

Two new species in the genus *Taeniolobus* Chaudoir, 1855, from Ecuador (Coleoptera: Carabidae: Scaritini)

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Abstract. *Taeniolobus giachinoi* sp. nov. and *T. onorei* sp. nov. from Ecuador are described and illustrated including its aedeagi and compared with other South-American species of the genus.

INTRODUCTION

The species of the nominotypical subgenus of the genus *Taeniolobus* Chaudoir, 1855 occur in the northern part of the South American region, moreover one species in the Caribbean Region (Cuba). To date, 38 species and one subspecies of this subgenus have been described; according to Reichardt (1977), one undescribed species occurs in Chiapas, Mexico. All to date known species were revised and keyed in Bänninger (1941); according to Lorenz (2005) and authors database since 1941 no next American species has been discovered so that the two species described below are first new taxa since then.

Remaining ten taxa of the genus belong to the subgenus *Orientalobus* Dostal, 1996 inhabiting the Afrotropical and Oriental Regions.

MATERIAL AND METHODS

The study of dry-mounted specimens, including measurements and examination of microsculpture, was done at a magnification up to 56 \times . All specimens were measured. Length of body (including closed mandibles) is given with accuracy 0.1 mm, ratios and means are down to two decimal places. Label data of all specimens are quoted verbatim except standardized data. Aedeagi were fixed with water-soluble glue on a label and placed on the same pin below the beetle.

For comparison were studied most known taxa from both mentioned subgenera: several specimens from diverse museums, very extensive material from the author's collection, and finally, next material from several other collections.

The following abbreviations are used to indicate the depository of specimens:

PBPC Petr Bulirsch collection, Praha, Czech Republic;

PMGT Pier Mauro Giachino collection, Torino, Italy.

Other abbreviations:

SP: setiferous puncture(s); DSP: dorsal setiferous puncture(s); HT: holotype(s); PT: paratype(s); /, // by locality labels: end of line, label.

RESULTS

Taeniolobus giachinoi sp. nov.

(Figs. 1-3)

Type material. Holotype (♂): Ecuador, Pichincha / S. José de Minas / Cerro Blanco, m 2850 / 7.viii.2006; P. M. Giachino, (PMGT). Paratypes. (3 ♂♂, 1 incomplete fragment, without fore body and most legs) with same data as HT; (1 ♀) same data as HT except: leg. C. Belló; (1 ♂) Ecuador-Pichincha- / Pataqui dint., m. 2575 / 14.viii.2008 // N 0°11'96.2" / W 78°21'53.8" / vaglio bosque // Ecuador 2008 / legg. Baviera, Belló / Osella & Pogliano; (1 ♀) Ecuador, Pichincha / Volcán Atacazo, m 3707 / S 0°20'7.6" W 78°37'34.4" / 9.viii.2006, P.M. Giachino, (all PT in PMGT and PBPC).

Description. Habitus as in Fig. 1. Surface black, legs dark fuliginous, meso- and metatibiae, tarsi, mouth-parts and antennae slightly lighter. Measurement: total length 16.5-18.0 mm (mean 17.5 mm, HT 17.6 mm, n=7); width 4.6-5.0 mm (mean 4.8 mm, HT 4.9 mm). Head 1.01-1.04 (mean 1.03, HT 1.01) times as broad as pronotum; pronotum 1.36-1.41 (mean 1.39, HT 1.41) times as broad as long; elytra 1.63-1.68 (mean 1.65, HT 1.64) times as long as broad, 2.29-2.36 (mean and HT 2.29) times as long as pronotum; length of aedeagus in HT 2.60 mm; aedeagus 0.32-0.34 (mean 0.33, HT 0.32, n=5) times as long as elytra.

