

Studies on the genus *Taphrocerus* (Coleoptera: Buprestidae: Agrilinae) part IV.

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Abstract. The fourth part of the study on the genus *Taphrocerus* Solier, 1833 (Coleoptera: Buprestidae: Agrilinae) is presented. Nine species are newly described: *T. arboribus* sp. nov. (Brazil), *T. brevisformis* sp. nov. (Brazil), *T. doctissimus* sp. nov. (Brasil, French Guiana), *T. latimentulae* sp. nov. (Paraguay), *T. mixtus* sp. nov. (Brazil), *T. picator* sp. nov. (Brazil), *T. pseudomirai* sp. nov. (Ecuador), *T. saintantoinnei* sp. nov. (French Guiana) and *T. tavakiliani* sp. nov. (French Guiana). The following nomenclatural changes are proposed: *T. paraguayensis* Obenberger, 1924 (= *T. sedyi* Obenberger, 1924 syn. nov.); *T. paranaensis* Obenberger, 1924 (= *T. tigrensis* Obenberger, 1947 syn. nov.). Lectotypes of *T. catharinae* Obenberger, 1917, *T. paraguayensis*, *T. paranaensis*, *T. pauligenus* Obenberger, 1934, *T. sedyi* and *T. tigrensis* are designated. One species-group is defined and keyed: *Taphrocerus kheili* Obenberger, 1924 species-group.

INTRODUCTION

This is the fourth part of the study on the genus *Taphrocerus* serving as basis for revision of this large buprestid genus. The genus *Taphrocerus* contains one hundred seventy-nine valid species at present and I am working on the synonymization of eleven another previously described species. This work is complicated by a few reasons: it is necessary to work with the type-specimens of each species and to compare them directly; the lectotype designation is often necessary because there are mixed two or more species in larger type-series usually; the larger type-series are very often dispersed among the various institutional and the private collections; the study based on an examination of male specimens is needed for work due to external similarity of the species but often with strongly different male genitalia (the females of some difficult species-groups are mostly undetermined due to their external similarity and variability); the larger amount of the specimens of each species (from whole area of distribution if it is possible) is needed to get knowledge of their variability. As I mentioned earlier (Marek 2014) at present I saw more than one hundred of well distinguished undescribed species and about fifty probably undescribed species known to me from female specimens only from the difficult sections of the genus, and additional male specimens are needed.

MATERIALS AND METHODS

Lectotype designations are provided in order to preserve the stability of nomenclature by fixing the status of the specimen as the sole name-bearing type of a particular nominal taxon (in agreement with article 74.7 ICZN (1999)). Designation of lectotype specimens

are provided by printed white label with red border containing all relevant data as: type status (red capital letters), taxon name in the original combination, author name, year of publication, an inscription J. Marek design.

Abbreviations for lectotype designations: the slash mark \ is used to indicate data from separate labels; my notations are in parentheses [], with the abbreviation [h] = handwritten, [p] = printed, [Obenberger's MS] = Obenberger's manuscript.

Designation of holotype specimens are provided by printed red label with black margin. Designation of paratype(s) specimen(s) is provided by white label with wide red border and red capital letters PARATYPE.

Abbreviations used in the text: HT = holotype, AT = allotype, PT (PTs) = paratype (paratypes), ST = syntype, ST1 (ST2, ST3 ...) = specimen labelled as syntype number 1 (nr 2, nr 3 ...), DV = dorsal view; FV = frontal view, FVV = fronto-ventral view, LV = lateral view.

A Canon D-550 digital camera with the Canon MP-65 mm f/2.8 1-5x macro lens was used to take colour images, occasional exceptions are noted at relevant places.

Specimens were measured to the nearest 0.05 mm.

The following collection codens are used throughout the text:

JMSC private collection of J. Marek, Sýkořice, Czech Republic (it will be deposited in NMPC);

NMPC National Museum, Praha, Czech Republic.

RESULTS

LECTOTYPE DESIGNATIONS

***Taphrocerus catharinae* Obenberger, 1917**

(Figs. 7, 7a)

Taphrocerus catharinae Obenberger, 1917: 61.

Type specimens studied. Lectotype (NMPC, ♂), by present designation: „St. Catharina, Brazil [p] \ TYPUS [p] [red label with black margin] \ *Taphrocerus Catharinae* m. Type [h] [Obenberger's MS] Det. Dr. Obenberger [p] \ *Taphrocerus catharinae* Obenberger, 1917 SYNTYPE 1 V. Kubáň labelled 2014 [p] [red label]“. Paralectotype the same data as the lectotype except of syntype label: „*Taphrocerus catharinae* Obenberger, 1917 SYNTYPE 2 V. Kubáň labelled 2014 [p] [red label]“ (1♀, NMPC). The exact number of syntypes unknown.

***Taphrocerus paraguayensis* Obenberger, 1924**

(Figs. 23, 23a)

Taphrocerus paraguayensis Obenberger, 1924: 74.

Type specimen studied. Lectotype (NMPC, ♂), by present designation: „Paraguay [h] \ TYPUS [p] [red label with black margin] \ *Taphrocerus Paraguayensis* m. Type [h] [Obenberger's MS] Det. Dr. Obenberger [p]“. The exact number of syntypes unknown.

***Taphrocerus paranaensis* Obenberger, 1924**

(Figs. 25, 25a)

Taphrocerus paranaensis Obenberger, 1924: 69.

Type specimen studied. Lectotype (NMPC, ♂), by present designation: „Páráná. Brs. [h] \ TYPUS [p] [red label with black margin] \ *Taphrocerus Paranaensis* m. Type [h] [Obenberger's MS] Det. Dr. Obenberger [p]“. The exact number of syntypes is unknown.

***Taphrocerus pauligenus* Obenberger, 1934**

(Figs. 10, 10a)

Taphrocerus pauligenus Obenberger, 1934: 59.

Type specimens studied. Lectotype (NMPC, ♂), by present designation: „Sao Paulo Jaro Mráz [p] \ TYPUS [p] [red label with black margin] \ *Taphrocerus Pauligena* m. Type [h] [Obenberger's MS] Det. Dr. Obenberger [p] \ *Taphrocerus pauligenus* Obenberger, 1934 SYNTYPE 1 V. Kubáň labelled 2014 [p] [red label]“. Paralectotypes: the same data as the lectotype except of syntype label(s): „*Taphrocerus pauligenus* Obenberger, 1934 SYNTYPE 2 [respective ST3, ST4, ST5] V. Kubáň labelled 2014[p][red label]“, (4♂♂, NMPC); „SAO PAULO Brs. Mráz. [p] \ TYPUS [p] [red label with black margin] \ *Taphrocerus Pauligena* m. Type [h] [Obenberger's MS] Det. Dr. Obenberger [p] \ *Taphrocerus pauligenus* Obenberger, 1934 SYNTYPE 6 [respective ST7, ST8] V. Kubáň labelled 2014 [p] [red label]“(2♂♂, 1♀, NMPC). The exact number of syntypes unknown.

***Taphrocerus sedyi* Obenberger, 1924**

(Figs. 24, 24a)

Taphrocerus sedyi Obenberger, 1924: 68.

Type specimen studied. Lectotype (NMPC, ♂), by present designation: „SAO PAULO Brs. Mráz [p] \ TYPUS [p] [red label with black margin] \ *Taphrocerus Šedýi* m. Type [h] [Obenberger's MS] Det. Dr. Obenberger [p]“. The exact number of syntypes is unknown.

***Taphrocerus tigrensis* Obenberger, 1947**

(Fig. 26)

Taphrocerus tigrensis Obenberger, 1947: 26.

Type specimen studied. Lectotype (NMPC, ♀), by present designation: „BUENOS AIRES ARGENTINA [p] Tigre [h] M. J. VIANA [p] \ TYPUS [p] [red label with black margin] \ 17 [h] [green label with black margin] *Taphrocerus Tigrensis* m. Type [h] [Obenberger's MS] Det. Dr. Obenberger [p]“. The exact number of syntypes is unknown.

DESCRIPTIONS OF NEW SPECIES

Taphrocerus latimentulae sp. nov.

(Figs. 1, 1a)

Type locality. Paraguay, Serrania San Luis.

Type specimen. Holotype (♂): „Paraguay, South Amerika [error], NP Serrania San Luis, 21.-23. i. 2001, lgt. Mráček“, (JMSC).

Diagnosis. Medium-sized (3.70 mm), stout, broadly elongate, moderately convex above, lustrous; uniformly dark-brown with purple lustre above, beneath black including legs and antennae; dorsal surface sparsely covered by long thin white setae, densely at pronotal depressions and in rows on elytra longitudinally; prehumeral pronotal carina and posthumeral elytral carina absent.

Description of holotype. Head large, wide, as wide as anterior pronotal margin; clypeus almost „T-turned-up-shaped“, shagreened, separated from frons by fine carina, epistomal pores large, separated by their own diameter; frons convex, finely shagreened, almost smooth above clypeus, with rather wide groove medially, with a few long but thin white setae above clypeus only; vertex convex, strongly shagreened, very finely grooved longitudinally at the middle, sparsely, very shallowly punctured, with white setae anteriorly and laterally; eyes medium-sized, oval, not projecting beyond outline of head; antennae rather short, wide.

Pronotum moderately convex, 1.86 times as wide as long, widest at basal fifth; rather widely, shallowly depressed along anterior margin, interruptly at middle, broadly and deeply so lateroposteriorly, with feebly elevated bump longitudinally at lateroposterior angles; anterior margin widely rounded, posterior margin biemarginate, almost straight in front of scutellum, sides parallel in first-fifth, then almost straight dilated to basal fifth, then slightly constricted to the base; surface strongly shagreened, large but shallow circular punctures with rather long thin white setae at the depressions and longitudinally at the middle; scutellum medium-sized, rather widely cordiform, strongly shagreened, matt.

Elytra moderately convex, distinctly narrower at humeri than pronotum at base, 2.15 times as long as wide, widest at humeri and just before the middle; lateral margins parallel at humeri, narrowly but rather deeply emarginate behind, very widely rounded at second-third, then gradually, almost straight tapering towards almost conjointly rounded apices; apices finely serrate laterally; humeral swelling rather feebly developed, laterobasal depression small and shallow; surface strongly shagreened, punctures in longitudinal rows smaller and shallower apically; thin but rather long white setae in rows longitudinally, somewhat denser at apical third; posthumeral elytral carina absent.

