, posterior angles obtuse but sharp. Lateral gutter rather wide, narrowing and almost disappearing in the anterior third; basal impression rather small, deep, rounded, sparsely but deeply punctate; median line deep and clearly evident. Basal foveae round, deep, punctate. $El/Pl = 2.80$, $Ew/Pw = 1.40$.

Elytra long ($El/Ew = 1.67$), very convex, very slightly rounded at sides, almost parallel-sided, humeri rounded. Striae deeply punctate-sulcate, of constant depth in the anterior two-thirds, then progressively obliterated. Two discal elytral pores in the third interval.

Microsculpture with transverse, narrow sculpticells in places on elytra and pronotum, superficial, giving strong iridescence to elytra and pronotum. Microsculpture isodiametric almost absent on head.

Legs rather long and slender.

Male genitalia. Median lobe of aedeagus (Fig. 27) rather small, slightly arcuate in lateral view, inferior margin discontinuously curved; kernel sclerite with a dorsal process elongate, narrow and pointed which in the other Chinese species, except for the *hubeiensis* species group, is short and blunt. Apically to the kernel sclerite, some membranes of the inner sac showing small scales, are more developed than in the other Chinese species of subgenus *Tiruka*.

AFFINITIES: This middle-sized species, markedly more elongate and slender than all the other known species, does not seem to have close relatives among the currently known Chinese species of the subgenus. Also the peculiar development of the dorsal process of the kernel sclerite and of the apical pack of membranes is unusual within the Chinese species of *Tiruka* at present known to us.

***Amerizus (Tiruka) markamensis* DEUVE, 1998**
(Figs. 12, 28)

MATERIAL EXAMINED: 1 ♂, paratype, E Tibet, "Lao Shan" pass, road Markam-Zogang 10 km W Markam, 4300m, 29°42'N, 99°32'E, alpine meadow, 27.–28.VI.1997 (CTVR); 6 ♂♂, 9 ♀♀, China, E Tibet, Kaquila, 150 km E of Chamdo, 4600–5000 m, 22.–24.VI.1997 (CTVR, CSMI).

TAXONOMIC REMARKS: This species was described from 14 specimens collected in two localities of eastern Tibet, but the author affirms that he knows it from various localities near Markam as well as from the Kaqi La Pass, although these specimens are not included in the type series. We have examined abundant material from the Kaqi La Pass, ascertaining that they perfectly correspond to the original description.

***Amerizus (Tiruka) gongga* DEUVE, 1998**
(Figs. 14, 29)

MATERIAL EXAMINED: 1 ♂, China, W Sichuan (Ganzi Tibet Aut. Pref., Yajiang Co.), Shalui Shan, 20 km W Yajiang, 4250 m (brook cleft, alp. meadow), 30 01'N 100 41'E, 2.VII.1999" (CWBE).

MALE GENITALIA: Basal opening of median lobe very small. Pack of scales slightly bigger than in *A. markamensis*.

TAXONOMIC REMARKS: This species was described from a single male specimen collected on Gongga Shan. The specimen here mentioned, almost completely agreeing in all characters with the original description (being only slightly larger in size), shows that its distribution is not limited to the Gongga Shan, as hypothesized by DEUVE (1998) (see above), but it extends through a large part of western Sichuan, where it is sympatric with *A. perraulti*. The similarity of the male genitalia of this species with those of *A. markamensis* were described by DEUVE (1998) as “exacte similitude”. The specimen we were able to study shows the pack of scales of the inner sac in a slightly more basal and dorsal position, but we think that this does not have systematic importance, since it could also be an artifact due to the preparation of the slide. For the other aspects of habitus and male genitalia it seems to match with the original description (DEUVE 1998).

***Amerizus (Tiruka) turnai* DEUVE, 1998**
(Figs. 13, 30)

MATERIAL EXAMINED: 1 ♀, paratype, E Tibet, road Toba – Jomda, pass 50 km E Toba, 31°19'N, 98°05'E, 4200m, alpine meadow, 17.VII.1997 (CTVR); 1 ♂, China, E Tibet, road Toba – Yomda, pass 50 km E of Toba, 31°19'N 98°05'E, 4200 m (alpine meadow), 17.VII.1997 (CTVR).