Head. Mandibles very long, with long and narrow apical third; inner keel blunt, slightly elevated basally, disappeared in anterior third; surface between outline and keel very narrow, barely broadened before base, just concave, moderately shiny, without wrinkles; inner margin of inner tooth of left mandible with large, irregular tooth in basal half and another, very small and rather bunt tooth in anterior third, right inner tooth with complementary teeth and excisions; both inner teeth with rough oblique wrinkles. Eyes small and moderately vaulted; genae hemispheric, slightly longer than eyes length, distinctly broader than eyes, its apical margin perpendicular to neck; in lateral view genae with deep furrow below eyes. Facial furrows deep and very broad, broadly divided eyes with genae from neck. Frontal furrows multiplied, very fine, irregular, diminish below level of anterior margin of eyes. Supraantennal plates moderately strongly broadened, anteriorly almost directly narrowed to anterior clypeal margin with narrowly rounded pair of sublateral teeth; anterior margin of clypeus with two small and sharp submedial teeth. Surface of clypeofrontal area with irregular, very fine and very dense wrinkles combined with dense, very fine punctures and irregular rests of reticulation. Antennae long, antennomeres 5-7 distinctly, 8-10 just longer than broad; antennomere 2 just longer than 3. One clypeal and standardly one facial SP (in one PT 3-4 facial SP).

Pronotum. Moderately broad, slightly vaulted in lateral view, outline barely broadened just below anterior angles, then almost directly and very slightly narrowed posteriorly, lateral margin irregularly dotted with small excisions; anterior angles sharp, strongly and narrowly prolonged anteriorly, posterior angles formed by small, rather distinct tooth; lateral parts of base steeply, concavely narrowed to narrow, rather strongly protruded median part, latter connected with basal margin by obtuse, rounded angle. Anterior furrow irregular and very superficial, almost indistinct, median line fine; (1)2-3 anterior and 1-2(3) posterior SP in irregular and narrow lateral channel, more or less distinctly interrupted around lateral



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Fig. 1. *Taeniolobus giachinoi* sp. nov. Habitus (HT). Actual length 17.6 mm.

Figs. 2-3. *Taeniolobus giachinoi* sp. nov. Aedeagus (HT). 2- in left lateral view; 3- in dorso-lateral view. Actual length 2.60 mm.

tooth; lateral channel slightly broadened and deepened below anterior angles and basal foveae. Surface rather shiny; disc without distinct reticulation, with fine micropunctures and irregular winkles, below anterior margin of pronotum with fine and short longitudinal wrinkles. Basal foveae rather large, moderately deepened, dull, covered by very dense microtubercles and rough reticulation, latter extended laterally along latero-basal margin.

Elytra. Surface moderately dull, disc with distinct and regular reticulation, latero-apically reticulation stronger, especially apex dull. Disc in lateral view basally slightly and regularly vaulted; outline barely ovate, regularly, slightly broadened from humeral tooth to anterior four sixth, then regularly, moderately broadly rounded posteriorly, lateral margin especially below humeri with several dotted incisions; base rather deeply concave medially, then convex anteriorly to moderately slopping, strongly convex and distinct humeral ridge with moderately distinct and rather sharp humeral tooth; elytra broadest just below midlength. Striae 1-7 impunctate, rather fine, weakened latero-apically and slightly latero-basally, stria 8 indistinct; intervals 1-3 very slightly, 4-7 apically slightly, basally moderately vaulted; lateral channel moderately broad, broadened apically, rather superficial, with dense and fine tubercles, latter expanded in basal half to whole surface of interval 8, in apical part to its lateral half; base and especially humeral area with very broad, in lateral view flattened area, with few large tubercles mixed with several small microtubercles; (6)7-9 DSP, mostly in stria 3.