Ventral surface feebly lustrous, very strongly shagreened, abdomen sparsely and very shallowly punctured, a few rather long white setae laterally only; anal ventrite very widely rounded, preapical groove following outline of margin wide; antennal grooves rather short, very wide, shallow; prosternal process elongate, slender, sides parallel between procoxae, dilated behind, surface shagreened with shallow wide groove longitudinally, apex trapezoidal.

Aedeagus (Fig. 1a).

Sexual dimorphism. Female unknown.

Measurements. Length 3.70 mm; width 1.25 mm.

Differential diagnosis. *T. latimentulae* sp. nov. belongs to the *T. dudai* Obenberger, 1924 species-group, which is together with closely related *T. parvus* Obenberger, 1924 species group probably the most difficult in the genus (the designations of the species groups in prep.) and the reliable identification of many species of these species-groups is possible only by the examination of the male genitalia and by comparison of the specimens. The species group is characterized by general shape of body, measurements from small to medium-sized, by uniformly dark-brown colouration with feeble purple or bronze lustre above, by the dorsal surface sparsely but markedly covered by thin but long white setae, by absence of pronotal prehumeral carina and posthumeral elytral carina and namely by base of pronotum, which is wider than elytra at humeri. The centre of distribution of this species group is in North Argentina, Paraguay and South-East Brazil. *T. latimentulae* sp. nov. is most similar to *T. temporalis* Obenberger, 1934 (Figs. 2, 2a) and *T. missionarius* Obenberger, 1934 (Figs. 3, 3a) (both described from Argentina, Misiones) from which it can be distinguished by characters given in Table A.

Table A. Diagnostic characters of *T. latimentulae* sp. nov. and related species.

	<i>T. latimentulae</i>	<i>T. temporalis</i>	<i>T. missionarius</i>
General shape of body	more stout, broadly elongate, 2.85 times as long as wide	more slender, parallel, 3.00 times as long as wide	more slender, oval, 3.00 times as long as wide
Eyes	medium-sized, not projecting beyond outline of head	medium-sized, not projecting beyond outline of head	small, slightly projecting beyond outline of head
Pronotum	widest at basal fifth	widest just before the base	widest just before the base
Elytra	straight tapering to the apex at apical half	almost straight tapering to the apex at apical half	very widely, arcuately, gradually tapering to the apex at apical half
Aedeagus	very wide, parameres 3.8 times as long as wide, constricted proximally (Fig. 1a)	slender, parameres 4.9 times as long as wide, parallel, feebly, widely emarginate at the beginning of proximal third (Fig. 2a)	slender, parameres 5.5 times as long as wide, parallel (slightly deformed in the ST, Fig. 3a)

Etymology. The specific epithet is an adjective derived from the Latin adjective *latum* (wide) and noun *mentula* (penis) to stress markedly very wide male genitalia.



Figs. 1-3a: 1- *T. latimentulae* sp. nov. HT, 3.70 mm, 1a- aedeagus, 0.95 mm; 2- *T. temporalis* Obenberger, 1934 ST1, male, 3.60 mm (NMPC) („Arg. Misiones“), 2a- aedeagus, 1.15 mm; 3- *T. missionarius* Obenberger, 1934 ST, male, 2.80 mm (NMPC) („Argentina Misisiones“), 3a- aedeagus, 0.85 mm.

Taphrocerus mixtus sp. nov.

(Fig. 4)

Type locality. Brazil, Santa Catharina.

Type specimen. Holotype (♀): „St. Catharina, Brazil [p] \ TYPUS [p] [red label with black margin] \ T. Catharinae m. Type [h] [Obenberger's MS] Det. Dr. Obenberger [p] \ Taphrocerus catharinae OBENBERGER, 1917 SYNTYPE 2 V. Kubáň labelled 2014 [p] [red label] \ PARALECTOTYPE [red capital letters] Taphrocerus catharinae Obenberger, 1917 J. Marek design. [p] [white label with red margin]“, (NMPC).

Diagnosis. Medium-sized (3.30 mm), elongate, moderately convex above, very lustrous; above brown with very strong purple tinge, beneath black with feeble bronze lustre including legs and antennae; sparsely covered by thin but rather long white setae, on elytra in rows longitudinally; prehumeral pronotal and posthumeral elytral carinae absent.

Description of holotype. Head medium-sized, slightly narrower than anterior pronotal margin; clypeus very widely „V-shaped“, strongly shagreened, matt, separated from frons by fine carina, epistomal pores large, circular, separated less than their own diameter; frons moderately convex, widely and deeply depressed above scutellum, narrowly and deeply grooved above the depression longitudinally, finely shagreened, with thin white setae along the inner margins of eyes, above scutellum and at the middle longitudinally (in the groove); vertex strongly convex, protruding between eyes (FVV), strongly shagreened, sparsely, irregularly punctured by shallow circular punctures, sparsely pubescent by thin but rather long white setae; eyes large, oval, slightly projecting beyond outline of head; antennae long and rather wide.

Pronotum moderately convex, 1.75 times as wide as long, widest just before the base; narrowly transversely depressed along anterior margin, broadly but rather shallowly so lateroposteriorly; with a vague prominence at lateroposterior angles longitudinally; anterior margin widely regularly rounded, posterior margin rather feebly biemarginate, widely emarginate in front of scutellum, sides slowly, almost straight dilated to basal fifth, then angulate and very feebly constricted to the base; surface strongly shagreened, sparsely punctured by shallow circular punctures with white setae at depressions and laterally; scutellum medium-sized, widely cordiform, shagreened.

Elytra moderately convex, very slightly wider at humeri than pronotum at base, 2.26 times as long as wide, widest at humeri; lateral margins very feebly emarginate behind humeri, widely rounded at the middle, than very slowly rounded towards almost conjointly rounded apices; apices minutely serrate laterally; humeral swelling well developed, basal depression small and shallow; surface very finely shagreened, punctures in longitudinal rows larger and deeper at basal half; covered by sparse, thin but rather long well marked white setae in rows longitudinally; posthumeral elytral carina absent.

Ventral surface finely shagreened, very lustrous, abdomen sparsely punctured by shallow large „U-turned-up-shaped“ punctures, sparsely, regularly covered by short thin white setae; anal ventrite very widely rounded, preapical groove following outline of margin rather wide;

antennal grooves long, wide; prosternal process elongate, wide, regularly dilated behind, apex rhomboidal, surface finely shagreened, with very wide and rather deep groove at middle longitudinally.

Sexual dimorphism. Male unknown.

Measurements. Length 3.30 mm; width 1.10 mm.

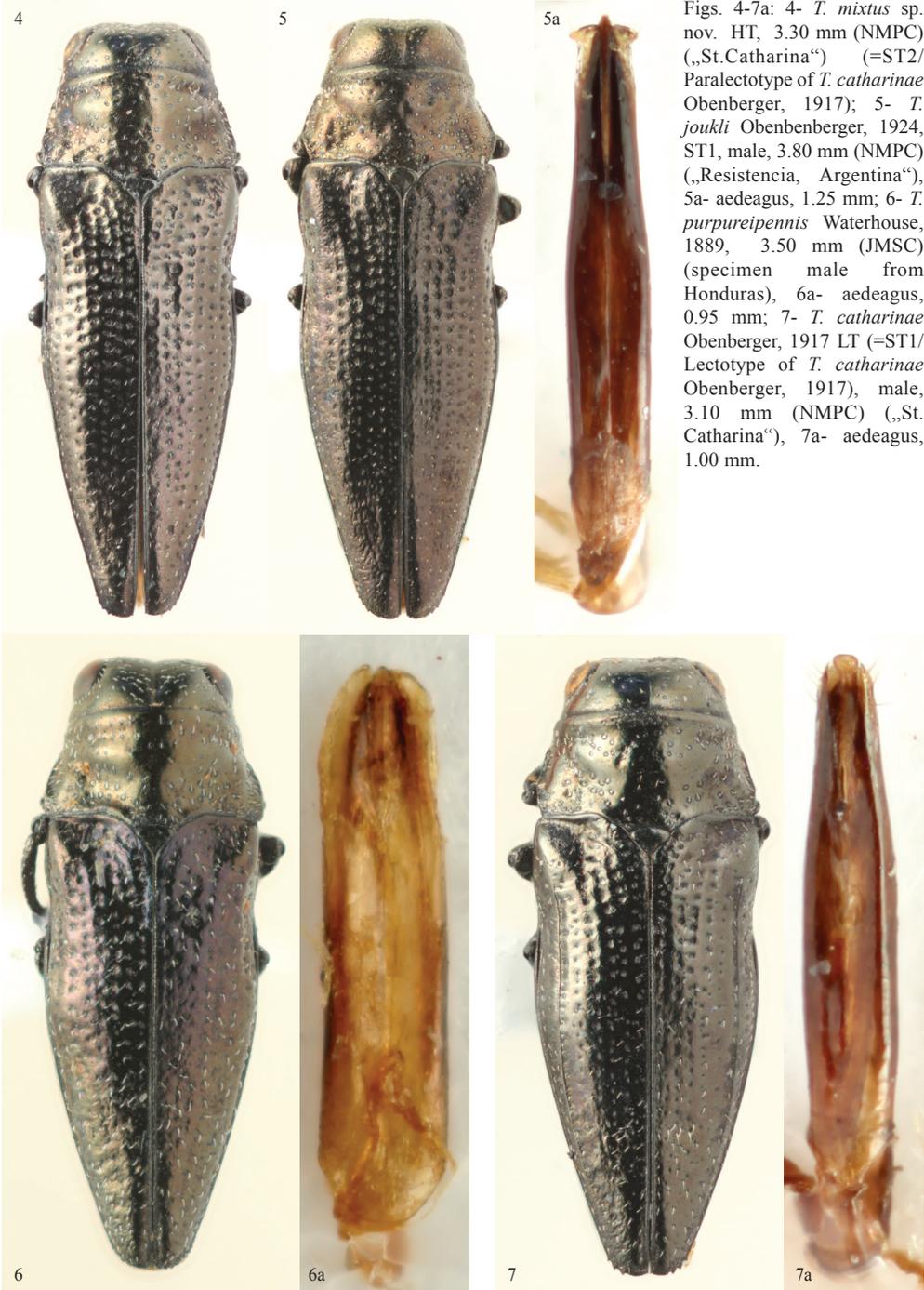
Differential diagnosis. Although the holotype specimen of *T. mixtus* sp. nov. was included by Obenberger among two syntypes of *T. catharinae*, it is quite different from the second specimen (designated as lectotype of *T. catharinae* Obenberger, 1917 see above) (Figs. 7, 7a). *T. mixtus* sp. nov. belongs to a complex of species without posthumeral elytral carina, while *T. catharinae* lectotype has sharp, strongly elevated posthumeral elytral carina and its related to *T. catacaustus* Obenberger, 1941 described from Brazil, Manaus (Figs. 18, 18a). *T. mixtus* sp. nov. belongs to a species complex characterized by general shape of body, brown colouration with strong purple or bronze tinge, by absence of prehumeral pronotal and posthumeral elytral carina, by finely shagreened and very lustrous elytra and by sparsely but markedly pubescent elytra. It can be distinguished from the most similar species *T. joukli* Obenberger, 1924 (Figs. 5, 5a) (described from Argentina, Resistencia) and *T. purpureipennis* Waterhouse, 1889 (Figs. 6, 6a) (described from Panama, Taboga Island) by the characters given in Table B.

