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New contribution to the knowledge of the genus *Toxeutes* Newman, 1840 with the description of a new species from Sulawesi Island in Indonesia (Coleoptera, Cerambycidae, Prioninae)

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Résumé: Une nouvelle espèce de *Toxeutes* Newman, 1840, *T.* (*Catypnes*) *pirkli* n. sp., est décrite de l'île de Sulawesi en Indonésie. *T. pirkli* n. sp., est illustrée et comparée à *T. macleayi* Pascoe, 1864 et à *T. negrosianus* Hüdepohl, 1987, ses taxons les plus proches au sein du sous-genre *Catypnes* Pascoe, 1864. Une liste adaptée des espèces composant le genre *Toxeutes* est fournie.

Abstract: A new species of *Toxeutes* Newman, 1840, *T.* (*Catypnes*) *pirkli* n. sp., is described from the Sulawesi island in Indonesia. *T. pirkli* n. sp., is illustrated and compared to *T. macleayi* Pascoe, 1864 and to *T. negrosianus* Hüdepohl, 1987, its closest taxa inside the subgenus *Catypnes* Pascoe, 1864. An adapted check-list of the species composing the genus *Toxeutes* is provided.

Key words: Coleoptera, Cerambycidae, Prioninae, Aegosomatini, *Toxeutes*, *T. pirkli* n. sp., taxonomy, new species, Indonesia, Sulawesi.

Introduction

The genus *Toxeutes* was described by NEWMAN in 1840 to receive the species *Prionus arcuatus* Fabricius, 1787. Without certainly knowing the publication of NEWMAN, ERICHSON in 1842 describes the monospecific genus *Oncinotus* with the same type species of Fabricius (DELAHAYE *et al*. 2016). Later on, PASCOE (1864) described a new species and a new genus from Australia, *Catypnes macleayi* which were attached as a subgenus of *Toxeutes* by LAMEERE (1904). The subgenus *Catypnes* currently comprises 5 species after the recent description of *Toxeutes* (*Catypnes*) *salesnei* by DELAHAYE *et al*. (2016), an endemic species from New Caledonia. The subgenus *Catypnes* differs from typical genus by the male mandible being stronger and more developed, by the lateral spines of pronotum not curved, by glabrous antenna and by the abdomen of male without dense pubescence (LAMEERE 1904, 1919).
By continuing our investigation on the subgenus *Catypnes*, we came across to a series of specimens coming from the island of Sulawesi, one of the four Greater Sunda Islands (Indonesia). After examining the types of all the taxa constituting the subgenus *Catypnes* (namely *dentifrons* - NHRS, *negrosianus* - ZSM, *macleayi* - BMNH, *pascoei* - RBINS, *punctatissimus* - MNHN and *salesnei* - NDC), it turns out that the specimens from Sulawesi correspond to a new species that is described and illustrated hereafter.

Collection abbreviations

ADC: collection Alain DRUMONT, Brussels, Belgium.
AWC: collection Andreas WEIGEL, Wernburg, Germany.
BMNH: British Museum Natural History, London, United Kingdom.
GCC: collection Gérard CHEMIN, Champigny sur Marne, France.
GVMC: collection Giuseppe & Valentino MARAZZI, Arese, Italy.
MNHN: Muséum national d'Histoire naturelle, Paris, France.

NDC: collection Norbert DELAHAYE, Plaisir, France.
NHRS: Swedish Museum of Natural History, Stockholm, Sweden.
RBC: collection Robert BECK, Munich, Germany.
RBINS: Royal Belgian Institute of Natural Sciences, Brussels, Belgium.
ZKC: collection Ziro KOMIYA, Tokyo, Japan.
ZSM: Zoologische Staatssammlung München, Munich, Germany.

Material and methods

All specimens examined in this study are mounted and were observed under a Ceti stereo microscope. The dissected male genitalia were fixed onto a white card together with the specimen. Photographs were taken with a Leica stereo microscope Z6 APOA, a Planapo-lens 1.0 was used, and subsequently processed and measured with the Leica Applications-software 4.0. The final processing was made with Photoshop 7.0. Before making photographs all parts of male genitalia were immersed for a minimum of 24 hours in 80% lactic acid, subsequently these parts were photographed in 99,5% glycerol.