In Tibet only four species are currently known, including one described herein (*A. lama*), but we do not know any case of ascertained sympatry, although the known localities of some species are rather close to each other.

***Amerizus (Tiruka) farkaci* sp.n.**
(Figs. 16, 31)

DIAGNOSIS: A species of the *markamensis* group of small size (3.56–4.32 mm), dark brown, with legs and antennae short and robust, pronotum short, wide and constricted posteriorly, basal angles right.

TYPE LOCALITY: Cina, Sichuan, Gongga Shan, Hailuogou, 2900–3200 m, 29°35'N 102°00'E.

TYPE SERIES: Holotype ♂, “CHINA Sichuan, Gongga Shan, Hailuogou, above Camp 3, 3200m, 7.VII.96, 29°35'N 102°00'E” (CTVR). Paratypes: 5 ♀♀, same date and locality as the holotype (CASO, CSMI, CTVR, NMW); 1 ♂, “W Sichuan 3–6.VII.1994, 29.35N 102.00E 2900–3200m, Gonggashan, Hailuogou” (CSMI).

DERIVATIO NOMINIS: The name of this species is dedicated to our friend Jan Farkač (Prague), excellent collector and specialist of various groups of Carabidae.

DESCRIPTION: Size small (length 3.56–4.32mm), colour dark brown; legs and antennae reddish brown. In few paratypes antennomeres 2–10 darkened. Antennomere 1 always red.

Head wide, convex, with frontal sulci linear, deep and impunctate. Mandibles straight, eyes relatively large and convex, tempora long and slightly convex. Antennae short ($TI/Al = 2.07–2.10$).

Pronotum markedly transverse ($Pw/Pl = 1.24–1.26$), very wide in anterior half, markedly constricted posteriorly; sides sinuate before posterior angles; anterior angles not projecting forward, posterior angles right-angled and sharp. Lateral gutter rather wide, well defined throughout its length; basal foveae large, deep, rounded, sparsely but deeply punctate; median line deep and clearly evident. $El/Pl = 2.58–2.61$, $Ew/Pw = 1.41–1.42$.

Elytra rather short ($El/Ew = 1.45–1.47$), oval, humeri rounded, maximum width slightly behind middle. Striae rather finely punctate-sulcate, progressively evanescent toward sides and apex. Two discal elytral pores in the third interval. In a paratype ♂ from Gonggashan, Hailuogou,

Western Sichuan, 29°35'N, 102°00'E, 2900–3200 m (CSMI) there are three discal elytral pores on each elytron on the third interval.

Legs very short and stout.

Microsculpture evident, with transverse sculpticells on elytra producing a strong iridescence; pronotum with microsculpture absent from disc, superficial laterally and present in scattered transverse sculpticells; head and neck with isodiametric sculpticells.

Male genitalia. Median lobe of aedeagus (Fig. 31) rather short and stout, internal sac with two large basal sclerites and a group of long, thin spines reaching the two-thirds of length of the median lobe.

AFFINITIES: This species shares with *A. markamensis* the small size, robust shape and short and stout appendages. From the other species it can be immediately recognized by having the pronotum markedly constricted posteriorly and sinuate before the basal angles and the internal sac of aedeagus with a bunch of long, thin spines almost in the middle.

***Amerizus (Tiruka) barkamensis minshanensis* DEUVE, 2004**
(Figs. 15, 32)

MATERIAL EXAMINED: 1 ♂, China, Gansu, 70 km W Wudu, 1800–2600 m, 2.VI.1997 (CTVR).

TAXONOMIC REMARKS: This species shares with *T. perraulti* the large size, slender shape and elongate and slender appendages. Median lobe of aedeagus (Fig. 32) rather long and slender, internal sac with two large basal sclerites and a group of long, thin spines almost reaching the tip of the median lobe.

***Amerizus (Tiruka) hubeiensis* DEUVE, 2002**
(Figs. 18, 33)

MATERIAL EXAMINED: 1 ♂, China, W-Hubei 10.–14.VI.2002, Dashennongjia mts., 31.5N 100.3E, 2100–2900 m (CTVR); 1 ♀, China, W-Hubei 23.VI.–14.VII.2003, Dashennongjia mts., 31.5N 100.3E, 2500–2900m (CTVR).