Table B. Diagnostic characters of *T. mixtus* sp. nov. and related species.

	<i>T. mixtus</i>	<i>T. joukli</i>	<i>T. purpureipennis</i>
General shape	slender; elytra more than 2.30 times longer than wide	slender; elytra more than 2.30 times longer than wide	stout; elytra less than 2.20 times longer than wide
Eyes	medium-sized, slightly projecting beyond outline of head	medium-sized, slightly projecting beyond outline of head	large, rather strongly projecting beyond outline of head
Head	narrow, 3.07 times as wide as long (DV)	narrow, 3.00 times as wide as long (DV)	wide, 3.35 times as wide as long (DV)
Pronotum	widest just before the base; feebly narrower at base than elytra at humeri	widest at basal third; markedly narrower at base than elytra at humeri	widest just before the base; wider at base than elytra at humeri
Aedeagus	unknown	slender; parameres constricted at proximal third (Fig. 5a)	wide; parameres more or less parallel (Fig. 6a)

Remarks. The Obenberger's description of *T. catharinae* corresponds to the *T. catharinae* lectotype (Figs. 7, 7a).

Etymology. The specific epithet is an adjective derived from the Latin adjective *mixta* (mixed) to stress the fact, that there are two type specimens in NMPC described and labelled as one species by Obenberger, although each of them belongs to different species.



Figs. 4-7a: 4- *T. mixtus* sp. nov. HT, 3.30 mm (NMPC) („St. Catharina“) (=ST2/ Paralectotype of *T. catharinae* Obenberger, 1917); 5- *T. joukli* Obenberger, 1924, ST1, male, 3.80 mm (NMPC) („Resistencia, Argentina“), 5a- aedeagus, 1.25 mm; 6- *T. purpureipennis* Waterhouse, 1889, 3.50 mm (JMSP) (specimen male from Honduras), 6a- aedeagus, 0.95 mm; 7- *T. catharinae* Obenberger, 1917 LT (=ST1/ Lectotype of *T. catharinae* Obenberger, 1917), male, 3.10 mm (NMPC) („St. Catharina“), 7a- aedeagus, 1.00 mm.

***Taphrocerus picator* sp. nov.**

(Figs. 8, 8a)

Type locality. Brazil, Sao Paulo.

Type specimens. Holotype (♂): „Sao Paulo, Brs. Mráz [p] \ TYPUS [p] [red label with black margin] \ T. Pauligena m Type [h] [Obenberger's MS] Det. Dr. Obenberger [p] \ *Taphrocerus pauligenus* OBENBERGER, 1934 SYNTYPE 8 V. Kubán labelled 2014 [p] [red label] \ PARALECTOTYPE [red capital letters] *Taphrocerus pauligenus* Obenberger, 1934 J. Marek design. [p] [white label with red margin]“, (NMPC). Paratype (1 ♂): „Brazil Sao Paulo 30. x. 1994, Fazenda Souza de Campinas, W. Witmer lgt.“ (JMPC).

Diagnosis. Medium-sized (3.70-3.80 mm), broadly elongate, rather stout, moderately convex above, lustrous; above brown with strong purple tinge, scutellum black with feeble bluish lustre, beneath black with strong cupreous lustre including legs, antennae black; irregularly sparsely covered by extremely short, almost inconspicuous white setae; posthumeral elytral carina absent.

Description of holotype. Head rather large, the same width as anterior pronotal margin; clypeus widely „V-shaped“, strongly shagreened, separated from frons by fine carina, epistomal pores large, circular, separated by their own diameter; frons widely longitudinally depressed at middle, strongly shagreened, with a few short white setae laterally; vertex widely convex, shagreened, very sparsely, almost inconspicuously punctured by small shallow punctures, asetose; eyes large, oval, strongly projecting beyond outline of head; antennae long, rather wide.

Pronotum convex, 1.97 times as wide as long, widest at basal third; narrowly transversely depressed along anterior margin, deeply and largely so lateroposteriorly; anterior margin very widely rounded, posterior margin biemarginate, widely emarginate in front of scutellum, sides slightly dilated at first-fourth, then strongly, angularly dilated to the basal third, than feebly constricted to the base; surface finely shagreened, sparsely irregularly punctured by small circular punctures in the depressions, with sparse thin white setae along the sides only; scutellum rather large, cordiform, shagreened.

Elytra moderately convex, slightly wider at humeri than pronotum at base, 2.16 times as long as wide, widest at humeri and just before the middle; lateral margins very feebly emarginate behind humeri, widely rounded at the middle, then slowly arcuately tapering towards conjointly rounded apices; apices strongly serrate laterally; humeral swelling feebly developed, basal depression shallow and rather small; surface very finely shagreened, punctures in longitudinal rows larger and deeper at basal half along suture only, disappearing at apical third; apical third sparsely covered by extremely short, almost inconspicuous white setae; posthumeral elytral carina absent.

Ventral surface rather feebly lustrous, abdomen finely shagreened, very sparsely and shallowly punctured, almost inconspicuously sparsely covered by extremely short white setae; anal ventrite moderately protruding apically, preapical groove following outline of margin wide, regularly semicircular; antennal grooves long but rather shallow; prosternal process elongate, dilated behind procoxae, apex trapezoidal, strongly shagreened, without punctures but with rather deep and wide groove longitudinally, extending to the middle.

Aedeagus (Fig. 8a).

Sexual dimorphism. Female unknown.

Measurements. Length 3.70-3.80 mm (holotype 3.70 mm); width 1.40-1.45 mm (holotype 1.40 mm).

Variability. Not observed.

Differential diagnosis. Although the holotype of *T. picator* sp. nov. was included by Obenberger among eight syntypes of *T. pauligenus* Obenberger, 1934 (NMPC, 7 ♂♂, 1 ♀), it belongs to the *T. punctuliceps* Obenberger, 1934 species complex, one of the most difficult in the genus, characterized by general shape of body, uniformly brown colouration (sometimes with bronze or purple tinge), by large head and wide vertex, pronotum at base feebly narrower than elytra at humeri, without prehumeral carina or bump at lateroposterior angles, by absence of posthumeral elytral carina and by very finely shagreened and almost asetose elytra. *T. picator* sp. nov. can be separated from the most similar species of this complex *T. compactus* Obenberger, 1934 (Figs. 9, 9a) by the characters given in Table C. Diagnostic characters of *T. pauligenus* (Figs.10, 10a) contributed into Table C also.

Table C. Diagnostic characters of *T. picator* sp. nov., *T. compactus* and *T. pauligenus*.

	<i>T. picator</i>	<i>T. compactus</i>	<i>T. pauligenus</i>
Colouration	brown with strong purple tinge	brown with bronze lustre	slightly bicolorous: head and pronotum black with strong golden-brown lustre, elytra black
Pronotum	wider (more than 1.95 times as wide as long); feebly narrower at base than elytra at humeri; sides strongly angulate at basal third (the widest part); small shallow punctures in the depressions	narrower (less than 1.90 times as wide as long); feebly narrower at base than elytra at humeri; sides very feebly angulate at basal third (the widest part); small shallow punctures in the depressions	narrower (less than 1.80 times as wide as long); markedly narrower at base than elytra at humeri; sides strongly angulate at basal third (the widest part); large shallow punctures in the depressions
Elytra	widest just before the middle; almost asetose	widest just behind the middle; almost asetose	widest at the middle; sparsely but markedly covered by thin white setae
Aedeagus	slender, parameres parallel, feebly constricted at proximal fourth (Fig. 8a)	robust, parameres strongly dilated proximally (Fig. 9a)	slender, parameres gradually constricted proximally (Fig. 10a)

Remarks. The Obenberger's description of *T. pauligenus* corresponds to the *T. pauligenus* lectotype (Figs. 10, 10a) and the paralectotypes/syntypes Nr. 2-7.

Etymology. The specific epithet is the Latin noun *picator* (hapless) to stress the fact, that



Figs. 8-10a: 8- *T. picator* sp.n., HT, 3.80 mm (NMPC) („Sao Paulo“) (= ST8/Paralectotype of *T. pauligenus* Obenberger, 1934), 8a- aedeagus, 0.95 mm; 9- *T. compactus* Obenberger, 1934, ST1, male, 3.20 mm (NMPC) („St. Anna, Misiones“), aedeagus, 0.80 mm; 10- *T. pauligenus* Obenberger, 1934, LT (=ST1), male, 4.00 mm (NMPC) („Sao Paulo“), 10a- aedeagus, 1.30 mm.

the specimen (HT) was erroneously included by Obenberger into the syntype series of *T. pauligenus* (NMPC, 7 ♂♂, 1 ♀) instead to be described as a new species.

***Taphrocerus arboribus* sp. nov.**

(Figs. 19, 19a)

Type locality. Brazil, Maromba.

Type specimen. Holotype (♂): „Brazil, Est. do Rio, NP Itataia, Maromba“, (JMSC).

Diagnosis. Large (4.70 mm), broadly elongate, rather stout, moderately convex, lustrous; above cupreous with metallic violet areas becoming in purple on the sides as follows: large widely oval spot at middle of pronotal base, two (1+1) strips at basal two-fifth of elytra laterally, two (1+1) large, more intensive spots at three-fourth of elytral length, two (1+1) triangular spots at apical fifth of elytra; scutellum black; beneath cupreous, legs and antennae black with feeble cupreous lustre; head and pronotum sparsely pubescent, elytra with an ornamental pubescence of long white setae; pronotal prehumeral carina absent; posthumeral elytral carina present very obsoletely at apical fourth only, with a blunt edge.