Description of the new species

Toxeutes (*Catypnes*) *pirkli* n. sp. (figures 1-11)

Material studied - **HOLOTYPE**: ♂, Indonesia, S. Sulawesi, Mt. Lompobatang, X.1989, *ex* coll. ZKC, will be deposited in RBINS - I.G.: 34.046. **ALLOTYPE**: ♀, Indonesia, Sulawesi I., South Sulawesi, Sulawesi Selatan Province, Puncak Palopo Telkom-Stat., 1300 m., VIII.1995, *leg*. local people, U. & L. Paukstadt coll., *ex* coll. ADC, will be deposited in RBINS - I.G.: 34.047.
PARATYPES: 16♂♂ and 13♀♀: 2♂♂, same locality as the holotype, IV.1990, in ZKC; 2♂♂, 2♀♀, *idem*, I.1992, *leg*. T. Mizunoma, in ZKC; 1♂, *idem*, XI.1998, in ZKC; 1♂, *idem*, XI.1999, in ZKC; 2♂♂, *idem*, XI.1999, in ADC; 1♂, *idem*, V.2000, ex coll. Konrad Lackerbeck, in RBC; 1♂, *idem*, 12.XI.2012, in ZKC; 1♀, *idem*, VIII.2013, in ADC; 1♂, Indonesia, S. Sulawesi, Pulu Pulu, XII.1996, in ZKC; 1♀, Indonesia, S. Sulawesi, Palopo, VI.1987, *leg*. local collectors, in ADC; 1♂, Indonesia, S. Sulawesi, Toraja, IX.2000, ex coll. Konrad Lackerbeck, in AWC; 2♀♀, Indonesia, C. Sulawesi, Palu, Palolo, X. 1984, in GVMC & ADC; 1♂, same locality, III.1997, in ZKC; 1♀, same locality, V.2012, in ADC; 1♀, same locality, 15.I.2017, *leg*. local collectors, in NDC; 1♂, same locality, *leg*. local collectors, in ADC; 1♀, Indonesia, C. Sulawesi, Palolo, Nokilalaki, V.2014, *leg*. local collectors, in ADC; 1♀, Indonesia, C. Sulawesi, Palu, Mt. Marawola, X.2018, in ZKC; 1♀, Indonesia, C. Sulawesi, Palu, XII.2013, *leg*. local collectors, in ADC; 1♀, Indonesia, W. Sulawesi, Mamasa, V.2000, ex coll. Konrad Lackerbeck, in RBC; 2♂♂, same locality, V.2006, in ZKC; 1♀, Indonesia, Sulawesi, without further information about locality and date, in GCC.

Description - Habitus slightly elongated and subparallel; body dark reddish brown except on the elytra which are lighter (especially on the apex of the elytra); underside reddish brown.

Relatively square head, as wider than long, almost as wide as the posterior teeth of the pronotum with a hairiness reduced to a few short hairs visible on the lateral side behind the eyes, on the clypeus, on the genae and on the mentum; eyes large with the interocular space approximately the same width as the one of the upper lobe of the eye, both lobes of almost the same size. Mandibles in male short, sturdy, the left one with the inner side exhibiting a sharp and acute tooth shortly before the middle that continue in a straight blade while on the right mandible the tooth is less acute and located near the base, both ending in a bifurcated tip; the outer side rounded, forming a small angle at ¼ basal in the male (almost never visible in the female) and with a smooth rounded carina, with strongly punctate external surface, vermiculate, with some short erect yellow hairs present in the puncture pits, internal face with a very slight fine puncture (only visible with stereo microscope at 500 X magnification) giving a practically full smooth appearance, without hairiness; in females as short but

less robust. Dense, shallow and irregular puncture present on the clypeus and becoming more dense, deep and irregular on the forehead and on the vertex, no bulging around the eyes, the antennal tubercles are separated by a distance equivalent to the length of one tubercle, a slight depression being present on the front.