MALE GENITALIA (Fig. 33): Median lobe of aedeagus long, strongly arcuate, with kernel sclerite showing apicoventral process more flat than in *A. perraulti*, pointed near apex, lacking the pack of scales.

TAXONOMIC REMARKS: Certainly closely related with *A. perraulti* as shown by the external similarities (body large and elongate), and by the male genitalia, sharing the presence of the apicoventral process but lacking the pack of scales.

***Amerizus (Tiruka) perraulti* DEUVE, 1998**
(Figs. 17, 34, 35)

MATERIAL EXAMINED: 1 ♂, China, N Sichuan, (Nanping) Jiuzhaigou, virgin forest 3100 m, 15.VII.1992 (CCAS); 1 ♂, China, N Sichuan, Zhangla env., 4200–4700 m, 9.–11.VII.1991 (CSMI); 1 ♀, China, NW Sichuan, road Garzé – Barong, pass 25 km S Garzé, 4000 m, 8.–10.VII.1995 (CSMI); 1 ♀, China, NW Sichuan, 10 km SW Maniganggo, 3800 m, mixed forest, 19.VII.1995 (CSR); 1 ♂, China, W Sichuan, road Luhuo – Sertar, 20 km N Luhuo, 3800 m, mixed forest, 21.VII.1997 (CTVR); 1 ♂, China, Sichuan, Emei Shan, Jioyin 2500 m, 29°32'N 103°21'E, 17.–19.VII.1996 (NHMB); 1 ♂, 1 ♀, China Sichuan, Gongga Shan, Hailuogou, above Camp 3, 3000 m, 6.VII.1996 (CFKP); 1 ♀, China, W Sichuan, Gongga Shan, Hailuogou, 2900–3200 m, 3.–6.VII.1994 (CSMI); 1 ♀, China (W Sichuan), Daxue Shan, W env. Kanding, 2600–2700 m, 30°03'N 101°57'E, 22.–24.V.1997 (CWBE); 2 ♂♂, 1 ♀, China, Sichuan, Ganzi Pref., Daxue Shan, 102°00'E, 30°03'N, 5 km E Kangding, river valley, ca. 3000 m, 20.–23.V.1997 (CPUE, CTVR); 2 ♀♀, China W.Sichuan, Aba Tibet. Aut. Pref., Weizhou Co.) Qionglai Shan, Wolong valley, 69 km WSW Dujiangyan, 3500 m, 30°54'N 102°59'E (mix. forest) 15.VII.1999 (CWBE, CTVR); 2 ♀♀, China, W Sichuan (Aba Tibet Aut. Pref., Weizhou Co.), Qionglai Shan, Wolong valley, 69 km WSW