Description of holotype. Head rather small, markedly narrower than anterior pronotal margin; clypeus widely „V-shaped“, strongly shagreened, matt, separated from frons by fine carina, epistomal pores small, separated by their own diameter; frons moderately convex, widely and deeply depressed above scutellum, finely shagreened, with „fronto-clypeal pubescent strip“ (♂) of long dense golden setae; vertex strongly convex, finely shagreened, finely and sparsely punctured, with extremely short sparse white setae along the margins of the eyes only, with very fine groove longitudinally at the middle; eyes small, oval, not projecting beyond outline of head; antennae long, antennomeres 8-10 very wide.

Pronotum moderately convex, 1.75 times as wide as long, widest at third-fifth of length; rather widely transversely depressed along anterior margin, broadly so lateroposteriorly, shallowly transversely so above scutellum; with very feebly elevated prominence at lateroposterior angles; anterior margin widely rounded, slightly, widely emarginate at middle, posterior margin strongly biemarginate, very widely emarginate in front of scutellum, sides feebly dilated at anterior first-sixth, than strongly dilated to third-fifth of pronotal length, than strongly, angularly constricted to the base; surface strongly shagreened on the disc, becoming finely shagreened laterally and almost smooth at lateroanterior angles; shallow circular punctures in the depressions only, thin sparse short white setae at laterobasal depressions, above scutellum and longitudinally at the middle of the disc, markedly longer at lateroanterior angles; scutellum triangular, widely rounded anteriorly, shagreened.

Elytra very feebly convex, strongly wider at humeri than pronotum at base, 2.26 times as long as wide, widest just before the middle; lateral margins very feebly, widely emarginate behind humeri, widely rounded at the middle, than almost straight tapering towards separately rounded apices; apices serrate, more strongly laterally; humeral swelling very feebly developed, laterobasal depression very small and shallow; surface finely shagreened,

with longitudinal rows of punctures, larger and coarser at basal third, disappearing at apical half; an ornamental pubescence of long white setae as follows: a few setae lateroanteriorly, a few longer but sparse setae behind of scutellum, two (1+1) very small spots in first-fourth medially, six (3+3) longitudinal strips at the middle, the central strip on each elytron longer, two (1+1) oval spots of denser, wider and longer white setae at the beginning of apical fourth; posthumeral elytral carina very obsolete, with a blunt edge (almost like a fold) at apical fourth only.

Ventral surface finely shagreened, abdomen very lustrous, very sparsely and shallowly punctured, with sparse short white setae; anal ventrite subtruncate, preapical groove following outline of margin very wide, regularly semicircular; antennal grooves long, very wide but rather shallow; prosternal process elongate, feebly constricted between procoxae, strongly dilated behind, apex trapezoidal, surface strongly shagreened, without punctures but with very shallow, wide groove longitudinally.

Aedeagus (Fig. 14a).

Sexual dimorphism. Female unknown.

Measurements. Length 4.70 mm; width 1.70 mm.

Differential diagnosis. *T. arboribus* sp. nov. belongs to the *T. kheili* Obenberger, 1924 species-group (definition and a key see below) and it can be distinguished from the most similar *T. kheili* (Figs. 20, 20a) namely by aetose apical fifth of elytra (see also the key of *T. kheili* species group below).

Etymology. The specific epithet is the Latin adjective *arboribus* (living in the forest) according to the nature of the type locality of this species (Maromba, National Park of Itataia).

***Taphrocerus pseudomirai* sp. nov.**

(Figs. 11, 11a)

Type locality. Ecuador, Machala.

Type specimen. Holotype (♂): „Ecuador CW, N of Machala, S of Naranjal, lgt. Snížek, 19. i. 2011“, (JMSc).

Diagnosis. Medium-sized (3.80 mm), conical, stout, moderately convex, lustrous; dorsal surface bicolorous: head and pronotum golden-brown, frons cupreous with golden reflections, elytra and scutellum metallic violet-brown with purple reflections, beneath black with feeble violet lustre; elytra covered by white setae creating an ornamental pubescence; posthumeral elytral carina present, entire, sharp, strongly elevated.

Description of holotype. Head rather large, wide, of the same width as anterior pronotal margin; clypeus widely „V-shaped“, shagreened, separated from frons by fine carina, epistomal pores large, elongate transversely, separated by one-half of their own diameter;

frons widely depressed, grooved longitudinally at the middle, shagreened, without „fronto-clypeal pubescent strip“ (♂), with a few short white setae laterally only; vertex feebly depressed medially, with very fine groove, extending from anterior pronotal margin to frons, very sparsely, finely punctured, rather strongly shagreened, sparsely covered by thin white setae; eyes medium-sized, oval, moderately projecting beyond outline of head; antennae long and narrow.

Pronotum moderately convex, 2.05 times as wide as long, widest at basal fifth; narrowly, transversely depressed along anterior margin, deeply and broadly so lateroposteriorly; anterior margin very widely rounded, posterior margin biemarginate, rather feebly emarginate in front of scutellum, sides slightly dilated at anterior two-fifth, than strongly dilated to basal fifth, than slightly, angularly constricted to the base; surface finely shagreened, sparsely covered by shallow circular punctures with thin white setae in the depressions, at the middle of the disc and along the sides; scutellum widely cordiform, medium-sized, finely shagreened.

Elytra moderately convex, distinctly wider at humeri than pronotum at base, 2.00 times as long as wide, widest at humeri; lateral margins rather deeply emarginate behind humeri, very widely, slowly rounded at the middle, than almost straight tapering towards almost conjointly rounded apices; apices strongly serrate; humeral swelling rather feebly developed, basal depression large and rather deep; surface finely shagreened, more strongly in areas covered by wider white setae creating an ornamental pubescence and at apex, punctures in longitudinal rows small and shallow, larger and deeper at basal half along suture only; sparsely covered by short thin white setae in rows longitudinally and by longer, wider white setae creating the ornamental pubescence as follows: very sparse perisutural strip behind scutellum, more dense perisutural strip just behind the middle becoming transverse anteriorly, two (1+1) spots at the beginning of apical fourth; posthumeral elytral carina strongly elevated, sharp, present from humeral swelling to just before the apex.

Ventral surface lustrous, abdomen strongly shagreened, irregularly sparsely punctured by „U-turned-up-shaped“ shallow punctures, very sparsely, almost inconspicuously covered by short white setae; anal ventrite rather narrowly rounded, preapical groove following outline of margin wide, regularly semicircular; antennal grooves long, deep and rather narrow; prosternal process wide, sides slightly constricted between procoxae, apex trapezoidal, surface rather strongly shagreened, coarsely corrugate.

Aedeagus (Fig. 11a).

Sexual dimorphism. Female unknown.

Measurements. Length 3.80 mm; width 1.40 mm.

Differential diagnosis. *T. pseudomirai* sp. nov. belongs to the species-group characterized namely by sharp, well elevated entire posthumeral elytral carina, a pubescent pattern of elytra, pronotum without prehumeral carina and by general shape of the body. The species group is very similar to the *T. fasciatus* Waterhouse species group (definitions and the keys of both in prep.) from which it can be easily distinguished by absence of sexual dimorphism (absence of „fronto-clypeal pubescent strip“ in male). *T. pseudomirai* sp. nov. is very similar

by its morphology to *T. tavakiliani* sp. nov. (Figs. 12, 12a) from which it differs by the characters given in Table D.

Etymology. The name reflects very similar colouration and pubescent pattern as *T. mirai* Marek, 2016, although *T. pseudomirai* sp. nov. belongs to a different species group (see Differential diagnosis above and Differential diagnosis of related *T. tavakiliani* sp. nov. below). The holotype specimens of both species were collected together on the same locality by Míra Snížek (České Budějovice, Czech Republic).

***Taphrocerus tavakiliani* sp. nov.**

(Figs. 12, 12a)

Type locality. French Guyana, Sinnamary.

Type specimens. Holotype (♂): „Guyane Francaise, Sinnamary 20km E, 15. i. 2007, Snížek lgt., (JMSC)“. Paratypes (23 spec.): the same data as holotype (2 ♀♀, JMSC); „Guyane Francaise, Cayenne Mt. Bourda, J. Marek lgt. iv. 1992“ (1 ♂, 1 ♀, JMSC); the same data but ix. 1992 (2 ♂♂, JMSC); „Guyane Francaise, Fourgassier env. (MSA)*, J. Marek lgt. vi. 1992“ (1 ♂, 1 ♀, JMSC); the same data but xii. 1992 (2 ♂♂, JMSC) and iii. 1993 (3 ♂♂, JMSC); „Guyane Francaise, St. Georges de Oiapoque, J. Marek lgt. viii. 1992“ (2 ♂♂, JMSC); „Guyane Francaise, Kourou, Guatemala, 19. viii. 2006, Snížek lgt.“ (1 ♂, 1 ♀, JMSC); the same data but 15. xii. 2006 (1 ♂, JMSC); „Guyane Francaise, St. Laurent du Maroni, route de Paul Isnard, 13. xii. 2006, Snížek lgt.“ (1 ♂, 1 ♀, JMSC); „Guyane Francaise, E St. Laurent d. Mar., Rt. Crique NAI, 10. xii. 2006, Snížek lgt.“ (1 ♂, JMSC); the same data but 25. xii. 2006 (1 ♂, 1 ♀, JMSC).

*See Remarks of *T. saintantoinnei* sp. nov. below.

Diagnosis. Medium-sized to large (3.70-4.20 mm), stout, cuneiform, moderately convex above, elytra moderately flattened, lustrous; uniformly black including legs, antennae and frons black with strong cupreous lustre; dorsal surface covered by sparse short thin white setae, elytra with an ornamental pubescence of longer, denser and wider white setae; prehumeral pronotal carina absent; posthumeral elytral carina present, entire, sharp, strongly elevated.

Description of holotype. Head medium-sized, slightly narrower than anterior pronotal margin; clypeus widely „V-shaped“, separated from frons by fine carina, epistomal pores large, elongate transversely, separated by their own diameter; frons convex, widely depressed at middle, shagreened, with a few extremely short, almost inconspicuous white setae along inner sides of the eyes and above epistomal pores only; vertex rather strongly convex, shagreened, very sparsely punctured, with fine but well marked longitudinal groove, extending from anterior pronotal margin to frontal depression, with sparse short white setae; eyes medium-sized, semicircular, slightly projecting beyond outline of head; antennae long, narrow.