Ventral surface. Mentum laterally rather slightly convex, distinctly beaded, especially basally; laterally rather finely wrinkled, surface with rough isodiametric reticulation; antero-lateral angles almost rectangular, narrowly rounded; median keel distinctly elevated, very broad and blunt basally, divided here from lateral parts of mentum by elongate, rather deep pits; anteriorly keel strongly narrowed; anterior margin of submentum with sharp anterior lateral angles and indistinct tubercles inside of lateral SP; paragenes broadly excised

below anterior half, inner tooth small and very blunt; disc of paragenes concave, roughly reticulated, with few microtubercles; prosternal process with several, latero-basal setae; meso- and metasterna with about 6-10 setae; metasterna about twice shorter than hind coxae; metepisterna short, deltoid, its anterior part distinctly narrower than broad episterna. Sternite 3 submedially with small group of fine punctures with setae, sterna 4-6 with 1(-2) pairs of submedian setae; all sterna especially basal ones with fine and dense punctures mixed with wrinkles and with fine reticulation; reticulation especially in sterna 3-4 very rough laterally. Proepisterna moderately shiny, with rather fine reticulation and few fine lateral denticles; epipleura very broad to sternite 2, posteriorly strongly narrowed, with fine reticulation.

Aedeagus. As in Figs. 2-3. Rather short and moderately broad; laterally upper outline convex, lower outline slightly concave; dorsally aedeagus moderately broad, with apex long, strongly, regularly narrowed to very narrowly rounded, acute apex. Parameres moderately long, with moderately long, regularly narrowed to rather sharp apex.

Legs. Anterior tibiae with one large, one medium large and 3-4 small lateral teeth below final tooth. Connection between terminal tooth and anterior margin of first lateral tooth just below lower margin of protibiae.

Differential diagnosis. The new species has the body moderately small (16.5-18.0 mm); the mandibles with long apical tips, the pronotum with distinct tooth in the posterior angles; the ovate elytra with rather distinct reticulation, with the lateral intervals only very slightly vaulted, not forming the outline below the humeri, and with the shallow lateral channel not forming deep groove; and finally the prosternal process, the mesosterna and the metasterna have several setae.

This combination of the characters distinctly differs the new species from all to date described species. According to Bänninger (1941) and material studied, *T. ecuadorensis* (Bänninger, 1941) is the only related species, having most characters identical. The new species differs from it by the head having the mandibles longer; by the pronotum having the concave basal margin along its median part, latter is more protruded posteriorly, and by the basal foveae being large, deep and dull (in *T. ecuadorensis* are these foveae indistinct); by the prosternal process, the meso- and metasterna having several setae (in *T. ecuadorensis* are especially the meso- and metasterna asetose). The males of *T. gachinoi* sp. nov. could also be differentiated from *T. ecuadorensis* by the parameres of the aedeagus being apically relatively broad and faintly narrowed (in *T. ecuadorensis* are the parameres abruptly narrowed in the apical third and have needle-like apical third).

Name derivation. Named in honour of my friend Pier Mauro Giachino (Torino, Italy), well known specialist in Carabidae.

Taeniolobus onorei sp. nov.

(Figs. 4-6)

Type material. Holotype (1 ♂): Ecuador / Chimborazo / Chimbavag, 3231 m / 2°19.787'S 78°50.743' W / 31.xii.2001, leg. G. Onore, (PMGT). Paratype (1 ♀): the same date as HT, (PBPC).

Description. Habitus as in Fig. 4. Surface black, legs dark fuliginous, meso- and metatibiae, tarsi, mouth-parts and antennae slightly lighter. Measurement: total length 18.9 mm in HT, 21.9 mm in PT; width 5.1 mm in HT, 6.1 mm in PT. Head in HT 1.01, in PT 1.03 times as broad as pronotum; pronotum in HT 1.39, in PT 1.43 times as broad as long; elytra in HT 1.70, in PT 1.69 times as long as broad, in HT 2.39, in PT 2.50 times as long as pronotum; length of aedeagus in HT 3.60 mm; aedeagus 0.41 times as long as elytra.

