# AFROTROPICAL *TYCHIUS*: DESCRIPTION OF FIVE NEW SPECIES AND DESIGNATION OF A NEOTYPE

(Coleoptera, Curculionidae)

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#### Introduction

After the taxonomic revision of the Afrotropical species of *Tychius* Germar, 1817 (Caldara 1986, 1989), followed by some additional descriptions (Caldara 1996, Caldara et al. 2009), I had the opportunity to examine many other specimens of this genus collected in this region.

Among these I found some undescribed species and material which appears to belong to an already described species, presently treated as incertae sedis because of the unavailability of the type material. Their treatment is the aim of the present paper.

In the description of the taxa I have reported only the taxonomic characters which are useful for the separation of the species of the genus, avoiding those which are known to be possessed by all other species on the basis of previous revisions (Caldara 1986, 1989, 1990). The same criteria were used in the measurements. All of the treated species belong to groups already recognized and their sequence follows that in Caldara (1986, 1989).

Type depositories are as follows. BMNH = The Natural History Museum, London, United Kingdom; ECCR = Enzo Colonnelli collection, Rome, Italy; GOCV = Giuseppe Osella collection, Verona, Italy; MZ-LU = Museum of Zoology, Lund University, Lund, Sweden; RCCM = Roberto Caldara collection, Milan, Italy; SANC = South African National Collections, Pretoria, South Africa; TMSA = Transvaal Museum, Pretoria, South Africa.

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# Tychius gambiensis n. sp.

Type series. "Gambia, Bathurst [currently Banjul], jan.68, Palm" female holotype (MZLU).

HOLOTYPE (fig. 1). Length 2.7 mm. Integument dark brown except for apical 1/3 of rostrum, antennae and tarsi reddish brown, apart elytral striae nearly completely hidden by very dense vestiture formed by partly embricated recumbent whitish and light brown scales of two shapes: broad, subelliptical to oval, and setalike, the latter covering only elytral striae; head and rostrum in basal 2/3 covered with whitish and light brown scales intermixed; pronotum covered with light brown and whitish scales, the latter forming a narrow median vitta and partly covering sides; elytra covered with light brown and whitish scales, the latter mainly covering odd-numbered interstriae and arranged in three irregular rows; striae covered with thin whitish scales; venter covered densely with white broad scales. Rostrum robust, 0.85x as long as pronotum, both in lateral and dorsal view gradually narrowed from middle to apex. Frons slightly narrower than rostrum at base. Eyes completely flat. Antennae inserted just in front of middle, funicle 7-segmented, with first segment 1.7x longer than second segment. Pronotum weakly transverse, 1.11x wider than long, with sides nearly parallel in basal 2/3, weakly convex. Elytra elongate, 1.46x longer than wide, 1.35x wider than pronotum, with sides rectilinear, slightly convergent in basal 2/3, weakly convex; striae moderately visible. Metafemora with small tooth, tarsomere 3 bilobed and distinctly wider than tarsomere 2; claws with two processes as long as 2/3 of claw. Spermatheca and spiculum ventrale as in the other species of the group (Caldara 1986).

ETYMOLOGY. The adjective refers to the country where this species was collected

DISTRIBUTION. Western Gambia.

Remarks and comparative notes. The holotype is the only specimen of the species presently known. This is the first species of *Tychius* known from Gambia and the first species from North-western Africa belonging to the Afrotropical *T. discolor* Fåhraeus, 1871 group (Caldara 1986). It is similar to *T. discolor*, from which it is clearly distinguishable by the completely flattened eyes, the weakly transverse pronotum with subpar-

allel sides in basal 2/3, the scales covering pronotum and elytral interstriae all wide and uniform in shape.

## Tychius stalsi n. sp.

Type series. "Elandsfontein, TP [Transvaal Province], Jan.1953, D.W. Rorke" male holotype (SANC).