Dujiangyan, 3500 m, 30°54'N 102°59'E (mix. forest), 15.VII.1999 (CWBE); 1 ♀, China W-Sichuan, Aba Tibetan Aut. Pref. Weizhou Co., Qionglai Shan, Wolong Valley, 69 km WSW Guanxian, 3900 m, 30°53'67"N 102°54'67"E, 15.VII.1999 (CPUE); 2 ♂♂, 2 ♀♀, China, W Sichuan (Ya'an. Pref., Tianquan Co.), E Erlang Shan Pass, 2900 m, 9 km SE Luding, 29°52'N 102°18'E (brook bank), 20.–22.VI.1999 (CWBE, CTVR, CSMI); 1 ♀, China, W Sichuan, Luding Co., Moxi env., Gongga Shan, 3000 m, VI.1993 (CBUL); 1 ♂, China, W Sichuan, Moxi env., Luding Co., Dadu riv., VI.1993 (CSMI); 1 ♀, China, W Sichuan, 20 km N Sabdé, 3200 m, 12.VII.1998 (CFKP); 1 ♀, China, W Sichuan, 20 km N Sabdé, 3200 m, 12.VII.1998 (CMWT); 3 ♀♀, China, W Sichuan, Pass Zheduo Shankou, W Kangding, E slope, 29°59'N 101°50'E, 3850 m, 18.VII.1998 (CMWT, CTVR); 1 ♀, China, S Sichuan, pass 20 km S Muli/Bowa, 27°45'N 101°13'E, 3500 m, mixed forest, 25.VII.1995 (CSRD); 1 ♂, China, Yunnan, Deqin, 3000 m, 10.–19.VII.1996 (CKSB); 1 ♂, 1 ♀, China (N-Yunnan) Diqing Tibet Aut. Pref., Deqin Co., Meili Xue Shan, E-side, 12 km SW Deqin, 28°25.30'N, 98°48.47'E, 2890 m, small creek valley (mixed forest with bamboo under wood / stones, in leaf litter / soil, roots), 9.–13.VI.2005 (CBWE, CTVR); 1 ♂, China (N-Yunnan) Diqing Tibet Aut. Pref., Deqin Co., Meili Xue Shan, E-side, 14 km SW Deqin, 28°27.47'N, 98°46.35'E, 2700 m, small creek valley, glacier outlet (under stones and gravel along glacier stream), 11.VI.2005 (CWBE); 1 ♀, China, Yunnan, 27°20'N 100°11'E, Habashan Mts., SE slope, 4.–5.VI.95 (CSMI); 1 ♂, China, Shaanxi, Qin Ling Shan, 108°47'E, 35°31'N, Mt. W pass autoroute km 70, 47 km S Xian, 2500–2600 m, 26.–29.VIII.1995 (CWBE); 1 ♂, China, W-Hubei 10.–14.VI.2002, Dashennongjia Mts., 31°50'N 100°30'E, 2100–2900 m (CTVR).

MALE GENITALIA: Together with the kernel sclerite with the typical apical process there is also a small pack of scales, short and parallel to the ventral margin.

