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Two new *Trogoderma* species from Madagascar (Coleoptera: Dermestidae: Megatominae)

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Two new species *Trogoderma caneparii* sp. nov. and *Trogoderma parasambiranum* sp. nov. from Madagascar are described, illustrated and keyed with all known Madagascan species; new species differs by the colour elytral fasciae, structure of antennae, and male genitalia.

Key words: taxonomy, new species, Coleoptera, Dermestidae, *Trogoderma*, Madagascar

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INTRODUCTION

The genus *Trogoderma* Dejean, 1821 contains about 150 known species worldwide (Háva 2015), from the Madagascar known 11 species (Háva 2009, 2013, 2014, Kadej & Háva 2015, Háva & Baňař 2017), two new species recently collected in Madagascar is described below.

A formal diagnosis of *Trogoderma* was first provided by Dejean (1821) and later refined by Beal (1954). Morphological characteristics that distinguish *Trogoderma* from related genera were given by Beal (1954), Peacock (1993) and Kadej (2012). Phylogenetically, the genus is considered polyphyletic with respect to other genera within Megatominae (Kiselyova & McHugh 2006).

MATERIAL AND METHODS

Total body length we measure as a distance from anterior margin of pronotum to the posterior margin of elytra.

The term 121 dorsal ocular index refers to the ratio of the minimum width of the vertex to the maximum width of the eye; it is easiest to calculate if measured as twice the minimum interocular distance / maximum width across eyes minus minimum interocular distance (e.g. Háva & Baňař 2017).

Genitalia were prepared from a gently moistened specimen from which the whole abdomen was separated and placed in a small tube with 12% potassium hydroxide solution (KOH) and heated to boiling point for several

minutes until all soft tissues were adequately macerated. Genitalia were subsequently placed in distilled water for description and illustration. Finally genitalia were stored in glycerol in a small vial mounted on the pin with the corresponding specimen.

The label data of the material examined are cited verbatim, including possible errors, using a slash (/) to separate lines on one label.

Studied material is deposited in following collections:
MCSN = Museo Civico di Storia Naturale "G. Doria", Genova, Italy;
JHAC = Jiří Háva, Private Entomological Laboratory & Collection, Únětice u Prahy, Prague-west, Czech Republic.

Specimens of the species described here are provided with a red, printed label with texts as follows: „HOLOTYPE (or PARATYPE, respectivelly) *Trogoderma caneparii* sp. nov. Jiří Háva det. 2017" and „HOLOTYPE *Trogoderma parasambiranum* sp. nov. Jiří Háva det. 2017".

SYSTEMATICS

Family Dermestidae Latreille, 1807
Subfamily Megatominae Leach, 1815
Tribe Megatomini Ganglbauer, 1904
Genus *Trogoderma* Dejean, 1821

Type species: *Anthrenus elongatulus* Fabricius, 1801.

Recognition. Body subparallel to narrowly ovate, moderately to strongly convex, with recumbent to erect setation. Head with median ocellus. Antennae with 11 antennomeres, antennal club consist with 3-9 antennomeres. Antennal cavity closed. Prosternum forming a „collar" under which moutparts fit when head is retracted. Anterior tibiae without spines along shaft. Aedeagus with variable Y-shaped apodeme at its base.

***Trogoderma caneparii* sp. nov.**
(Figs. 1-4)

Type material. Holotype. Male: "AFRICA, Madagascar / Ambalavao, 10 km da / Fianarantsoa, 22.XI.2006 / leg. Canepari", (MCSN).

Paratypes: 1 male: same data as holotype (MCSN); 1 male: "AFRICA, Madagascar / P. N. Isalo, via per le / Piscines Naturelles / 17.XI.2006, leg. Canepari", (JHAC); 1 male: "AFRICA, Madagascar / strada Ranohira - Ihosy / (20 km de Ranohira) / 20.XI.2006, leg. Canepari", (MCSN); 1 male: "Madagascar / Fianarantsoa distr. / Ranohira (Isalo) / 8-12.2.1995 / I. Jenič leg.", (JHAC).