HOLOTYPE (fig. 2). Length 2.5 mm. Integument reddish brown except for pronotum dark brown, on dorsum somewhat visible between moderately dense vestiture formed by recumbent scales of two different shapes: mainly elongate, subelliptical to subrectangular, whitish and light brown, and broad, suboval to subelliptical, white; head and rostrum from base to antennal insertion covered with whitish to light brown elongate scales; pronotum covered with light brown and white (midline and part of sides) elongate scales and with white broad scales (sides in basal half); elytral interstriae 2-10 covered with white (mainly on odd-numbered interstriae) to light brown elongate scales arranged in three to four irregular rows; interstria 1 covered mainly with white broad scales arranged in two rows; striae covered with thin whitish to light brown scales; venter covered densely with white broad scales. Rostrum robust, moderately elongate, 0.82x as long as pronotum, in lateral view regularly tapered from base to apex, moderately curved, in dorsal view slightly narrowed from antennal insertion to apex. Frons slightly wider than rostrum at base. Eyes flattened. Antennae inserted just in front of middle, funicle 7-segmented, with first segment 1.7x longer than second segment. Pronotum weakly transverse, 1.12x wider than long, with sides nearly straight in basal 2/3 and very slightly divergent from base, distinctly narrowed at apex, slightly convex. Elytra elongate, rectangular, 1.47x longer than wide, 1.23x wider than pronotum, with parallel sides in basal 3/4, convex; striae clearly visible. Femora unarmed, protibiae without tooth at middle, tarsomere 3 bilobed and distinctly wider than tarsomere 2, claws with two processes as long as 1/2 of claw. Penis as in fig. 14.

ETYMOLOGY. This species is named in honour of Riaan Stals, who sent me several specimens with which this present paper deals and kindly allowed me to examine the collections of SANC during my visit in Pretoria

Remarks and comparative notes. The holotype is the only specimen

of the species currently known. This species belongs to the *T. intrusus* Faust, 1889 group (Caldara 1989) and is similar to *T. uncirostris* Caldara, 1989 from Namibia and Northern Cape, with which it shares the shape of rostrum and elytra. It differs by subquadrate pronotum covered with sparse broad scales only at the basal half of the sides, lack of broad scales on the elytral interstriae except interstria 1, unarmed femora.

DISTRIBUTION. South Africa (Gauteng).

### Tychius suturellus Gyllenhal, 1836

Tychius suturellus Gyllenhal, 1836: 409. Caldara, 1989: 55.

Type series. This taxon was described from specimens "Ex Museo Dom. Ecklon et Zeyher", collected in "Caffraria" with no other indications, and no longer available (Caldara 1989). Subsequently, also further attempts in finding them failed. Therefore, following the provisions of Article 75 of the ICZN (1999), with the express purpose to clarify the taxonomic status of this species which remained unknown to all authors after its description, I decided to designate a neotype of *T. suturellus* on the basis of a specimen which corresponds very well with the original description. It is labelled as follows: "S. Afr. [Northern Cape]: Richtersveld, Ekstienfont valley, 28.47S-17.12E / 28.9.1999: E-Y 2806, flowering vegetat., leg. Endrödy-Younga" (TMSA).

Neotype (fig. 3). Length 2.6 mm. Integument blackish except for apical 1/2 of rostrum, antennae and legs reddish brown, scarcely visible between dense vestiture formed by recumbent to subrecumbent scales of two shapes: elongate, subelliptical to lanceolate, reddish brown to whitish, and broad, subelliptical to oval, white. Head and basal 1/3 of rostrum covered with whitish to reddish brown elongate scales. Pronotum covered with mainly elongate scales, reddish brown and whitish (sparse only at basal 1/2 of median portion) and broad scales (basal 1/3 of middle portion and sides at base). Elytra covered with elongate scales reddish brown to whitish, the latter more numerous at sides, arranged on interstriae in three to four irregular rows, and broad scales (interstria 1 and 6-10). Rostrum moderately robust, 0.75x as long as pronotum, in lateral view very weakly tapered from antennal insertion to apex, weakly curved (fig. 13), in dorsal view somewhat narrowed from base to apex. Frons slightly wider than rostrum at base. Eyes flat. Antennae inserted between middle