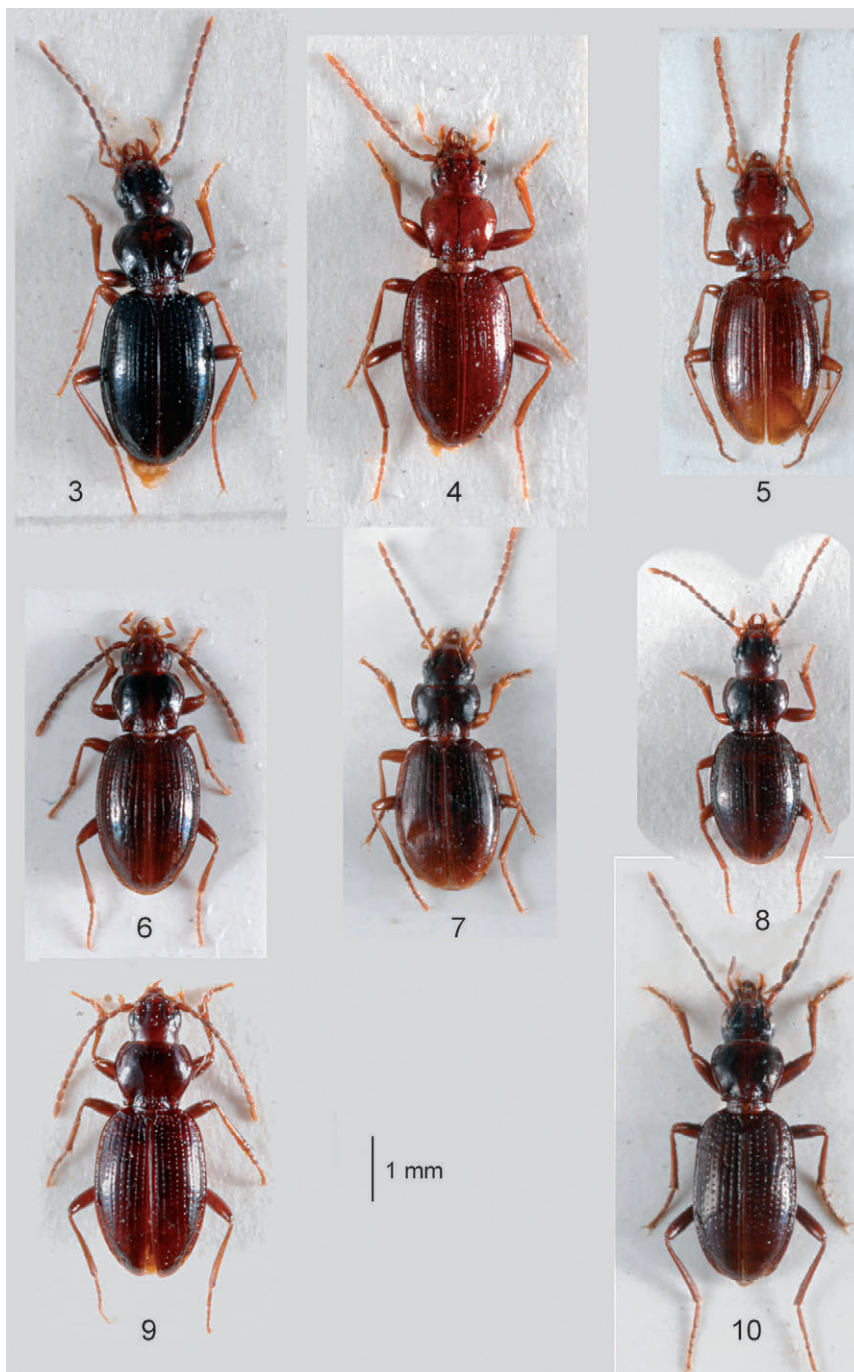
TAXONOMIC REMARKS: This species was described after a single specimen from western Sichuan (Chola Pass, road from Dege to Maniganggo). We were able to examine 31 specimens from many different localities in four provinces (Sichuan, Hubei, Shaanxi and Yunnan) which allowed us to make interesting observations on the variability and distribution of this species. The median lobe of the aedeagus shows a noticeable variation in the shape and length of the apex, but it does not seem correlated with the locality. The shape of the median lobe drawn by DEUVE (1998) represents one of the extremes, illustrating the most elongate, but in some cases it can be noticeably shorter, but still showing all the same internal structures that can be observed in all the other specimens. Also the external characters can vary noticeably: the size varies between 5.50 and 6.70 mm, the elytral shape can be markedly parallel-sided or evidently enlarged at middle; the antennae can be completely reddish or with the antennomeres 3–5 evidently darkened; the colour of the dorsum can be reddish (in completely mature specimens) to piceous-black; the elytra can show a strong iridescence or a very faint one. We also would like to point out that the median lobe of the aedeagus of this species seems to show a striking resemblance with that of *A. ledouxi* and also the description of the latter species seems to agree fairly well with the Chinese specimens we examined. Although we think it unlikely that a species from the Nepal Himalaya can reach southern China, it would be interesting to compare both species and check if they are really distinct.

Amerizus (Tiruka) sp.n.?
(Fig. 11)