Head. Mandibles rather long, with moderately long terminal third; inner keel moderately sharp, rather strongly elevated basally, disappeared in anterior third, surface between outline and keel moderately broad, concave, rather shiny, in HT without, in PT with fine longitudinal wrinkles; inner margin of inner tooth of left mandible with large, irregular tooth in basal half and another, very small and almost indistinct tooth in anterior third, right inner tooth with two complementary teeth and excision between them; both inner teeth densely, rather roughly obliquely wrinkled. Eyes small and slightly vaulted; genae rather strongly developed, barely overlapped posterior sixth of eyes, slightly longer than eyes length; its apical margin moderately steep to neck, barely broader than eyes, in lateral view without wrinkles, with broad and superficial furrow below eyes; facial furrows oblique, deep and very broad, broadly divided eyes with genae from neck. Frontal furrows short, moderately deep, irregularly multiplied by very short, more or less parallel wrinkles, diminish above level of posterior margin of eyes. Supraantennal plates rather barely broadened, anteriorly directly narrowed to anterior clypeal margin with narrowly rounded pair of sublateral teeth; anterior margin between teeth with two small and moderately sharp submedian teeth. Surface moderately shiny, antero-laterally with few fine, subparallel wrinkles. Antennae in HT (in paratype left antennomeres 4-11 and right 2-11 missing) moderately long, antennomeres 5-7 barely longer than broad, 8-9 just longer than broad, 10 about as long as broad; antennomere 2 distinctly longer than 3. One clypeal and one facial SP.

Pronotum. Moderately broad, posteriorly flattened in lateral view, outline shortly broadened just below anterior angles, then almost directly and very slightly narrowed posteriorly, lateral margin irregularly, sparsely and very finely dotted with small excisions; anterior angles rather sharp, in HT distinctly, in PT rather slightly prolonged anteriorly, posterior angles formed by small and blunt tooth; lateral parts of base moderately steeply, barely convexly narrowed to narrow, barely protruded median part, latter continuously connected with basal margin, not forming any angle. Anterior furrow narrow and very superficial, very laterally slightly broadened and deepened, medially almost diminish; median line fine; one anterior and one posterior SP in regular and moderately broad lateral channel, latter indistinctly interrupted around lateral tooth, broadened and deepened below anterior below basal foveae. Surface moderately shiny, disc without reticulation, with fine and dense micropunctures and basally with few irregularly transverse wrinkles and with few, very fine, sublongitudinal wrinkles below anterior margin. Basal foveae rather large,



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Fig. 4. *Taeniolobus onorei* sp. nov. Habitus (HT). Actual length 18.9 mm.

Fig. 5-6. *Taeniolobus onorei* sp. nov. Aedeagus (HT). 5- in left lateral view; 6- in dorso-lateral view. Actual length 3.60 mm.



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moderately deepened, dull, covered by very fine and dense microtubercles and rather rough reticulation, latter extended laterally along basal margin.

Elytra. Surface moderately shiny, disc without distinct reticulation, on base, in bottom of striae and latero-apically reticulation distinct, especially on apex. Disc in lateral view basally very slightly vaulted; outline barely ovate, regularly, moderately strongly broadened from humeral tooth to anterior

four sixth, rather narrowly rounded posteriorly, lateral margin almost without dotted incisions; base barely concave medially, then convex anteriorly to moderately sloping, slightly convex and distinct humeral ridge with distinct and rather sharp humeral tooth; elytra broadest just below midlength. Striae 1-7 impunctate, 1-2(3) and 7 very superficial, 3(4)-6 fine, all striae weakened latero-apically and slightly latero-basally, stria 8 indistinct; intervals 1-3 very flat, 4-7 apically very slightly, basally moderately vaulted; lateral channel formed as narrow and deep groove, with sparse and very fine tubercles, almost expanded to surface of interval 8; base medially with few large SP in 1-2 irregular line, laterally in humeral area with small tubercles; four DSP, mostly in stria 3; one on in anterior half, one in apical third and remaining two on apex.