1/3 and apical 1/3, funicle 7 segmented, with first tarsomere 2.5x longer than second segment. Pronotum subquadrate, 1.08x wider than long, with sides weakly rounded, widest just in front of middle, weakly convex. Elytra elongate, 1.49x longer than wide, 1.32x wider than pronotum, subrectangular, with sides subparallel in basal 2/3 then gradually convergent, weakly convex. Pro- and mesofemora with small obtuse tooth, metafemora with distinct sharp tooth, tibiae without tooth at middle along inner margin, tarsomere 3 bilobed and moderately wider than tarsomere 2, claws with two processes as long as 1/2 of claw. Penis as in fig. 19.

Remarks and comparative notes. The neotype is the only specimen of the species currently known. This species belongs to the *T. intrusus* group (Caldara 1989) and seems to be related to *T. rufulus* Caldara, 1989 and *T. oberprieleri* Caldara, 1989, due to the habitus and the shape of the rostrum. It differs clearly from both species by the pattern of the dorsal vestiture, which is characterized in *T. rufulus* by a transverse basal vitta on the pronotum and the nearly complete lacking of broad scales on elytra except interstria 1, and in *T. oberprieleri* by a complete narrow longitudinal white median vitta on the pronotum and broad scales intermixed with elongate scales on the whole pronotum and elytral interstriae.

DISTRIBUTION. South Africa (Northern Cape).

#### Tychius barclayi n. sp.

Type series. "St. n° 71 / Keurbooms River, Estuary, 18.III.1954, beaten from plant 19 / S. Africa, Cape Province, Knysna District, J. Balfour-Browne, B.M. 1954-797" 1 male holotype (BMNH) and 39 males and 25 females paratypes (56 BMNH, 8 RCCM).

HOLOTYPE. Length 2.3 mm. Integument dark brown except for apical half of rostrum, antennae, elytra and legs reddish, on dorsum completely hidden by recumbent, light brown and whitish scales, with whitish scales covering sides and central part of base of pronotum, first interstria completely and second and lateral interstriae at middle third and venter; all scales broad, subelliptical to oval, with brown scales 2.5-3x as long as wide and greyish brown scales 1.5-2x as long as wide, arranged on interstriae in three to four irregular rows; striae covered with thin light brown scales. Rostrum moderately long, 0.79x as long as pronotum, in lateral view curved at base and further almost straight, moderately and gradually tapered from base to apex (fig. 7), in dorsal view subparallel-sided.

Frons slightly narrower than rostrum at base. Eyes almost flat. Antennae inserted just in front of middle, funicle with 7-segmented, with first segment 1.5x longer than second segment. Pronotum weakly transverse, 1.12x as wide as long, with sides subparallel in basal two thirds further weakly narrowed and slightly curved, moderately convex. Elytra short, 1.25x as long as wide, 1.35x wider than pronotum, suboval, with weakly curved sides, widest at basal third, convex; striae clearly visible. Femora unarmed, protibiae without tooth at middle, tarsi with segment 3 distinctly wider than tarsomere 2, distinctly bilobed, claws with one median process as long as 2/3 of claw. Penis as in fig. 15.

Paratypes (fig. 4). Length 2.0-2.4 mm. The scales of the dorsal vestiture vary from completely greyish unicolorous to distinctly bicoloured with the dark ones reddish brown, these latter being sometimes narrower, about 4x as long as wide. Females as males except rostrum moderately longer, 1.04x as long as length of pronotum, in lateral view straight, narrowing from base to antennal insertion further parallel (fig. 8); spermatheca and spiculum ventrale as in *T. varius* Caldara, 1989 (see Caldara 1989).

