

Two new species of *Trogoderma* (Coleoptera: Dermestidae) from Madagascar, with list of Madagascan species and new faunistic data

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Abstract. Two new species, *Trogoderma korinae* Háva & Trýzna sp. nov. and *Trogoderma nosybeana* Háva & Trýzna sp. nov. (Coleoptera: Dermestidae: Megatominae), are described from Madagascar. Male genitalia are illustrated, and colour photographs of the new species, ecological notes and photographs of the habitat are provided. A list of Dermestidae recorded from Madagascar and new faunistic data are added.

INTRODUCTION

Dermestidae (Coleoptera: Bostrichoidea) includes 1.930 valid species and subspecies worldwide (Háva 2024a). From Madagascar 47 species are known (Háva 2023a,b, 2024a,b).

The genus *Trogoderma* Dejean, 1821 (subfamily Megatominae) includes 192 species worldwide, and fourteen of them occur in Madagascar (Háva & Herrmann 2008, Háva 2009, 2013, 2014, 2015, 2018, Kadej & Háva 2015, Háva & Baňar 2017, Háva & Matsumoto 2021, Háva & Trýzna 2022).

A formal diagnosis of the genus 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), and Peacock (1993).

The new species were obtained thanks to long-term research project of the second author (see Acknowledgements) in cooperation with the Madagascar National Parks and the University of Antananarivo, Department of Entomology (e.g. Trýzna et al. 2021, Trýzna 2022).

Trogoderma korinae Háva & Trýzna sp. nov. was collected in the Parc National de l'Isalo

(prov. Fianarantsoa, Southwestern Madagascar), *Trogoderma nosybeana* Háva & Trýzna sp. nov. in the Parc National de Lokobe on Nosy Be Island (Antsiranana Province, Northern Madagascar).

MATERIAL AND METHODS

The following measurements were made:

total length (TL) - linear distance from anterior margin of pronotum to apex of elytra.

elytral width (EW) - maximum linear transverse distance.

Genitalia were prepared from a gently moistened specimen from which the entire abdomen was separated and placed in a small tube with 12% potassium hydroxide solution (KOH) and subsequently 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. Colour habitus photographs of the holotype specimen were taken using a Olympus SZH 10.

Nomenclature and systematics in this paper follow Motyka et al. (2022).

Specimens of the species described here are provided with a red, printed label with text as follows: “HOLOTYPE *species name* sp. nov., J. Háva & M. Trýzna det. 2024”.

The specimens studied are deposited in the collection of Jiří Háva, Private Entomological Laboratory & Collection, Únětice u Prahy, Prague-west, Czech Republic (JHAC).

SYSTEMATICS

Genus *Trogoderma* Dejean, 1821

Type species: *Anthrenus elongatulus* Fabricius, 1801.

Trogoderma korinae Háva & Trýzna sp. nov.

(Figs. 1-3, 14)

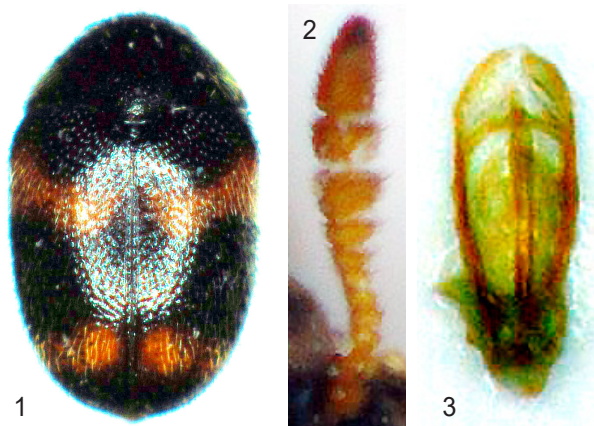
Type material. Holotype (♂): SC MADAGASCAR, Fianarantsoa pr., Isalo N.P., Zahavola forest, 832 m, 22°37.611'S, 45°21.499'E, 30.i.-1.ii.2014, M. Trýzna lgt., (JHAC).

Description. Male body measurements (mm): TL 1.7, EW 1.0. Small species, body oval in dorsal view, dorsum convex.