Pronotum moderately convex, 1.82 times as wide as long, widest at basal third; narrowly transversely depressed along anterior margin, broadly so lateroposteriorly, narrowly but deeply so lateroanteriorly; very feebly elevated bump at lateroposterior angles; anterior margin very widely rounded, posterior margin strongly biemarginate, narrowly and strongly emarginate in front of scutellum, sides almost straight dilated to basal third, than constricted

to the base; surface finely shagreened, shallow but large circular punctures with short white setae in the depressions and above scutellum only; scutellum shagreened, triangular, regularly rounded anteriorly.

Elytra moderately flattened, strongly wider at humeri than pronotum at base, 2.06 times as long as wide, widest at humeri; lateral margins narrowly and rather strongly emarginate behind humeri, widely rounded at the middle, then very slowly, almost straight tapering towards conjointly rounded apices; apices serrate; humeral swelling rather feebly developed, laterobasal depression small but deep; surface very finely shagreened, covered by fine punctures in rows longitudinally, larger at basal half along suture only, disappearing in apical fourth; thin short white setae in longitudinal rows, densely along suture at basal fourth, longer thin white setae at apical fourth; an ornamental pubescence of dense long wide white setae as follows: an interrupted semicircular transverse strip just behind the middle, two (1+1) transversely oval spots at the beginning of apical fourth, apex of elytra sparsely, regularly pubescent; posthumeral elytral carina entire, sharp, strongly elevated, extending from humeri to near of apex but not reaching apices.

Ventral surface very strongly shagreened, feebly lustrous, abdomen irregularly punctured by large shallow „U-turned-up-shaped“ punctures, sparsely covered by extremely short white setae; anal ventrite regularly rounded, preapical groove following outline of margin wide, regularly semicircular; antennal grooves long, narrow; prosternal process elongate, feebly constricted between procoxae, slightly dilated behind, surface shagreened and irregularly punctured.

Aedeagus (Fig. 12a).

Sexual dimorphism. Not observed.

Measurements. Length 3.70-4.20 mm (holotype 4.00 mm); width 1.35-1.45 mm (holotype 1.40 mm).

Variability. Except for the size, the variability observed in the elytral shape: elytra 1.95-2.16 times longer than wide (2.06 times in the holotype) and the smaller paratypes have the widest part of elytra at humeri and just before the middle (at humeri in the holotype and larger paratypes); some of the paratypes have the prosternal process with shallow and wide groove longitudinally together with irregular punctuation (irregular punctuation in the holotype only).

Differential diagnosis. *T. tavakiliani* sp. nov. belongs to an extremely difficult complex of very similar species characterized by entire, sharp, well elevated posthumeral elytral carina, moderately flattened elytra with a characteristic pubescent pattern, by pronotum without prehumeral carina or with an obsolete prominence or bump in lateroposterior angles only, by cuneiform, conical or broadly elongate shape of body (especially well marked in large specimens) and by very similar male genitalia. It differs from the closely related, extremely difficult species complex too, *T. fasciatus* Waterhouse, 1889 species group (definition of the species group and the key in prep.) mainly by absence of sexual dimorphism (absence of „fronto-clypeal pubescent strip“ in male).

T. tavakiliani sp. nov. can be distinguished from the related species of this species-group *T. pseudomirai* sp. nov. (Figs. 11, 11a) and *T. doctissimus* sp. nov. (Figs. 13, 13a) by the characters given in Table D below.

Etymology. Named in honour of Gérard L. Tavakilian (Paris, France), specialist in the taxonomy of *Cerambycidae*, with the memory on his help and very nice moments spent together in French Guiana in 1992-1993.

***Taphrocerus doctissimus* sp. nov.**

(Fig. 13, 13a)

Type locality. Brazil, Belém.

Type specimens. Holotype (♂): „Brasil, Pará, Belém, F'de (Faculdade) IPEAN, 22. vii. 1984, Degallier lgt.”, (JMSC). Paratypes (2 spec.): the same data as the holotype (1 ♀, JMSC); French Guiana: „Fr. Guyane bor., Le Larivot env., 3.-6. xi. 1995, lgt. M. Snížek”, (1 ♂, JMSC).

Diagnosis. Medium-sized (3.40-3.70 mm), elongate, oval, rather strongly convex above, lustrous; black, head and pronotum with feeble cupreous lustre including legs and antennae; dorsal surface covered by sparse short white setae, elytra with an ornamental pubescence of longer, denser white setae; prehumeral pronotal carina absent; posthumeral elytral carina present, entire, sharp, strongly elevated.

Description of holotype. Head medium-sized, slightly narrower than anterior pronotal margin; clypeus very widely „V-shaped”, strongly shagreened, separated from frons by fine carina, epistomal pores large, circular, separated more than their own diameter; frons convex, widely depressed at middle, with wide, rather deep groove longitudinally, very finely shagreened, with a few white setae above clypeus only; vertex strongly convex, finely shagreened, sparsely punctured and pubescent, with very fine groove longitudinally; eyes medium-sized, oval, very slightly projecting beyond outline of head; antennae long, narrow.

Pronotum convex, 1.76 times as wide as long, widest at basal third; narrowly transversely depressed along anterior margin, broadly so lateroposteriorly; without bump at lateroposterior angles; anterior margin very widely rounded, straight at the middle, posterior margin strongly biemarginate, widely emarginate in front of scutellum, sides strongly, almost straightly dilated to basal third, than angularly constricted to the base; surface finely shagreened, shallow, rather large circular punctures with extremely short, almost inconspicuous white setae in the depressions and above scutellum only; scutellum finely shagreened, widely triangular.

Elytra strongly convex, strongly wider at humeri than pronotum at base, 2.11 times as long as wide, widest just before the middle; lateral margins narrowly, feebly emarginate behind humeri, widely rounded at the middle, than straight tapering towards almost conjointly rounded apices; apices rather minutely serrate; humeral swelling feebly developed, laterobasal depression small and shallow; surface very finely shagreened, almost inconspicuously at basal half, with longitudinal rows of very fine punctures, disappearing

at apical half, intervals between rows of punctures smooth at basal half; thin short white setae sparsely in rows longitudinally, an ornamental pubescence of longer wider white setae as follows: a few thin but rather long setae behind scutellum, very sparse, interrupted semicircular strip transversely just before the middle, two (1+1) transverse spots at the beginning of apical fourth, apex of elytra sparsely regularly pubescent; posthumeral elytral carina entire, sharp, strongly elevated, extending from subhumeri to near of apex, not reaching apices.

Ventral surface strongly shagreened, abdomen feebly lustrous, irregularly punctured by very shallow, rather small „U-turned-up-shaped“ punctures, sparsely covered by short white setae; anal ventrite rather narrowly rounded, preapical groove following outline of margin wide, regularly semicircular; antennal grooves long, narrow; prosternal process elongate, sides parallel between procoxae, strongly dilated behind, surface shagreened, with a few very large but shallow punctures medially.

Aedeagus (Fig. 13a).

Sexual dimorphism. The female paratype is somewhat wider, elytra 2.04 times as long as wide (2.10-2.12 in males).

Measurements. Length 3.40-3.70 mm (holotype 3.50 mm); width 1.10-1.30 mm (holotype 1.15 mm).

Variability. Except for the size, the variability observed in more intensive bronze lustre and denser setae of ornamental pubescence in the female paratype and in almost asetose abdomen in the male paratype.

Differential diagnosis. *T. doctissimus* sp. nov. belongs in the same complex of the species described above (*T. pseudomirai* sp. nov. and *T. tavakiliani* sp. nov.) (for morphological characters of the complex see Differential diagnosis of *T. tavakiliani* sp. nov. above) and it can be distinguished from them mainly by smaller size, general shape of body (oval), elytra strongly convex and by the smooth apical half of elytra. (See also The morphological characters given in Table D below).

Etymology. The specific epithet is the Latin adjective *doctissimus* (well-learned) to stress the fact, that the holotype and the female paratype were probably collected in the garden in front of high school (faculty IPEAN, Belém).

Table D. Diagnostic characters of *T. pseudomirai* sp. nov., *T. tavakiliani* sp. nov. and *T. doctissimus* sp. nov.

	<i>T. pseudomirai</i>	<i>T. tavakiliani</i>	<i>T. doctissimus</i>
Colouration	bicolourous: head and pronotum golden-brown, elytra metallic violet-brown with purple reflections	uniformly black	black, head and pronotum with feeble cupreous lustre
General shape of body	conical; elytra flattened	cuneiform; elytra flattened	oval; elytra strongly convex
Pronotum	wider, 2.05 times as wide as long	narrower, 1.82 times as wide as long	narrower, 1.76 times as wide as long
Head	wide, 3.83 times as wide as long	narrow, 2.55 times as wide as long	narrow, 3.30 times as wide as long
Size	larger, 3.80 mm	larger, 3.70-4.20 mm	smaller, 3.40-3.70 mm
Aedeagus	parameres feebly constricted at proximal fourth; semimembraneous part larger, well marked (Fig. 11a)	parameres markedly constricted at proximal fourth; semimembraneous part smaller, feebly developed (Fig. 12a)	parameres markedly constricted at proximal fourth; semimembraneous part smaller, feebly developed (Fig.13a)





Figs. 11-13a: 11- *T. pseudomirai* sp. nov. HT, 3.80 mm, 11a- aedeagus, 0.95 mm; 12- *T. tavakiliani* sp. nov. HT, 4.00 mm, 12a- aedeagus, 0.95 mm; 13- *T. doctissimus* sp. nov. HT, 3.50 mm, 13a- aedeagus, 0.65 mm.

***Taphrocerus saintantoinnei* sp. nov.**

(Figs. 14, 14a)

Type locality. French Guiana, Fourgassier.

Type specimens. Holotype (♂): „Guyane Francaise, Fourgassie [error] env. MSA*, J. Marek lgt. vi. 1992”, (JMSC). Paratypes (24 spec.): the same data as the holotype (4 ♂♂, 3 ♀♀, JMSC); the same data but viii. 1992 (3 ♂♂, 2 ♀♀, JMSC) and xii. 1992 (5 ♂♂, JMSC) and iii. 1993 (1 ♂, JMSC); „Guyane Francaise, Cayenne Mt. Bourda, J. Marek lgt. v. 1992” (1 ♀, JMSC); „Guyane Francaise, Roura, Fourgassie [error] env., 15. xii. 2006, Snížek lgt.”, (3 ♂♂, 1 ♀, JMSC).