ETYMOLOGY. This species is named in honour of Max Barclay, who facilitated my study of the weevils deposited in the BMNH.

DISTRIBUTION. South Africa (Eastern Cape).

Remarks and comparative notes. The specimens of the type series were previously considered erroneously as paratypes of *T. varius* of the *T. albulus* Gyllenhal, 1836 group and the external morphological differences were considered as falling within the range of the variability of this latter taxon (Caldara 1989). A further more careful study of them and the examination of the penis, very similar to that of *T. albulus* and *T. wiborgiae* Caldara, 1989, showed that these specimens belong to another unknown species. For the differences between the related species see the remarks of the following taxon.

# Tychius rufotheivorus n. sp.

Type series. "South Africa, WCape, Aggenbagskraal near Clanwilliam, 32.17S 18.53E, 380m, 26.XI.1996, Neser/Oberprieler/Stiller / Collected by D-Vac from 4-year old rooibos tea *Aspalathus linearis* (Fabaceae) plantation" 1 male holotype and 3 male

and 3 female paratypes (4, SANC, 2 RCCM); "South Africa, WCape, Uitsig Farm near Clanwilliam, 31.58S 19.07E, 380 m, 28.XI.1996, Neser/Oberprieler/Stiller / Collected by beating rooibos tea Aspalathus linearis (Fabaceae) in 4 year old plantation" 7 paratypes (SANC); "South Africa, WCape, Seekoevlei Farm nr Clanwilliam, 32.09S-18.45E. 360 m. 27.XI.1996, Neser/Oberprieler/Stiller / Collected D-Vac off rooibostee Aspalathus linearis (Fabaceae)" 10 paratypes (8, SANC, 2 RCCM); "South Africa, WCape, Oudam Farm nr Graafwater, 32.04S 18.41E, 440 m, 26.XI.1996, Neser/Oberprieler/Stiller / Collected by D.Vac from 4-year rooibos tea Aspalathus linearis (Fabaceae) plantation" 3 paratypes (SANC); "South Africa, WCape, Groenkol Fm near Graafwater, 32.06S 18.42E, 440 m, 26.XI.1996, Neser/Oberprieler/Stiller / Collected by beating rooibos tea Aspalathus linearis (Fabaceae) in 4 year old plantation" 7 paratypes (SANC); "South Africa, WCape, Kriedouw Fm S Clanwilliam, Site 3, 32.22S 19.00E, 355 m, 27.XI.1996, Neser/Oberprieler/Stiller / Collected from "swarttee" form of rooibostee growing wild in mountain fynbos" 12 paratypes (8 SANC, 2 BMNH, 2 RCCM); "South Africa, WCape, Kriedouw Fm S Clanwilliam, Site 2&5, 32.22S 19.01E, 290 m, 27.XI.1996, Neser/Oberprieler/Stiller / Collected from "regop grystee" form of rooibostee Aspalathus linearis (Fabaceae) growing wild in mountain fynbos" 7 paratypes (SANC); "South Africa, WCape, Kriedouw Fm S Clanwilliam, Site 1, 32.19S 18.58E, 290 m, 27.XI.1996, Neser/Oberprieler/Stiller / Collected from "Kriedouw" form of rooibostee growing wild in mountain fynbos" 11 paratypes (9 SANC, 2 RCCM); "South Africa, WCape, Rocklands, Pakhuis Pass near Clanwilliam, 32.08S 18.58E, 900 m, 25.XI.1996, Oberprieler/Neser/Stiller / Collected from Aspalathus linearis (Fabaceae) "Rocklands type"" 7 paratypes (SANC); "South Africa, C.P., Gifberg Pass, 250-560 m, 31.45S 18.47E, 17.IX.1986, R. Oberprieler / Collected on Aspalathus linearis" 10 paratypes (SANC); "Cederberg, 10 km NW Algeria, m 300 ca., 32.20.46S 18.59.06E, 15.XI.2007, Giusto, Colonnelli, Osella legg." 9 paratypes (5 ECCR, 4 GOCV).