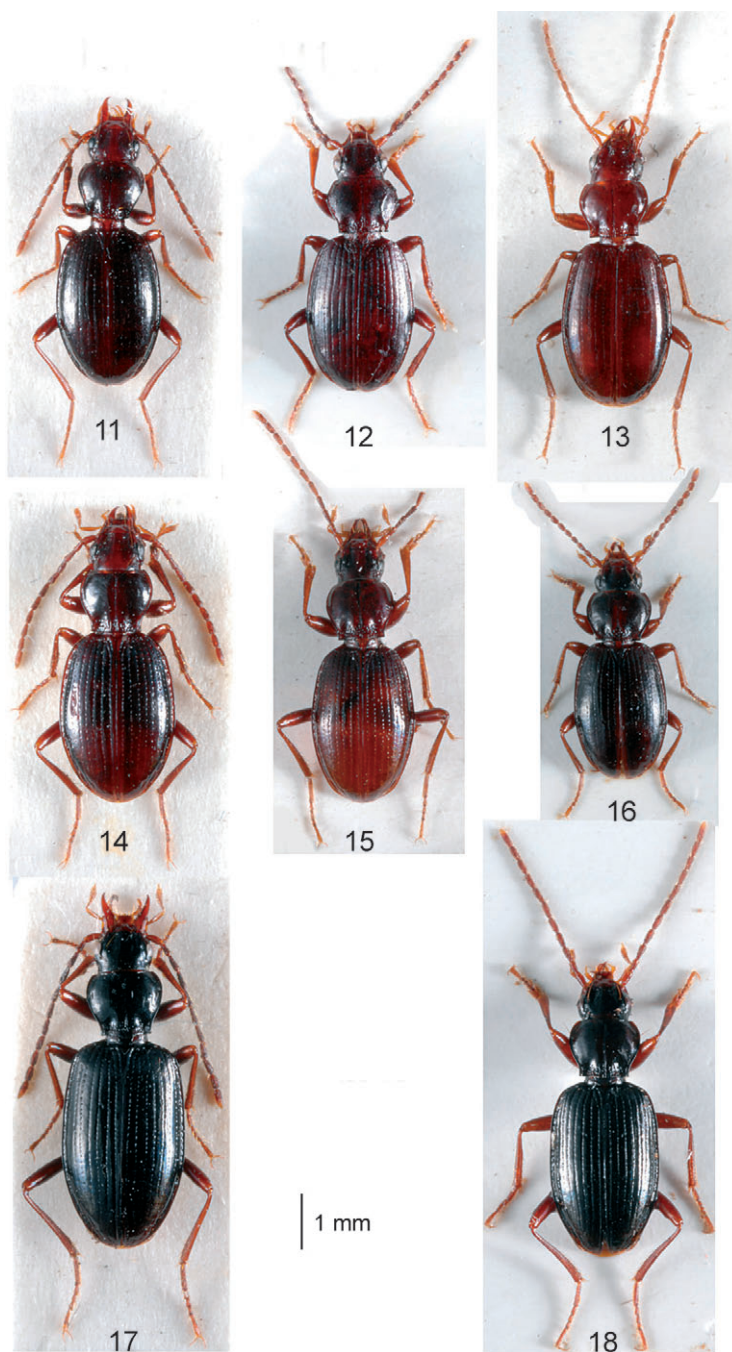
MATERIAL EXAMINED: 1 ♀, China, W Sichuan (Aba Tibet Aut. Pref., Weizhou Co.), Qionglai Shan, Wolong valley, 69 km WSW Dujiangyan, 3500 m, 30 54'N 102 59'E (mixed forest), 15.VII.1999 (CWBE). The specimen is provisionally labelled as "*Amerizus* sp.n. Det. Toledano, 2006".

TAXONOMIC REMARKS: This specimen (length 5.40 mm; TI/AI = 1.91; Pw/Pl = 1.15; El/Pl = 2.78; Ew/Pw = 1.58; El/Ew = 1.53) shows a body shape reminiscent of a *Broskosoma* ROSENHAUER, 1846 for the strongly convex and oval elytra and convex pronotum. This body structure is peculiar in the Chinese species of *Amerizus*. Therefore we think that it probably belongs to an undescribed species. However, we refrain from its description because of the absence of males. We are totally unable to state its systematic position.