Dorsal and ventral integument of body black. Palpi entirely yellowish-brown, eyes with brown microsetae. Antennomeres I-II, XI dark brown, III-X light brown, all antennomeres with mixture of white and black setae. Legs pale brown, tibiae and tarsal claws light brown.

Head coarsely punctate, with long light brown setation, denser on mentum. Eyes very large. Ocellus present on front. Antennae with 11 antennomeres, antennal club of 5 antennomeres, antennomere XI longest and triangular (Fig. 2). Antennal fossa longitudinal.

Pronotum transverse, slightly more sparsely punctate compared to head. Disc of pronotum densely punctate, long brown setation medially, and long white setation laterally.



Figs. 1-3. *Trogoderma korinae* sp. nov.: 1- holotype (male), dorsal habitus; 2- antenna; 3- male genitalia.



Figs. 4-6. Habitus in dorsal view: 4- *Trogoderma horaki* Háva, 2013 (holotype); 5- *T. wolfgangi* Háva & Herrmann, 2008 (paratype); 6- *T. sharpi* Háva & Matsumoto, 2021 (holotype).

Pro-, meso-, and metasternum finely punctate, covered with long light brown and white recumbent setation.

Scutellum triangular, anterior margin convex, without setation.

Elytra oval, coarsely punctate, black with orange spots (Fig. 1), covered by long brown setation on black areas, white setation on orange spots, apical part dark brown. Elytral epipleuron entirely black bearing brown setation.

Visible abdominal ventrites black, finely punctate, with long recumbent white setation.

Pygidium black, covered with brown setation.

Legs with light brown setation.

Genitalia (Fig. 3). Parameres longer than median lobe, median lobe with constant width throughout, apex slightly rounded.

Female. Unknown.

Differential diagnosis. The new species is very similar to *T. horaki* Háva, 2013, *T. wolfgangi* Háva & Herrmann, 2008 and *T. sharpi* Háva & Matsumoto, 2021. The new species differs from the similar species mainly by the combination of the following characters: the structure of the antennae and colour of the elytral fasciae. Elytral colour fasciae are illustrated for all species (Figs. 1, 4-6).

T. korinae Háva & Trýzna sp. nov.: antennal club of 5 antennomeres; elytra black with two narrow orange fasciae covered with white setation (Fig. 1);

T. horaki: antennal club of 4 antennomeres; elytra brown with one orange fascia and apically isolated spot covered with yellow setation (Fig. 4);

T. wolfgangi: antennal club of 5 antennomeres; elytral orange fascia narrow in anterior half, apical part of elytra covered with yellowish-white setation (Fig. 5);

T. sharpi: antennal club of 5 antennomeres; elytral orange fasciae broad in anterior half; apical part of elytra covered with brown setation (Fig. 6).

Etymology. Dedicated to the wife of the collector of the new species Miloš Trýzna, Korina Kudrnová (Děčín, Czech Republic), a participant on some Madagascar entomological expeditions, for her unlimited support of entomological work.

Collecting circumstances. The holotype was collected in the Parc National de l'Isalo in Zahavola forest in Fianarantsoa province, Southern Madagascar (Figs. 7-8). This area is dominated by a sub-arid climate. The territory consists of sandstones, shale and conglomerate. The low, sparse forests are located mainly in the deeply carved canyons of the sandstone massif, and accompanied by sclerophyllous woodland with secondary grasslands and pastures in the vicinity (see also Goodman et al. 2018b). The specimen was caught by beating of bushes and low trees.

Distribution. Southern Madagascar, Isalo.

***Trogoderma nosybeana* Háva & Trýzna sp. nov.**

(Figs. 9-11, 14)

Type material. Holotype (♀): N MADAGASCAR, Nosy Be Isl., Lokobe Nat. Park, circuit Mitsinjo, 13°24'21"S 48°18'35"E, 296 m, 26-30.xi.2019, M. Trýzna lgt., (JHAC).

Description. Female body measurements (mm): TL 2.6 EW 1.8. Body oval in dorsal view, dorsum convex.

Dorsal and ventral integument of body brown. Palpi entirely yellowish-brown, eyes with brown microsetae. Antennomeres brown, all antennomeres with mixture of white and black setae. Legs paler, tibiae and tarsal claws light brown.