Ventral surface. Mentum laterally regularly, moderately convex, not beaded; surface with moderately rough isodiametric reticulation, few indistinct wrinkles and fine punctures; antero-lateral angles very broadly rounded; median part moderately deepened, median keel narrow, barely elevated in basal third, divided here from lateral parts of mentum by moderately short, moderately deep pits; paragenes narrowly, deeply excised in about anterior half, inner tooth moderately large and sharp; disc of paragenes barely concave, with few very fine wrinkles, moderately roughly reticulated, paragenes posteriorly with long direct and narrow bead; submentum with sharp antero-basal angles, below antero-lateral margin with pair of very distinct, sharp spurs inside of lateral SP. Prosternal process with few latero-basal setae; mesosternum without, metasternum with one pair of setae; metasterna more than twice

shorter than hind coxae; metepisterna short, its anterior part narrower than broad episterna. Sternite 3 submedially with small group of fine punctures with setae, sterna 4-6 with one pair (in HT sternum 5 unilaterally with two) submedian SP; sternite 7 with two pairs of standard medio-apical SP; all sterna especially basal ones laterally with fine and sparse wrinkles and with fine reticulation; reticulation especially in sterna 3-4 indistinctly deeper laterally. Proepisterna moderate shiny, with fine reticulation and indistinct wrinkles; epipleura very broad to sternite 2, posteriorly strongly narrowed, with moderately fine reticulation.

Aedeagus. As in Fig. 5-6. Laterally upper outline slightly convex, lower outline direct in apical two thirds; dorsally broad, with apex rather long, barely narrowed to directly cut off apex. Parameres long, with long, narrow, narrowly rounded apex.

Legs. Anterior tibiae with one large, one medium-sized and 3-4 small lateral teeth below final tooth. Connection between terminal tooth and anterior margin of first lateral tooth just below lower margin of protibiae.

Differential diagnosis. The new species has the body moderately large (18.9-21.9 mm); the mandibles with moderate long tips, the pronotum with blunt tooth in the posterior angles and with one pair of antero- and postero-lateral SP; the ovate elytra with the outline visible from the dorsal view below the humeri, with the inner striae very fine and with the lateral intervals being only slightly vaulted, not forming the outline and with the lateral channel forming a deep groove. The prosternal process has several, the mesosternum none and the metasternum a pair of setae; the submentum has a pair of peculiar thorns inside of the lateral SP and finally the median lobe of the aedeagus has the apex transversely cut.

This combination of the characters distinctly differentiates the new species from all to date described species; especially both latter characters are unique within the subgenus and can be used to distinguish this species from the remaining ones.

According to Bänninger (1941) and material studied, only nine species have the elytral channel in the deep groove combined with the setose prosternal process. Two of them, *T. setosus* (Bänninger, 1941) and *T. multisetosus* (Bänninger, 1941) can be easily distinguished by the prosternal process having the setae also before the anterior coxae and by the mesosternum having some setae; *T. aberrans* (Bänninger, 1941), the only remaining species with the pronotum having postero-lateral tooth, differs among other by the elytral interval 7 being basally carinate, forming here the outline and by the broader pronotum, having two posterior SP. The remaining six species can be easily separated by the pronotum having the posterior angles rounded; *T. deplanatus* Bänninger, 1937 moreover by the interval 8 forming the outline from the dorsal view; *T. carinatus* (Dejean, 1825), *T. furcatus* (Bänninger, 1941) and *T. seriepunctatus* Bänninger, 1933 by the inner margin of the interval 8 being narrowly carinate, the latter species also by having DSP also in the intervals 5 and 7; and finally, *T. corvinus* (Dejean, 1831) and *T. planiusculus* (Chaudoir, 1855), habitually the most similar species, differ (except of already quoted missing spurs on the anterior margin of the submentum and the rounded posterior pronotal angles) by the pronotum having multiplied lateral SP and by the elytra having interval 7 strongly vaulted basally.

Name derivation. Named in honour of Giovanni Onore (Quito, Ecuador), collector of the type specimens.

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