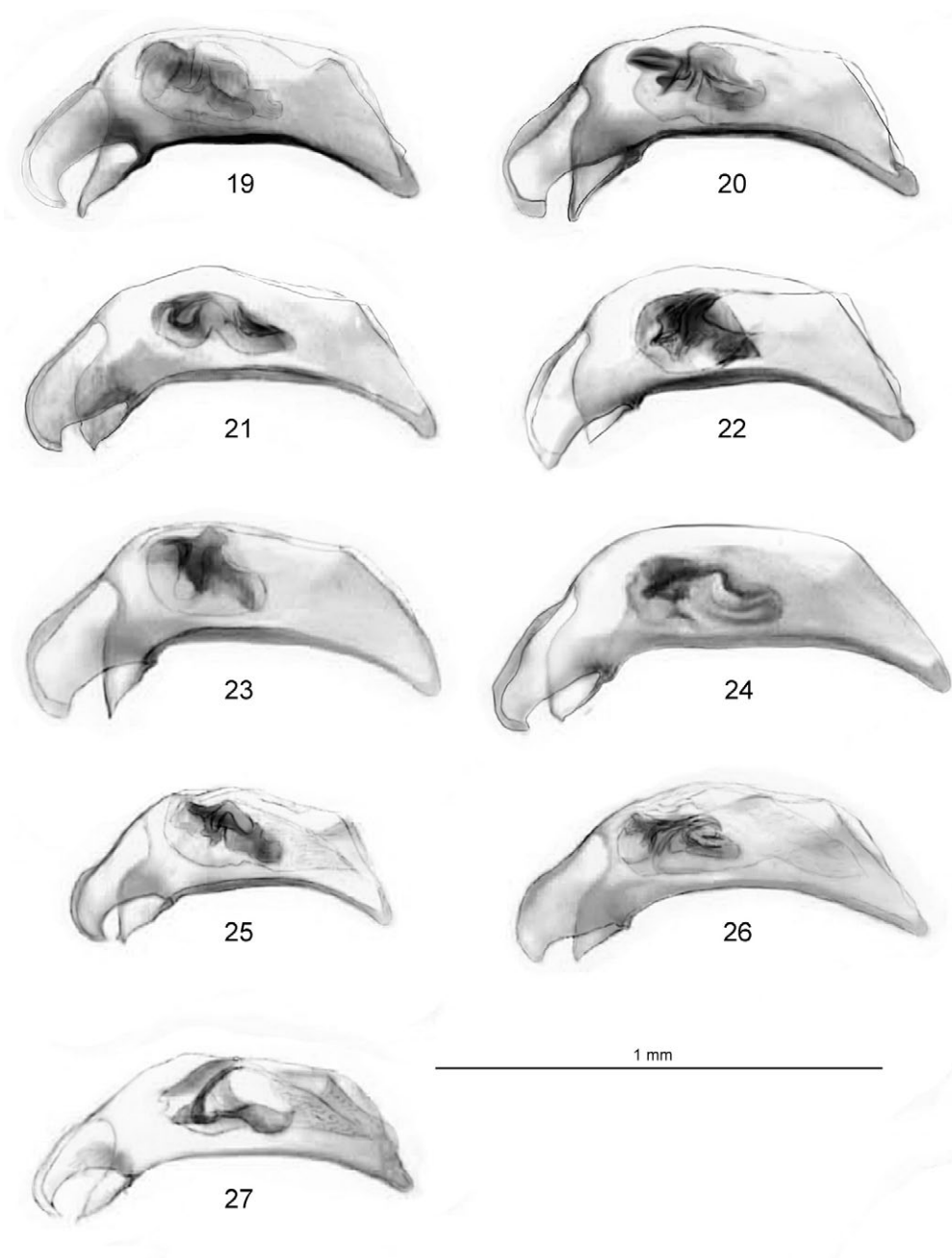
BIOGEOGRAPHICAL NOTES: This species is sympatric with *A. wolongensis*, *A. panda* and *A. perraulti*.