HOLOTYPE. Length 2.7 mm. Integument dark brown except for rostrum, antennae and legs reddish brown, on dorsum nearly completely hidden by dense vestiture formed by recumbent scales of two different shapes and colours: elongate, subrectangular to elliptical, reddish brown, and broad, elliptical, white; head and basal half of rostrum covered with broad scales; pronotum covered with elongate scales, and broad scales arranged at basal 1/3 at middle and basal half at sides; elytra covered with elongate scales arranged in three irregular rows on interstriae, and broad scales arranged on humeri, interstria 1 and at middle third of interstriae 6-8; striae covered with thin light brown scales; venter covered with broad white scales. Rostrum robust, moderately elongate, 0.80x as long as pronotum, in lateral view distinctly narrowing from antennal insertion to apex, weakly curved, angulate at antennal insertion along dorsal margin (Fig. 9), in dorsal view slightly narrowed from antennal insertion to apex. Frons as wide as rostrum at base. Eyes moderately convex. Antennae inserted between middle and apical 1/3 of rostrum, funicle with 7 segments, with first segment 1.7x longer than second segment. Pronotum weakly transverse, 1.15x wider than long, with subparallel sides in basal 2/3, distinctly convex. Elytra moderately elongate, 1.30x longer than wide, 1.30x longer than pronotum, suboval, widest at base, with sides moderately curved, distinctly convex; striae moderately visible. Femora unarmed, protibiae without tooth at middle, tarsomere 3 bilobed and distinctly wider than tarsomere 2, claws with two processess as long as 1/2 of claw. Penis as in fig. 16.

Paratypes (fig. 5). Length 2.4-3.0 mm. Rostrum length/pronotum length male 0.76-0.86, female 0.80-0.90; pronotum width/length 1.12-1.22; elytral length/width 1.26-1.34. The dark scales vary from brown to dark brown with coppery reflection. Sometimes a little part of the elongate scales are white: they are at middle and sides of the apical half of the pronotum forming together with the broad ones three almost complete vittae and at sides of elytra the broad scales are more or less numerous. The body of the penis in specimens from type locality, Uitsig Farm and Rocklands, has sides narrowest at middle and apex moderately upturned (fig. 16), whereas those from Gifberg Pass and Kriedouw Farm has sides subparallel (fig. 17) and apex more distinctly upturned although never as in *T. varius*. Female as males except rostrum about of same length and shape, only slightly more tapered from antennal insertion to apex (fig. 10), antennal insertion slightly basal. Spermatheca and spiculum ventrale as in *T. varius* (see Caldara 1989).

ETYMOLOGY. The name of the species is a substantive meaning "red tea eater", and refers to the host plant, the "rooibos", the national South-African beverage.

DISTRIBUTION. South Africa (Western Cape).

Remarks and comparative notes. This species belongs to the *T. albulus* group (Caldara 1989) and appears to be very closely related to *T. varius* and *T. barclayi*, from which it is constantly distinguishable by the different pattern of the elytral vestiture, although somewhat variable. Moreover, in *T. rufotheivorus* the pronotum is slightly more transverse.

The key below can be used to distinguish the three species.