Antennas of 11 articles; scape robust, curved (also on the inner side), widened at the apex which is rounded, very slightly punctuate with some irregular points of different size; 3rd antennal segment about 2.5 times as long as the scape and reaching the anterior tooth of the pronotum, segments 4-9 approximately equal in length, shiny, apex with inner side rounded and outer side with a projection that becomes more angular and covered by a poriferous puncture, the rest of the segment surface with some sparse points of puncture and covered with very small ridges (only visible with stereo microscope at 500 X magnification), 10th antennomer clearly angular at the apex while the 11th rounded, both very finely and densely punctate by poriferous puncture with the surface covered by very fine and small hairs; length of the antennae exceeding by the 11th segment the half of the elytra in the male and stopping a little bit before the middle of the elytra in the female.

Pronotum transverse, two times wider than long, with three visible spines laterally, one relatively short and acute near the anterior border, the second median stretched up into a robust tooth and the third one (the smaller one in size) also short just before the posterior border; anterior and posterior angles well present and stretched in a blade; shallow, sparse and irregular puncture present on the surface but lighter on the disc which is a little bit raised and bulged.

Prosternum with some sparse long yellow hairs and finely striated with the prosternal projection enlarged in a triangular shape just after the coxa, strongly rimmed and curved, with some sparse long yellow hairs at the apex; metasternum with dense and long pubescence in a granulated surface; metepisternum as long as four time the width taken at the middle, very narrowed backwards with a decay jump just before the apex, covered with the same pubescence and granules as the metasternum; ventrites glabrous except on the margins and finely punctured except the last, slightly indented with long, dense pubescence.

Scutellum glabrous, in large tongue-shape, with a very slight fine puncture (with stereo microscope at 250-500 X magnification) and also some larger and sparser puncture.

Elytra rimmed on external side, shiny, glabrous, parallel sided, 2.2 times longer than wide at the shoulders in the male, 2.4 times in the female; with two very feeble costa more apparent in female; surface with a sparse circular puncture more present and larger on the disc.

Legs with short femurs, finely and sparsely punctate, glabrous and unarmed; tibiae relatively short, unarmed, more densely punctate with sparse and short pubescence on the ventral sides, ending with two black spines at the internal apical angle; tarsi not very slender, 1st article about as long as the two following together; and lobes of 3rd rounded; long and relatively dense light-brown pubescence on all three articles; 5th article (without claws) shorter than the first three articles taken together.

Male genitalia: median lobe with non-inverted endophallus (figs 7-8), 5.6 mm long, 0.9 mm wide, hardly arcuate in lateral view, median struts about 2/3 length of median lobe, dorsal plate parallel-sided with apex broadly rounded, shorter but wider than ventral plate; ventral plate slightly narrowed to apex, strongly narrowed before apex and extended into a rounded parallel-sided spine, endophallus about 2.5 times as long as median lobe, not distinctly subdivided into phallomeres (according YAMASAKO & OHBAYASHI 2011), inside median lobe (basal phallomere) with a pair of characteristic crescent-shaped sclerites, a band-shaped folded structure inside about the first third of the endophallus; tegmen (figs 9-10), 4.8 mm long,

0.9 mm wide at the base of parameres, parameres almost parallel-sided, slightly narrowed to apex, and tight together at the base, much closer than the width of a paramere, apex rounded and with long yellowish hairs at the anterior sixth, obtuse angled in lateral view; 8th tergite (fig. 11), 2.7 mm long, about 2.1 mm wide, parallel-sided, apical third with long yellowish hairs at both sides, fore edges slightly angled, anterior margin straight.

Sex dimorphism marked in female sex by the length of the antennae shorter and thinner, a larger head with the mandibles less robust, the pronotum more elongated with bigger acute teeth, a more acute spine at the apex of elytra, slender legs and tarsi.

Size (body length measured from the anterior edge of clypeus to the apex of elytra) – Males (average+/-standard deviation: 36.88+/-5.03 mm with holotype: 38.5 mm, min: 29 mm, max: 44.5 mm, n = 8 exemplars); females (average+/-standard deviation: 42.63+/-3.44 mm with allotype: 46 mm, min: 36.5 mm, max: 46 mm, n = 8 exemplars).

Variability in the paratype series – None, except the one related to the sex and the length of the specimens.