Description. Male. Body measurrements (in mm, taken from five specimens):

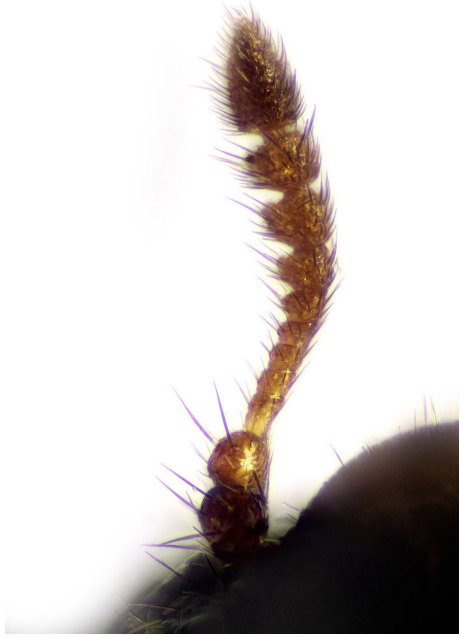
Total body length - 2.40-2.45. Head: maximum width across eyes - 0.59-0.60. Pronotum: maximum width - 1.37-1.40. Elytra: maximum width - 1.60-1.65.

General appereance. Small and oval (Fig. 1) species, with conspicuous colour patterns.

Colouration. Black and reddish on dorsal surfaces and black on ventral surfaces (Fig. 1), legs paler, light brown, scape, pedicel and antennomeres II- IX light brown, antennomeres I, X-XI dark brown to blackish.

Structure. Head coarsely punctate with long white setation. Palpi entirely yellowish-brown; setation on mentum dense. Eyes small, not overlapping lateral margin of head from dorsal view. Ocellus on front present. Antennae (Fig. 2) composed of 11 antennomeres, antennal club of 4 antennomeres. Thorax. Pronotum coarsely punctate alike head with short white setation; lateral and anterior margins continuous, regularly rouded, posterior margin conspicuously bisinuate, anterior angles not visible from above. Mesonotum heavily sclerotized, scutellum very small, triangular,

1



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Figs. 1- 4. *Trogoderma caneparii* Háva sp. nov., male holotype. 1, dorsal view; 2, antenna; 3, aedeagus; 4, abdomen.

finely punctated alike pronotum and head, without setation, hind wing as on Fig. 1. Metanotum robust, more weakly sclerotized as mesonotum. Meso-metasternum black with short white setation.

Elytra coarsely punctate; black with four transverse, reddish bands and apical spot (Fig. 1) covered by white setation (Fig. 1). Elytral epipleuron entirely black with white setation. Legs brown with short white and yellow setation; tibiae without thorns. Abdominal ventrites with long white setation (Fig. 4). First visible abdominal ventrite with distinct oblique discal striae and robust, heavily sclerotized median tubercle. Pygidium brown with short, yellow setation.

Male genitalia. Aedeagus narrow, in apical two thirds parallel-sided (Fig. 3), basally heavily sclerotized.
Female unknown.

Variability. Total body length 2.40-2.45 mm, elytral width 1.60-1.65.

Differential diagnosis (Madagascan species only included)**.** The new species differs from *T. sahondrae Háva & Baňař, 2017* by the characters mentioned in the following Key.

Etymology. Named after the collector of the type specimens, Claudio Canepari (Italy), specialist in Coccinellidae (Coleoptera).

***Trogoderma parasambiranum* sp. nov. (Figs. 5-7)**

Type material. Holotype. Female: "Madagascar VII / Ambodivangy 1945", (JHAC).

Description. Female. Body measurrements (in mm, taken from four specimens):
Total body length - 2.27. Head: maximum width across eyes - 0.67. Pronotum: maximum width - 1.31. Elytra: maximum width - 1.45.

General appereance. Small and oval (Fig. 5) species, with setatial colour patterns.

Colouration. Dark-brown to black on dorsal and ventral surfaces (Figs. 5), legs paler, light brown, scape, pedicel and antennomeres I-XI light brown.