Head coarsely punctate, with long white setation, denser on mentum. Eyes very large. Ocellus present on front. Antennae with 11 antennomeres, antennomere XI oval (Fig. 11). Antennal club of 5 antennomeres. Antennal fossa longitudinal.



Figs. 7-8. Parc National de l'Isalo, Zahavola forest. Type locality of *Trogoderma korinae* sp. nov.



Figs. 9-11. *Trogoderma nosybeana* sp. nov.: 9- habitus in dorsal view; 10- habitus in dorso-lateral view; 11- antenna.

Pronotum transverse, slightly more sparsely punctate compared to head. Disc of pronotum densely punctate, with brown and white setation forming numerous spots. Pro-, meso-, and metasternum finely punctate, covered with short white recumbent setation.

Scutellum triangular, anterior margin convex, without setation.

Elytra oval, coarsely punctate, brown with spots and fasciae of white setation, other parts covered by brown setation (Figs. 9-10). Elytral epipleuron entirely brown bearing white setation.

Visible abdominal ventrites brown, finely punctate, with short, recumbent, white setation. Pygidium brown, covered with brown setation.

Legs with white setation.

Male. Unknown.

Differential diagnosis. The new species is very similar to *T. fasciolata* (Fairmaire, 1897) and *T. seminigrum* Pic, 1915, but differs from these species mainly by the combination of the following characters: the structure of the antennae and colour of the elytral fasciae.

T. nosybeana Háva & Trýzna sp. nov.: antennal club of 5 antennomeres, elytra brown with fasciae and spots of white setation;

T. fasciolata: antennal club of 3 antennomeres, elytra brown with orange-red fasciae covered with white pubescence;

T. seminigrum: antennal club of 4 antennomeres, elytra brown with small isolated spots of white setation.

Etymology. Toponymic, named according to Nosy Be Island.

Collecting circumstances. The holotype was collected in the Parc National de Lokobe, Nosy



Figs. 12-13. Parc National de Lokobe, Nosy Be Island. Type locality of *Trogoderma nosybeana* sp. nov.