Diagnosis - *Toxeutes* (*Catypnes*) *pirkli* **n. sp.** can be distinguished by the following points from *T.* (*Catypnes*) *macleayi* Pascoe, 1864 from Australia which is the most related species within the genus *Toxeutes.* (We examined a couple of syntypes deposited in the BMNH):

- a very broad, rounded and very coarsely pitted head in *T. macleayi* whereas it is more rectangular and with a weaker puncture in *T. pirkli* n. sp.;
- the interocular space in male about two times as the length of one of the upper lobe of the eye in *T. macleayi*, while it is approximately the same width in *T. pirkli* n. sp.;
- elytra in *T. macleayi* relatively large and regularly decreasing after the middle of the length of the elytra, while it is exhibiting parallel sides until the ¾ of the length of the elytra in *T. pirkli* n. sp.;
- the pronotum (including the median tooth) in male as width as the shoulders taken together in *T. macleayi*, while it is shorter than the shoulders in *T. pirkli* n. sp., with also the median tooth more developed and acute in *T. pirkli* n. sp.;
- the elytral puncture which is well pronounced in *T. macleayi* with large flat smooth spaces between the points, these points of puncture being half in size in *T. pirkli* n. sp.

Toxeutes (*Catypnes*) *pirkli* **n. sp.** is also close to *T.* (*Catypnes*) *negrosianus* Hüdepohl, 1987, occurring in the Philippines Archipelago but it differs mainly by the following morphological characters:

- a very dark-brown color body in *T. negrosianus*;
- a denser puncture of the pronotum in *T. negrosianus* but composed also by puncture points of the same size as in *T. pirkli* n. sp.;
- the surface of the elytra exhibiting some ridges mixed with a very dense and deep puncture in *T. negrosianus* composed by puncture points about twice the size as in *T. pirkli* n. sp.

Derivatio nominis - We dedicate this species to Jiri PIRKL (Czech Republic) who manages the website www.prioninae.eu devoted to the types of Prioninae of the world, providing important and evident help for species identification to worldwide researchers in this subfamily of Cerambycidae.

Distribution - In the current state of our knowledge, *Toxeutes pirkli* n. sp. seems to be an endemic of the island of Sulawesi in Indonesia where the new species is present in the Central, West and South provinces. Based on our investigations, we don't have any record from the three remaining provinces (Gorontalo, Southeast and North).

Check-list of the genus *Toxeutes* Newman

Toxeutes (s. str.) arcuatus (Fabricius, 1787):129 (Australia)
Cerambyx (Prionus) *curvus* Gmelin, 1790: 1817
Toxeutes (*Catypnes*) *macleayi* (Pascoe, 1864): 244 (Australia, Norfolk Island)
Toxeutes punctatissimus Thomson, 1877: clv [female]
Toxeutes (*Catypnes*) *pascoei* Lameere, 1904: 21 (Australia)
Toxeutes (*Catypnes*) *dentifrons* Aurivillius, 1925: 2 (Papua New Guinea)
Toxeutes (*Catypnes*) *negrosianus* Hüdepohl, 1987: 127 (Philippines)
Toxeutes (*Catypnes*) *salesnei* Delahaye, Drumont & Komiya, 2016: 130 (New Caledonia)
Toxeutes (*Catypnes*) *pirkli* **n. sp.** (Indonesia: Sulawesi)