*MSA means Mission Saint Antoinnei (see Etymology below).

Diagnosis. Medium-sized to large (3.70-4.50 mm), rather stout, broadly elongate, moderately convex above, lustrous; uniformly black including legs and antennae; dorsal surface covered by long thin white setae, elytra with an ornamental pubescence and with two (1+1) pubescent spots of longer, denser and wider white setae at the beginning of apical fourth; prehumeral pronotal carina present, sharp, strongly elevated; posthumeral elytral carina present, entire, sharp, strongly elevated.

Description of holotype. Head medium-sized, slightly narrower than anterior pronotal margin; clypeus almost „T-turned-up-shaped“, matt, separated from frons by fine carina,

epistomal pores large, circular, separated by their own diameter; frons moderately convex, widely and deeply depressed above clypeus, narrowly and deeply longitudinally grooved above the depression, finely shagreened, with „fronto-clypeal pubescent strip“ (♂) of long dense golden setae; vertex strongly convex, protruding between eyes (FVV), shagreened, sparsely, finely punctured, with fine groove longitudinally, with row of short sparse white setae along the margins of eyes only; eyes medium-sized, oval, very slightly projecting beyond outline of head; antennae rather short, wide**.

Pronotum moderately convex, 1.64 times as wide as long, widest at basal fourth; rather widely transversely depressed along anterior margin, deeply laterally, almost interruptly at middle, broadly depressed lateroposteriorly, with very shallow small depression above scutellum; strongly elevated, sharp, almost straight prehumeral carina lateroposteriorly extending to the half of pronotal length; anterior margin widely rounded, posterior margin rather feebly biemarginate, widely emarginate in front of scutellum, sides arcuately dilated to basal fourth, than angularly constricted to the base; surface strongly shagreened, shallow but large circular punctures with long white setae at the depressions and along the sides only; scutellum triangular, widely rounded anteriorly, strongly shagreened.

Elytra moderately convex, strongly wider at humeri than pronotum at base, 2.20 times as long as wide, widest just before the middle; lateral margins narrowly but rather strongly emarginate behind humeri, rather strongly and narrowly rounded at the middle, than straight tapering towards feebly separately rounded apices; apices serrate laterally; humeral swelling feebly developed, laterobasal depression small and shallow; surface finely shagreened, with rows of punctures longitudinally, larger and deeper along the suture at basal fourth, disappearing at apical half; an ornamental pubescence of long but rather sparse white setae as follows: a few setae lateroanteriorly above laterobasal depressions, very sparse perisutural strip behind scutellum, large but sparse, transversely interrupted strip just before the middle, two (1+1) denser spots of markedly longer white setae at the beginning of apical fourth, apex sparsely covered by rather long golden-white setae; posthumeral elytral carina entire, sharp, strongly elevated, extending from humeri to near of apex, not reaching apices.

Ventral surface finely shagreened, very lustrous, abdomen sparsely and shallowly punctured by „U-turned-up-shaped“ punctures, with sparse but long thin white setae laterally; anal ventrite very widely rounded, preapical groove following outline of margin narrow; antennal grooves very wide, shallow; prosternal process constricted between procoxae, strongly dilated behind, apex strongly but widely acuminate, surface very coarsely irregularly punctured.

Aedeagus (Fig. 14a).

**Right antenna, right pro- and mesotarsus missing in the holotype.

Sexual dimorphism. The male differs from the female by presence of „fronto-clypeal pubescent strip“ of dense, wide and rather long setae. In female a few short, almost inconspicuous setae above clypeus only.

Measurements. Length 3.70-4.50 mm (holotype 4.10 mm); width 1.20-1.40 mm (holotype 1.30 mm).

Variability. Except for the size, the variability observed was as follows: in colouration of „fronto-clypeal pubescent strip“ in males - golden setae in seven male paratypes (as the holotype), cream-white setae in nine male paratypes; elytra 2.15-2.25 times as long as wide; some of the paratypes have markedly denser setae in transversely interrupted strip just before the middle of elytra.

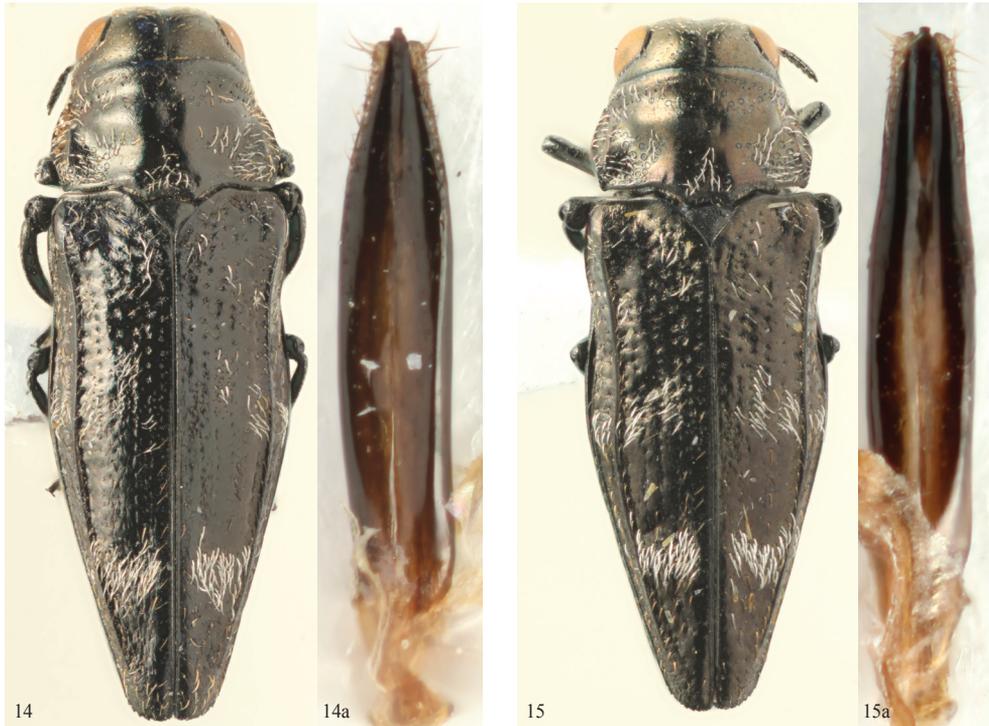
Differential diagnosis. *T. saintantoinnei* sp. nov. is most similar to *T. fasciatus* Waterhouse, 1889 (Figs. 15, 15a) mainly by general shape of body, well elevated posthumeral elytral carina, moderately flattened elytra with a characteristic pubescent pattern and by the male genitalia. It differs mainly by sharp, strongly elevated pronotal prehumeral carina and by markedly protruding vertex between eyes (FVV). See also Diagnostic characters in Table E below.

Table E. Diagnostic characters of *T. saintantoinnei* sp. nov. and *T. fasciatus* Waterhouse, 1889.

	<i>T. saintantoinnei</i>	<i>T. fasciatus</i> ***
Colouration	uniformly „deeply“ black, strongly lustrous	black with strong cupreous reflections, especially on pronotum
Vertex	protruding between eyes (FVV)	not protruding between eyes (FVV)
Pronotum	prehumeral carina strongly elevated, sharp, extending to the half of pronotal length	prehumeral carina feebly elevated, obsolete, with blunt edge
Elytra	markedly longer distance between the transversely interrupted strip just before the middle and the spots at the beginning of apical fourth; surface on this area almost smooth	shorter distance between the transversely interrupted strip just before the middle and the spots at the beginning of apical fourth; surface on this area with fine but conspicuous rows of punctures
Aedeagus	more robust; parameres less than 5.20 times as long as their maximal width, widely arcuately constricted proximally (Fig. 14a)	more slender; parameres more than 5.20 times as long as their maximal width, slightly emarginately constricted proximally (Fig. 15a)

*** The morphological characters based on numerous specimens of *T. fasciatus* from French Guiana

Etymology. *T. saintantoinnei* sp. nov. is named according to the name of the locality, where the holotype and the most of paratypes were collected - Mission Saint Antoinnei. This name was found on old handwritten map from the period of „prisoner colonies“, the present name of this place is Fourgassier.



Figs. 14-15a: 14- *T. saintantoinnei* sp. nov. HT, 4.10 mm, 14a- aedeagus, 1.35 mm; 15- *T. fasciatus* Waterhouse, 1889, specimen male from French Guiana, 3.90 mm, 15a- aedeagus, 1.20 mm.

***Taphrocerus breviformis* sp. nov.**

(Figs. 16. 16a)

Type locality. Brasil, Benjamin Constant.

Type specimen. Holotype (♂): „Brasil Amazonas, Benjamin Constant, 7. vii. 1992, J. Marek lgt.“, (JMSC).

Diagnosis. Medium-sized (3.10 mm), very broadly elongate, stout, pronotum strongly convex, elytra flattened, lustrous; uniformly black including legs and antennae; elytra with four (2+2) pubescent spots, the first pair at the middle near suture, the second pair, transversely elongate, at the beginning of apical fourth; prehumeral pronotal carina absent; posthumeral elytral carina strongly elevated, entire, sharp.

Description of holotype. Head rather small and narrow, narrower than anterior pronotal margin; clypeus very widely „V-shaped, strongly shagreened, separated from frons by fine carina, epistomal pores large, separated more than their own diameter; frons feebly convex, widely depressed at middle and transversely so above clypeus, strongly shagreened, finely punctured on the border with vertex only, aetose; vertex convex, strongly shagreened, with

a short longitudinal groove at middle, extending from anterior pronotal margin to first-fourth only, sparsely, very finely shallowly punctured and covered by extremely short sparse white setae; eyes rather small, reniform, projecting beyond outline of head; antennae rather long, wide*.

Pronotum rather strongly convex, 1.80 times as wide as long, widest at basal two-fifths; narrowly, transversely depressed along anterior margin, broadly and deeply so along posterior margin but almost interrupted at middle; with a very vague longitudinal bump at lateroposterior angles; anterior margin very widely regularly rounded, posterior margin rather strongly biemarginate, widely emarginate in front of scutellum, sides rather strongly, straight dilated at anterior three-fifths, then angulate and parallel to the base; surface strongly shagreened, large circular shallow punctures with extremely short white setae at the depressions and along the sides only; scutellum rather small, widely triangular, strongly shagreened.