Structure. Head finely punctate with short white setation. Palpi entirely yellowish-brown; setation on mentum dense. Eyes small, not overlapping lateral margin of head from dorsal view. Ocellus on front present. Antennae (Fig. 6) composed of 11 antennomeres, antennal club of 5 antennomeres. Thorax. Pronotum finely punctate alike head with short white setation; lateral and anterior margins continuous, regularly rouded, posterior margin conspicuously bisinuate, anterior angles not visible from above. Mesonotum heavily sclerotized, scutellum very small, triangular, finely punctated alike pronotum and head, without setation. Metanotum robust, more weakly sclerotized as mesonotum, hind wing as on Fig. 5. Meso-metasternum dark brown with very short white setation.

Elytra coarsely punctate; entirely black with three transverse fasciae of white setation (Fig. 5). Elytral epipleuron black with white, short setation. Legs brown with short golden setation; tibiae without thorns. Abdominal ventrites with short white setation (Fig. 7). First visible abdominal ventrite with distinct oblique discal striae and robust, heavily sclerotized median tubercle. Pygidium brown with short, black setation.
Male uknown.

Differential diagnosis (Madagascan species only included)**.** The new species differs from *T. sambiranum* Háva, 2009 by the characters mentioned in the following Key.

Etymology. Named after the similar *Trogoderma* species *para- sambiranum*.

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Figs. 5-7. *Trogoderma parasambiranum* Háva sp. nov., male holotype. 5, dorsal view; 6, antenna; 7, abdomen.

IDENTIFICATION KEY TO THE KNOWN MADAGASCAN SPECIES OF *TROGODERMA*

(modified from Háva & Baňař 2017; TL = total body length)

1 elytra bi- or tricolorous 2

- elytra unicolorous (brown) without fasciae or spots, covered with yellow pubescence; antennal club with 5 antennomeres ..…..…..…..…….....
.....*T. taomasinum* Háva, 2009

2 body oval.....3

- body elongate; antennal club with 7 antennomeres; elytra with three orange-red fasciae covered with yellow pubescence..... *T. trifasciatum* Háva, 2009

3 antennal club with 3 antennomeres 4

- antennal club with more antennomeres 5

4 terminal antennomere short and brown; lateral parts of pronotum orange; head finely punctured elytra brown with orange-red fasciae covered with white pubescence.... *T. fasciolata* (Fairmaire, 1897)

- terminal antennomere long and black; lateral parts of pronotum dark brown or black; hear coarsely punctured .....…. *T. impressiceps* (Pic, 1915)

5 antennal club with 4 antennomeres.....6

- antennal club with more antennomeres 9

6 elytra with orange fasciae or spots 7

- elytra brown with small spots of white pubescence; TL 3.1-3.5 mm .....*T. seminigrum* Pic, 1915

7 elytra with one orange fascia and apically isolated spot covered with yellow pubescence; TL 1.6 mm ..... *T. horaki* Háva, 2013

- elytra black with four transverse, reddish bands and apical spot ….....…… *T. caneparii* **sp. nov.**

- elytra of different colour patterns 8

8 elytra black with one large orange spot on apex and one transverse fascia of white pubescence in the middle ..... *T. sambiranum* Háva, 2009

- elytra dark-brown with three transverse, orange bands….....
.....*T. sahondrae* Háva & Baňař, 2017

9 antennal club with 5 antennomeres....10

- antennal club with 6 antennomeres; elytra black with small spots covered with white pubescence; TL 1.7-2.2 mm ..... *T. madecassum* (Pic, 1924)

10 elytra with one orange transverse fascia, apical part covered with yellowish-white pubescence; TL 2.2-2.5 mm .....*T. wolfgangi* Háva & Herrmann, 2008

- elytra black, covered with dark brown pubescence, with two very small spots formed by 6-8 white setae; TL 1.8 mm ..... …..... *T. housei* Háva, 2014

- elytra entirely black with three transverse fasciae of white setation… .....*T. parasambiranum* **sp. nov.**

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