- Dorsal vestiture composed mainly of greyish brown to light brown moderately elon-

- Length 2.4-2.7 mm; sparse white wide scales at middle covering at most interstria 2; eyes weakly convex; pronotum on disc moderately convex; rostrum shorter and in lateral view slightly tapered from antennal insertion to apex; claws with a single median process; apical half of body of penis in lateral view distinctly turned down ...... barclayi

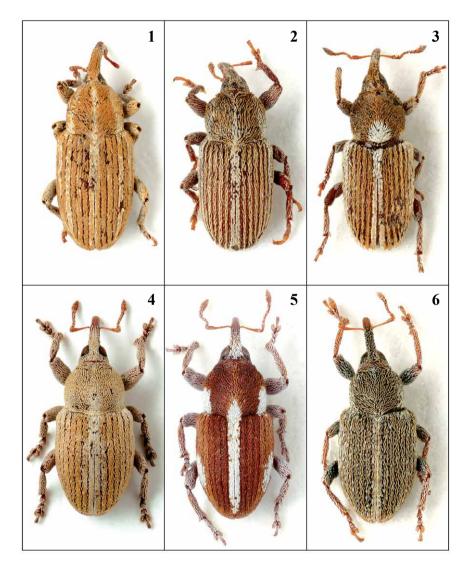
It is noteworthy that at Pakhuis Pass, specimens of *T. varius* appear to have also been collected on *Aspalathus linearis* together with specimens of *T. rufotheivorus*. Previously *T. varius* was reported as living on *A. spinosa* (see Caldara 1989). The identification of these two species appears very interesting because adults and larvae could cause considerable damage respectively to the leaves and the seeds of the "rooibos", which is a plant of significant economical importance in South Africa. On the basis of the present taxonomic results an approach to a close biological study is surely facilitated.

# Tychius muellerarum n. sp.

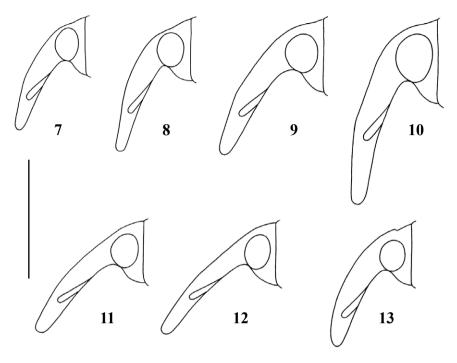
Type series. "South Africa, WCape, Brandwag (farm), near Leipoldtville, 32.09,2S 18.24,8E, 100 m, 4.VIII.1996, M. Stiller" 1 male holotype (SANC) and 1 female paratype (RCCM).

Holotype (fig. 6). Length 2.4 mm. Integument blackish except for apical 1/2 of rostrum, antennae, tibiae and tarsi reddish brown, on dorsum moderately visible between vestiture formed by recumbent scales of two different shapes: elongate, subelliptical, whitish to brown, and broad, subelliptical to oval, whitish; head and basal 1/2 of rostrum covered with elongate and broad whitish scales; pronotum covered mainly with whitish and light brown elongate scales and with broad scales only at sides; elytra covered with elongate light brown scales, arranged in three irregular rows on each interstria, and with broad withish scales more numerous on interstria 1 and sides and sparse on other interstriae; striae covered with whitish scales slightly thinner than elongate ones covering interstriae; venter covered with broad whitish scales. Rostrum moderately robust, 0.92x as long as pronotum, in lateral view nearly of same width from base to apex, moderately curved (fig. 11), in dorsal

view subparallel-sided. Frons as wide as rostrum at base. Eyes moderately convex. Antennae inserted between middle 1/3 and apical 1/3, funicle 7-segmented, with first segment 1.5x longer than second segment. Pronotum subquadrate, 1.08x wider than long, with sides subparallel in basal



Figs 1-6 – Habitus of *Tychius gambiensis* holotype (1); *T. stalsi* holotype (2); *T. stuturellus* neotype (3); *T. barclayi* male paratype (4); *T. rufotheivorus* female paratype (5); *T. muellerarum* holotype (6). Not at the same scale.