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Fig 1

Fig 2

Fig 3

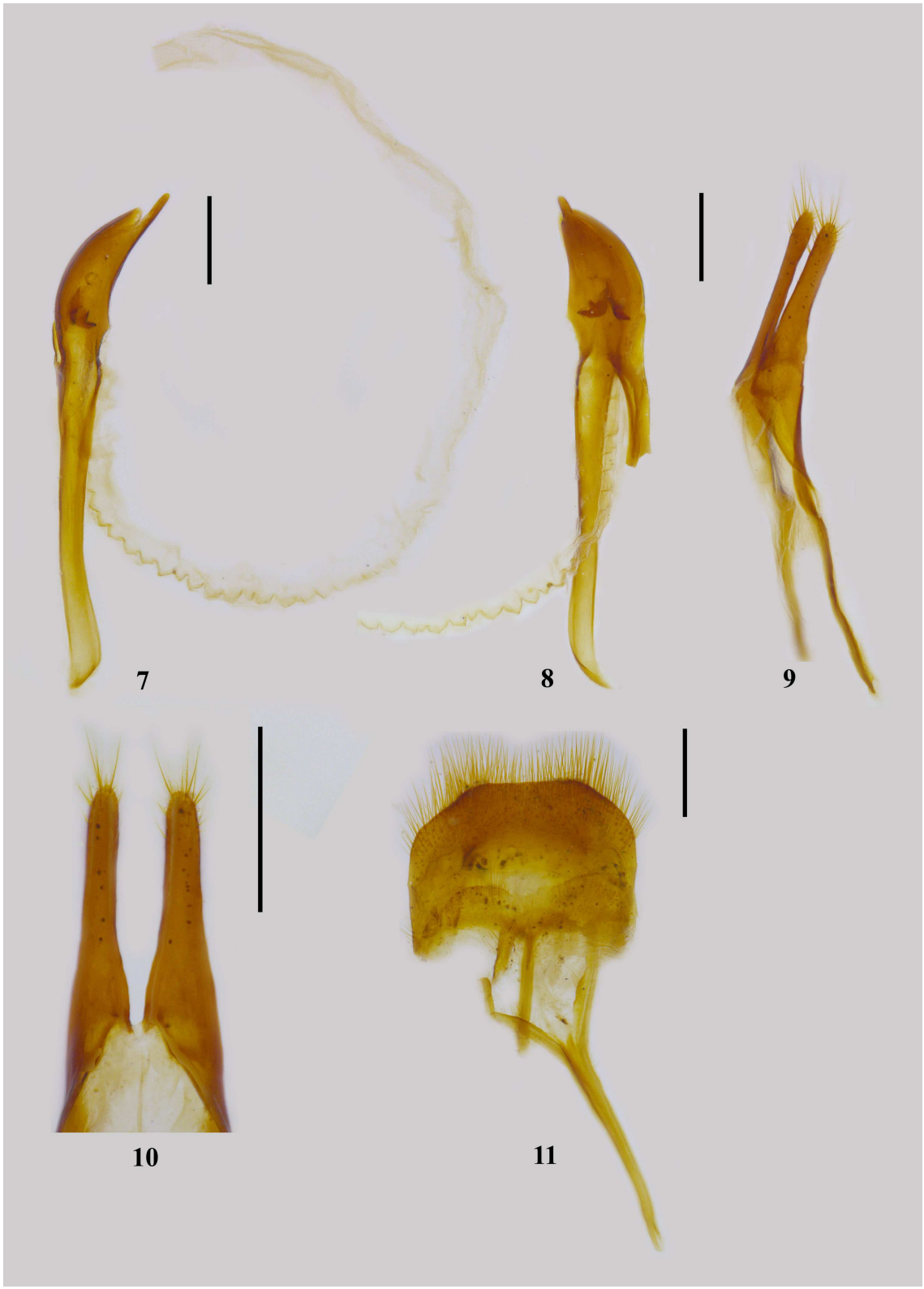
Figs 1-3. ***Toxeutes* (*Catypnes*) *pirkli* n. sp.** Holotype ♂ (RBINS), 38.5 mm: fig. 1. habitus, dorsal view; fig. 2. habitus, ventral view; fig. 3. forebody, lateral view. (pictures by F. TRUS).

Fig 4

Fig 5

Fig 6

Figs 4-6. *Toxeutes* (*Catypnes*) *pirkli* n. sp. Allotype ♀ (RBINS), 46 mm: fig. 4. habitus, dorsal view; fig. 5. habitus, ventral view; fig. 6. forebody, lateral view. (pictures by F. TRUS).



Figs 7-11. *Toxeutes* (*Catypnes*) *pirkli* n. sp. genitalia of a ♂ from Toraja/Sulawesi (AWC): fig. 7. median lobe with endophallus, lateral view; fig. 8. ditto, ventral view; fig. 9. tegmen, lateral view; fig. 10. parameres, ventral view; fig. 11. 8th tergite, ventral view; scale bare 1 mm. (pictures by A. WEIGEL)