Elytra flattened, strongly wider at humeri than pronotum at base, 1.80 times as long as wide, widest at humeri and just before the middle; elytral margins rather shallowly emarginate behind humeri, rather narrowly rounded at middle, then straight tapering towards conjointly rounded apices; apices minutely serrate; humeral swelling strongly developed, laterobasal depression large and deep; surface finely shagreened, punctures in longitudinal rows larger and deeper at basal third, fine and shallow

apically; sparse short thin white setae in rows longitudinally, two (1+1) spots of a few long but thin white setae at the middle near suture, next two (1+1) transversely elongate spots of denser, wider but not so long white setae at the beginning of apical fourth, apex very sparsely white pubescent; posthumeral elytral carina strongly elevated, entire, sharp, extending from humeri to very near of apex but not reaching apices.

Ventral surface lustrous, abdomen strongly shagreened, irregularly punctured by very shallow, almost inconspicuous punctures, very sparsely covered by extremely short white setae; anal ventrite elongate, rather narrowly rounded, preapical groove following outline of margin regularly semicircular, wide; antennal grooves long, rather deep, wide; prosternal process shagreened, elongate, feebly constricted between procoxae, feebly dilated behind, apex trapezoidal, surface finely, irregularly punctured and pubescent.

Aedeagus (Fig. 16a).

*The right antenna missing.

Sexual dimorphism. Female unknown.

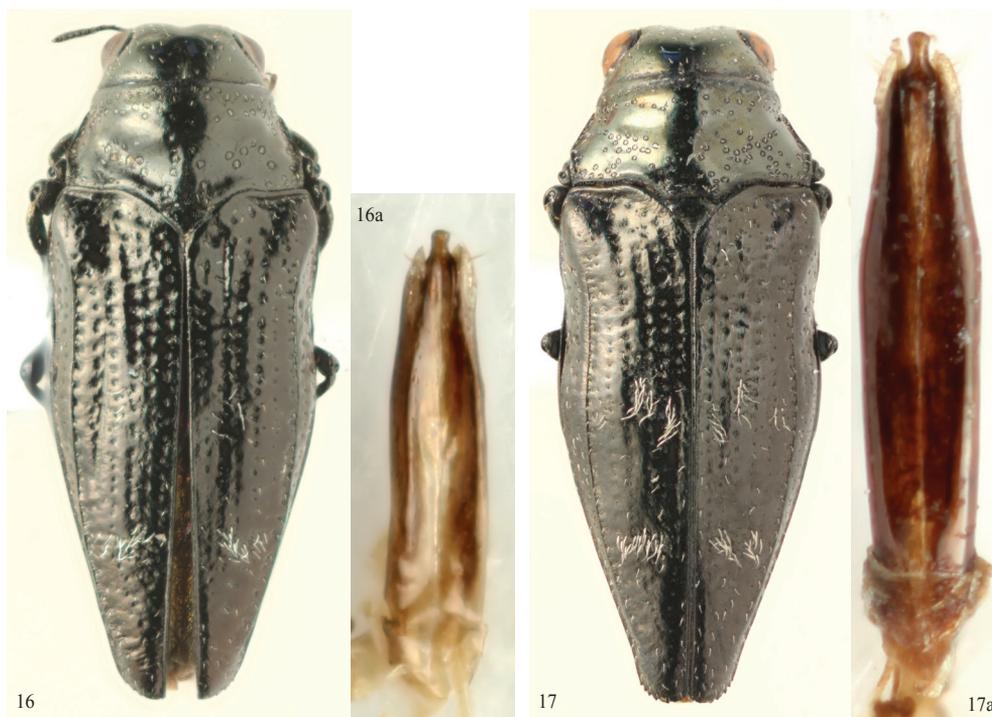
Measurements. Length 3.10 mm; width 1.20 mm.

Differential diagnosis. *T. breviformis* sp. nov. is very similar to *T. strandi* Obenberger, 1934 (Figs. 17, 17a) (described from Bolivia, Curoico) and *T. catacaustus* Obenberger, 1941 (Figs. 18, 18a) (described from Brasil, Manaus) by general shape of body, colouration, presence of sharp, strongly elevated posthumeral elytral carina, very similar pubescence and by similar aedeagus. It differs mainly by more robust body, narrower head, by the pronotal disc more convex and markedly deeper pronotal depressions lateroposteriorly. For distinguishing see also Table F below.

Table F. Diagnostic characters of *T. breviformis* sp. nov. and related species.

	<i>T. breviformis</i>	<i>T. strandi</i>	<i>T. catacaustus</i>
Size; shape of body	smaller species, 3.10 mm; very robust, 2.50 times longer than wide only	larger species, 4.00 mm; less robust, 2.60 times longer than wide	smaller species, 3.20 mm; broadly elongate, 2.70 times longer than wide
Colouration	uniformly black	slightly bicolorous: head, pronotum, scutellum black with green or bluish lustre, elytra black	uniformly black
Head	narrow	wide	wide
Eyes	small	large	large
Pronotum	sides parallel at basal two-fifth; circular punctures in pronotal depressions larger	sides feebly constricted at basal two-fifth; circular punctures in pronotal depressions smaller	sides feebly constricted at basal two-fifth; circular punctures in pronotal depressions larger
Apex of elytra	not spatulate, conjointly rounded, minutely serrate	spatulate, separately rounded, strongly serrate	not spatulate, conjointly rounded, minutely serrate

Etymology. The specific epithet is an adjective derived from the Latin adjective *brevis* (short) and noun *forma* (form) to stress the shape of body of this species.





Figs. 16-18a: 16- *T. breviformis* sp. nov., HT, 3.10 mm, 16a- aedeagus, 0.65 mm; 17- *T. strandi* Obenberger, 1934, LT, male, 4.00 mm (NMPC) (Bolivia, Curoico), 17a- aedeagus, 1.05 mm; 18- *T. catacaustus* Obenberger, 1941, ST, male, 3.20 mm (NMPC) (Brasil, Manaus), 18a- aedeagus, 0.80 mm.

DEFINITION OF THE SPECIES GROUP

Definition of the species group of *Taphrocerus kheili* Obenberger, 1924

Taphrocerus kheili Obenberger, 1924 species group
(Figs. 19, 19a, 20, 20a, 21, 21a, 22, 22a)

Diagnosis. May be characterised as follows: large (4.50-5.10 mm), elongate, moderately convex, lustrous species; dorsal surface cupreous or cupreous with metallic bottle-green tinge or cupreous with purple or violet tinge or spots; head medium-sized, eyes medium-sized to large, epistomal pores present; vertex convex, with fine groove longitudinally; pronotum 1.62-1.75 times as wide as long, widest at third-fifth of the length, without prehumeral carina; elytra 2.25-2.40 times as long as wide, widest just before the middle, posthumeral elytral carina present very obsoletly at apical fourth only, with blunt edge (sometimes like a fold only), elytral sculpture consisting of small, simple punctures in rows longitudinally, well marked at basal half only, gradually disappearing apically, with an elytral ornamental pubescence of long, white setae; sexual dimorphism present* („fronto-clypeal pubescent strip“ in males of dense, rather wide long setae).

*Females of *T. quadriplagiatus* Obenberger, 1924 and *T. arboribus* sp. nov. unknown.

Species included. *T. kheili* Obenberger, 1924;
T. quadriplagiatus Obenberger, 1924;
T. aureopilosus Obenberger, 1934;
T. arboribus sp. nov.

A key to the species of *T. kheili* species group

- 1 (2) More robust, less than 3.00 times as long as wide; elytra less than 2.30 times as long as wide; frons convex (DV); eyes medium-sized, not projecting beyond outline of head; anterior pronotal margin slightly, widely emarginate at middle; aedeagus more slender, parameres more than 4.90 times as long as their maximum width. Brasil, State Rio de Janeiro. Habitus as in Fig. 19 *T. arboribus* sp. nov.
- 2 (1) More slender, more than 3.00 times as long as wide; elytra more than 2.30 times as long as wide; frons slightly narrowly depressed at middle (DV); eyes large, projecting beyond outline of head; anterior pronotal margin widely regularly rounded; aedeagus more robust, parameres less than 4.40 times as long as their maximal width.
- 3 (4) Species monochromatic, uniformly cupreous with bottle-green tinge; pronotum wider, 1.75 times as wide as long; apical fifth of elytra asetose. „America c.“ ** Habitus as in Fig. 22 .. *T. quadriplagiatus* Obenberger
- 4 (3) Species two or multicoloured; pronotum narrower, less than 1.70 times as wide as long; apical fifth of elytra very sparsely but markedly covered by short white setae.
- 5 (6) Head wider, more than 3.50 times as wide as long (DV); elytral surface more coarse at basal third, with larger punctures; elytra with two (1+1) large, metallic brown-violet or violet spots at third-fourth of their length; aedeagus more slender, parameres more than 4.30 times as long as their maximal width. Brasil, State Sao Paulo. Habitus as in Fig. 20 *T. kheili* Obenberger
- 6 (5) Head narrower, less than 3.10 times as wide as long (DV); elytral surface smooth except of very small, simple punctures in rows longitudinally; elytra uniformly cupreous; aedeagus more robust, parameres less than 4.15 times as long as their maximal width. Brazil, State Rio de Janeiro. Habitus as in Fig. 21.
..... *T. aureopilosus* Obenberger

**Obenberger get the type locality of *T. quadriplagiatus* „Colombia“ both in his description and the key in 1924 and in the key in 1934. In fact, there are one „Type“ specimen (syntype) in NMPC only, with handwritten (Obenberger’s MS) locality „America c.“.

Remarks. The *T. kheili* species group is related to a complex of species near to *T. hansii* Obenberger, 1924 and a complex of species near to *T. major* Cobos, 1978. The first (*T. hansii* sp. complex) differs by general shape of body, by vertex rather deeply depressed at middle, the sides of pronotum not constricted to the base ...etc. The second (*T. major* sp. complex) differs mainly by presence of entire, obsolete (with a blunt edge) posthumeral elytral carina from humeri to near of apex (and a little more elevated), not only at apical fourth as in both *T. kheili* sp. group and *T. hansii* sp. complex.