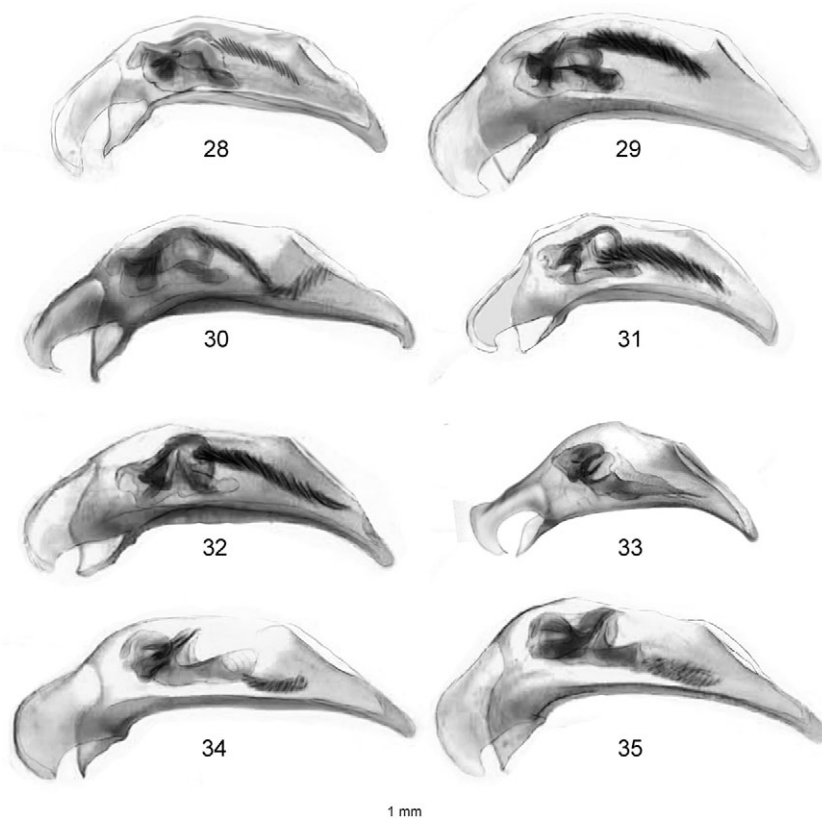
Figs. 3–10: Habitus of 3) *Amerizus queinneci*, 4) *A. mourzinei*, 5) *A. songpanensis*, 6) *A. davidales* sp.n., 7) *A. wolongensis*, 8) *A. panda* sp.n., 9) *A. puetzi* sp.n., 10) *A. lama* sp.n.



Figs. 11–18: Habitus of 11) *Amerizus* sp.n.?, 12) *A. markamensis*, 13) *A. gongga*, 14) *A. turnai*, 15) *A. barkamensis minshanensis*, 16) *A. farkaci* sp.n., 17) *A. perraulti*, 18) *A. hubeiensis*.



Figs. 19–27: Median lobe of aedeagus of 19) *Amerizus queinneci*, 20) *A. mourzinei*, 21) *A. songpanensis*, 22) *A. davidales* sp.n. (Holotype), 23) *A. davidales* sp.n. (form “b”), 24) *A. wolongensis*, 25) *A. panda* sp.n., 26) *A. puetzi* sp.n., 27) *A. lama* sp.n.



Figs. 28–35: Median lobe of aedeagus of 28) *Amerizus markamensis*, 29) *A. gongga*, 30) *A. turnai*, 31) *A. barkamensis minshanensis*, 32) *A. farkaci* sp.n., 33) *A. hubeiensis*, 34) *A. perraulti* (specimen from Emei Shan, Sichuan), 35) *A. perraulti* (specimen from Deqin, Yunnan).

Biogeographic notes

The genus *Amerizus* shows a Holarctic, transpacific distribution like the staphylinid genus *Deinopteroloma* JANSSON, 1947 (Adriano Zanetti, personal communication), i.e. in Nepal, China and North America. Furthermore, it could occur also on the Hawaiian Islands, because the species of the subgenus *Gnatholymnaeum* SHARP, 1903 could be probably referred to the genus *Amerizus* (James Liebherr, personal communication). The distribution in China of the species of *Tiruka* is interesting and shows a pattern that partially resembles that of some subgenera of *Pterostichus* BONELLI, 1810 (e.g. *Morphohaptoderus* TSCHITSCHÉRINE, 1898, see SCIAKY 1994). It can be summarized as follows: in northern Sichuan there are *A. perraulti*, *A. queinneci*, *A. songpanensis*, *A. baxiensis*, *A. barkamensis zhanglaensis* and *A. mourzinei*; in western Sichuan there are *A. perraulti*, *A. gongga*, *A. farkaci*, *A. barkamensis* and *A. schmidtii*; in southern Gansu there are *A. queinneci* and *A. barkamensis minshanensis*, in northern Yunnan there are *A. perraulti* and *A. davidales*; in Tibet *A. wrzecionkoi*, *A. turnai*, *A. markamensis* and *A. lama*;

eventually, in Shaanxi only *A. perraulti* is known. The 22 species of the subgenus *Tiruka* presently known from the Himalaya are distributed as follows: 16 in Nepal, two in Sikkim and in Kashmir, one in Uttaranchal and Bhutan (PERRAULT 1985, QUEINNEC & PERREAU 2002, MORVAN 2004).

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