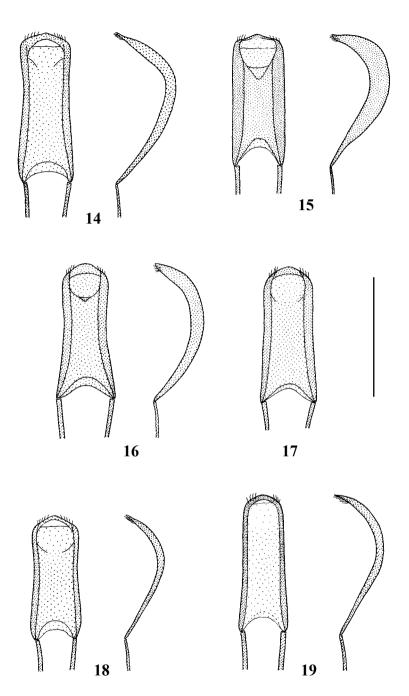


Figs 7-13 – Rostrum in lateral view of *Tychius barclayi* male (7), female (8); *T. ru-fotheivorus* male (9), female (10); *T. muellerarum* male (11), female (12); *T. suturellus* male (13). Scale bar = 1.0 mm.

2/3, moderately convex. Elytra moderately elongate, 1.38x longer than wide, 1.42x wider than pronotum, suboval, with sides subparallel in basal 1/2 further gradually convergent, distinctly convex; striae moderately visible. Femora unarmed, protibiae without tooth at middle, tarsomere 3 bilobed and distinctly wider than tarsomere 2, claws with two processes as long as 1/2 of claw. Penis as in fig. 18.

Paratype. As male holotype except rostrum slightly longer (fig. 12), 0.96x as long as pronotum, antennae inserted just in front of middle. Spermatheca and spiculum ventrale as in the other species of the group (see *T. albulus* in Caldara 1989).

ETYMOLOGY. This species is named in honour of Ruth and Ella Müller, whose kind hospitality during my recent stay in Pretoria was invaluable.



Figs 14-19 – Penis in dorsal and lateral view of *T. stalsi* (14); *T. barclayi* (15); *T. ru-fotheivorus*, Rocklands (16); *T. ru-fotheivorus*, Gifberg Pass (17); *T. muellerarum* (18); *T. suturellus* (19). Scale bar = 0.5 mm.

DISTRIBUTION. South Africa (Western Cape).

Remarks and comparative notes. This species belongs to the *T. albulus* group (Caldara 1989) and appears to be related to *T. wiborgiae*, with which it shares the shape of pronotum and elytra and the pattern of the vestiture. However, it differs distinctly by the shape of the rostrum, which is about of the same width from base to near apex in both lateral and dorsal view, the insertion of the antennae, which is placed more apically in the male, the dorsal vestiture with elongate scales of two different colours, light brown and whitish, the latter covering the striae on the elytra, the shape of the penis.

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#### SUMMARY

Five new species belonging to the weevil genus *Tychius* are described: *T. barclayi* n. sp. (South Africa), *T. gambiensis* n. sp. (Gambia), *T. muellerarum* n. sp. (South Africa), *T. rufotheivorus* n. sp. (South Africa), *T. stalsi* n. sp. (South Africa). Moreover the neotype of *T. suturellus* Gyllenhal, 1836 is designated. Descriptions, photographs of their habitus and figures of rostra and genitalia are given.

#### RIASSUNTO

Descrizione di cinque nuove specie e designazione di un neotipo di Tychius della regione afrotropicale (Coleoptera, Curculionidae).

Vengono descritte cinque nuove specie appartenenti al genere *Tychius*: *T. barclayi* n. sp. (Sudafrica), *T. gambiensis* n. sp. (Gambia), *T. muellerarum* n. sp. (Sudafrica), *T. ru-fotheivorus* n. sp. (Sudafrica), *T. stalsi* n. sp. (Sudafrica). Inoltre viene designato il neotipo di *T. suturellus* Gyllenhal, 1836. Per ogni specie sono riportate la descrizione, la fotografia del loro habitus e i disegni dei rostri e degli apparati genitali.

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