Figs. 19-22a: 19- *T. arboribus* sp. nov. HT, 4.70 mm, 19a- aedeagus, 1.20 mm; 20- *T. kheili* Obenberger, 1924, ST4, male, 4.75 mm (NMPC) (Brasil, Sao Paulo), 20a- aedeagus, 1.30 mm; 21- *T. aureopilosus* Obenberger, 1934, ST1, male, 5.00 mm (NMPC) (Brasil, Rio de Janeiro), 21a- aedeagus, 1.40 mm; 22- *T. quadriplagiatus* Obenberger, 1924, ST, male, 4.80 mm, (NMPC) („America c.“), 22a- aedeagus, 1.40 mm.



NEW SYNONYMY

Taphrocerus paraguayensis Obenberger, 1924

(Figs. 23, 23a, 24, 24a)

Taphrocerus paraguayensis Obenberger, 1924: 74.

Taphrocerus sedyi Obenberger, 1924: 68. **syn. nov.**

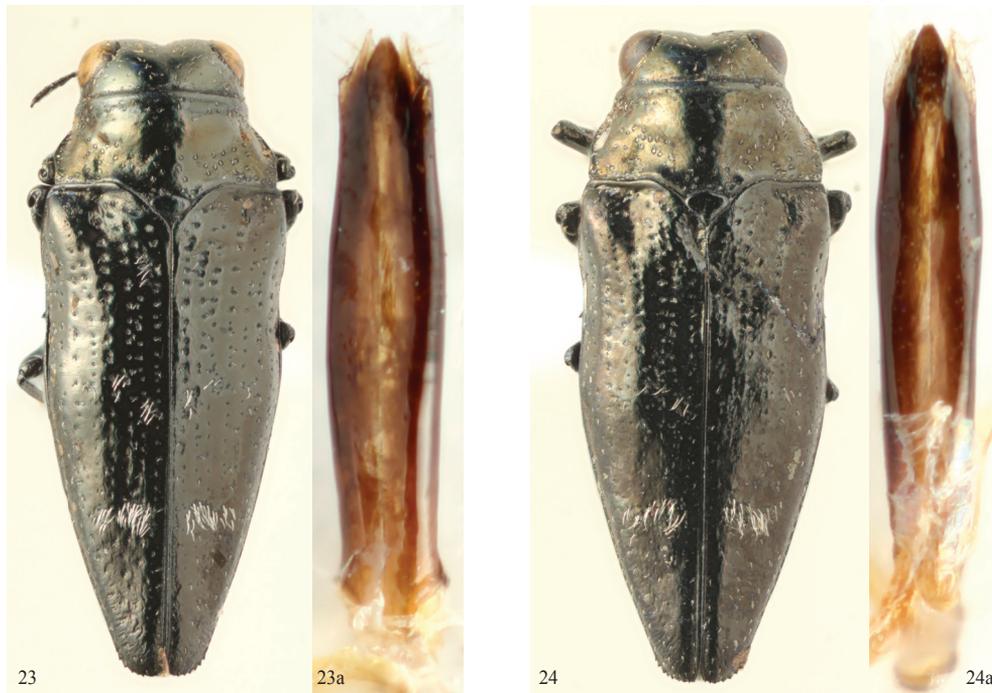
Type specimens studied. *Taphrocerus paraguayensis*: lectotype (NMPC, ♂), lectotype designation see above. *Taphrocerus sedyi*: lectotype (NMPC, ♂), lectotype designation see above.

The lectotype of *T. sedyi* is conspecific with the lectotype of *T. paraguayensis*. The name *T. sedyi* is a new subjective synonym of the name *T. paraguayensis*.

Other material studied. Brasil: , State Rio de Janeiro, Trinidad near Parati, 02.-10. xii. 2000, A. Kudrna jr. lgt., (1 ♂, JMSC).

Distribution. Paraguay, Brasil (under *T. sedyi*).

Remarks. Both *T. paraguayensis* and *T. sedyi* were described in the same paper of Obenberger (1924) and separated by him according to the density and the extension of the ornamental pubescence on elytra (1924, 1934 in the key). I compared the lectotypes of both



Figs. 23-24a: 23- *T. paraguayensis* Obenberger, 1924, LT, male, 3.50 mm („Paraguay“), 23a- aedeagus, 0.95 mm; 24- *T. sedyi* Obenberger, 1924, LT, male, 4.00 mm („Sao Paulo Brs. Mráz“), 24a- aedeagus, 1.05 mm.

species including male genitalia directly. The lectotype of *T. sedyi* is a little larger, with slightly more intensive bronze lustre, with somewhat sparser setae on elytral ornamental pubescence but with the same extension. The male genitalia are without the relevant differences (Figs. 23a, 24a).

***Taphrocerus paranaensis* Obenberger, 1924**

(Figs. 25, 25a, 26)

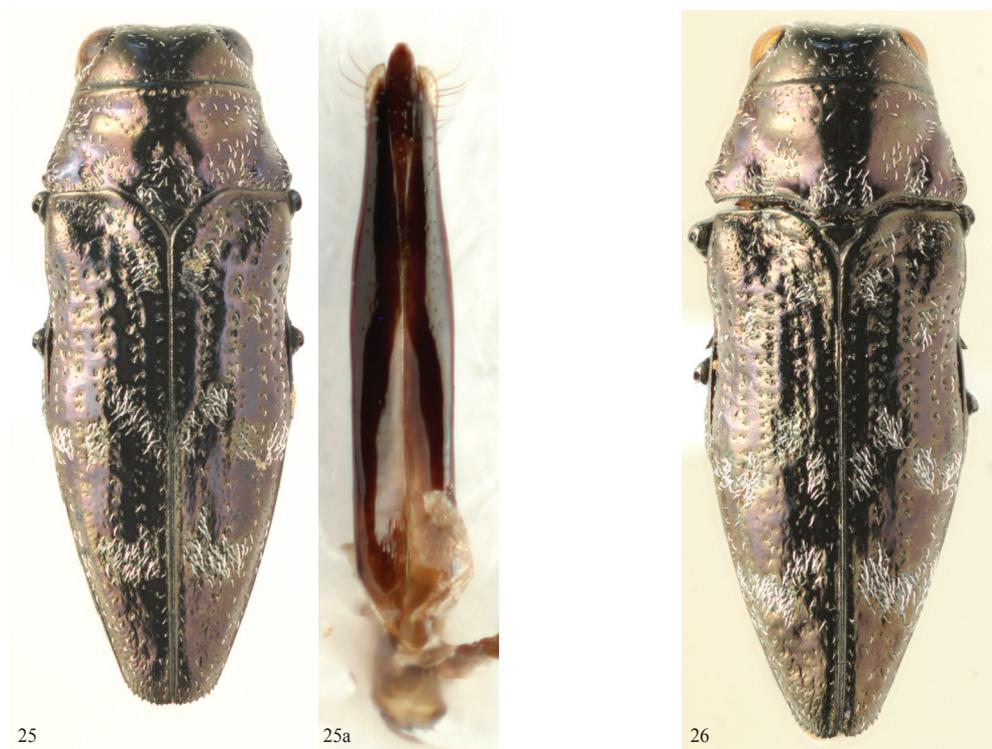
Taphrocerus paranaensis Obenberger, 1924: 69.

Taphrocerus tigreensis Obenberger, 1947: 26. **syn. nov.**

Type specimens studied. *Taphrocerus paranaensis*: lectotype (NMPC, ♂), lectotype designation see above. *Taphrocerus tigreensis*: lectotype (NMPC, ♀), lectotype designation see above.

The lectotype of *T. tigreensis* is conspecific with the lectotype of *T. paranaensis*. The name *T. tigreensis* is a new subjective synonym of the name *T. paranaensis*.

Other material examined. Argentina: „Buenos Aires - Tigre“, (1 ♂, 1 ♀, NMPC*); „Misiones, Dos de Mayo, 16. xi. 1987, R. Foerster“, (1 ♂, JMSC).



Figs. 25-26: 25- *T. paranaensis* Obenberger, 1924, LT, male, 4.00 mm (NMPC) („Páraná, Brs.“), 25a- aedeagus, 1.15 mm; 26- *T. tigreensis* Obenberger, 1947, LT, female, 4.05 mm (NMPC) („Buenos Ayres, Tigre“).

Distribution. Brasil, Argentina (under *T. tigrensis*).

***Remarks.** The specimens male and female stored in NMPC were pinned beside the syntype (lectotype) specimen of *T. tigrensis* by Obenberger without the labels „TYPUS“ either labels of determination, but with handwrite (Obenberger’s MS) locality labels „Buenos Ayres - Tigre“ only. For this reason this two specimens are not attributed to the syntypes but labelled „*T. tigrensis* sensu J. Obenberger“ only.

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REFERENCES

- COBOS A. 1978: Notas sobre Bupréstidos neotropicales, XX. (Col. Buprestidae). *Eos, Revista Española de Entomología* 52(1976): 29-63.
- ICZN 1999: *International Code of Zoological Nomenclature, Fourth Edition, adopted by the International Union of Biological Sciences*. London: International Trust for Zoological Nomenclature, xxix + 305 pp.
- MAREK J. 2014: Studies on the genus *Taphrocerus* (Coleoptera: Buprestidae: Agrilinae) part I. *Studies and Reports, Taxonomical Series* 10(1): 127-133.
- MAREK J. 2015: Studies on the genus *Taphrocerus* (Coleoptera: Buprestidae: Agrilinae) part II. *Studies and Reports, Taxonomical Series* 11(2): 339-357.
- MAREK J. 2016: Studies on the genus *Taphrocerus* (Coleoptera: Buprestidae: Agrilinae) part III. *Studies and Reports, Taxonomical Series* 12(1): 139-163.
- OBNENBERGER J. 1917: ANALECTA III. (FAM. BUPRESTIDAE). *NEUE BEITRÄGE ZUR SYSTEMATISCHEN INSEKTENKUNDE* 1: 60-63.
- OBNENBERGER J. 1924: Révision monographique du genre *Taphrocerus* Solier. (Col. Buprestidae). *Acta Entomologica Musei Nationalis Pragae* 2: 45-83.
- OBNENBERGER J. 1934: Monographie du genre *Taphrocerus* Sol. (Col. Bupr.). *Acta Entomologica Musei Nationalis Pragae* 12: 5-62.
- OBNENBERGER J. 1947: Faunae Buprestidarum Argentinae additamenta I. Dodatky k zvířeně krasců Argentiny (Col. Bupr.). *Acta Entomologica Musei Nationalis Pragae* 25: 5-28.
- WATTERHOUSE C. O. 1889: *Biologia Centrali Americana. Insecta, Coleoptera, Buprestidae*. Vol. 3, pt. 1, pp. 49-192.

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