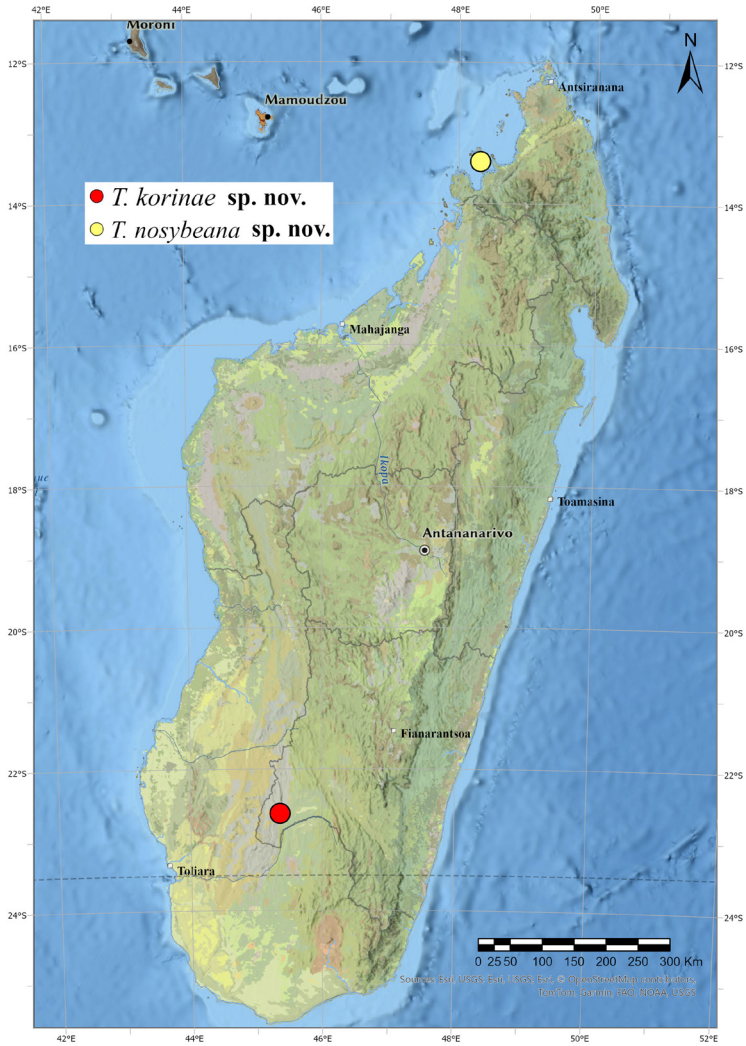


Fig. 14. Type localities of *Trogoderma korinae* sp. nov. and *T. nosybeana* sp. nov.

Be Island, Antsiranana province, North Madagascar (Figs. 12-13). This area is dominated by a sub-humid hot climate. The Lokobe forest represents one of the last remnants of lowland moist evergreen forest in the Sambirano area and is nearly intact. This forest is well developed on deep volcanic soils, extending across a rugged landscape (see also Goodman et al. 2018a). The specimen was caught by beating of low trees.

Distribution. Northern Madagascar, Lokobe, Nosy Be Island.

FAUNISTICS

Attagenus fasciatus (Thunberg, 1795)

Material examined: C Madagascar, Anjozorobe, Saha forest, S 18°24'30'', E 47°56'51'', 1412 m, 6-9.i.2024, M. Trýzna lgt., 1 spec., J. Háva det., (JHAC).

Distribution. A cosmopolitan species; known from Madagascar.

Orphinus binotatus Pic, 1937

Material examined: N Madagascar, Nosy Be Isl., Lokobe Nat. Park, circuit Mitsinjo, S 13°24'21'', E 48°18'35'', 296 m, 26-30.xi.2019, M. Trýzna lgt., 1 ♂, J. Háva det., (JHAC).

Distribution. A species known from Comores Islands, Madagascar, Reunion and Tanzania: Zanzibar.

Phradonoma albonotatum (Pic, 1927)

Material examined: SC Madagascar, Fianarantsoa pr., Isalo N.P., Ananalava forest margin, Tanambao vill. env., 27-29.i.2014, 724 m, 22°35.028'S 45°7.672'E, M. Trýzna lgt., 2 spec., J. Háva det., (JHAC); SC Madagascar, Fianarantsoa pr., Isalo N.P., Zahavola forest, 832 m, 7 km NE Ranohira, 22°37.611'S 45°21.499'E, 30.i.-1.ii.2014, M. Trýzna lgt., 2 spec., J. Háva det., (JHAC); SW Madagascar, Toliara prov., Zombitse-Vohibasia N.P., Zombitse part. 824 m, 22°53.171'S 44°41.489' E, 22-25.i.2014, M. Trýzna lgt., 1 spec., J. Háva det., (JHAC); W Madagascar, Ankarafantsika N.P., near Lake Ravelobe, S 16°17'44.5'', E 46°48'57.9'', 105 m, primary forest, 12-16.i.2024, M. Trýzna lgt., 1 spec., J. Háva det., (JHAC).

Distribution. A species known from Kenya and Madagascar.

Trogoderma fasciolata (Fairmaire, 1897)

Material examined: SC Madagascar, Fianarantsoa pr., Isalo N.P., Zahavola forest, 832 m, 7 km NE Ranohira, 22°37.611'S 45°21.499'E, 30.i.-1.ii.2014, M. Trýzna lgt., 1 spec., J. Háva det., (JHAC); SW Madagascar, Toliara prov., Zombitse-Vohibasia N.P., Zombitse part. 824 m, 22°53.171'S 44°41.489'E, 22-25.i.2014, M. Trýzna lgt., 12 spec., J. Háva det., (JHAC).

Distribution. A species known from Madagascar.

Trogoderma impressiceps (Pic, 1915)

Material examined: SC Madagascar, Fianarantsoa pr., Isalo N.P., Zahavola forest, 832 m, 7 km NE Ranohira, 22°37.611'S 45°21.499'E, 30.i.-1.ii.2014, M. Trýzna lgt., 1 spec., J. Háva det., (JHAC).

Distribution. A species known from Madagascar.

***Trogoderma madecassum* (Pic, 1924)**

Material examined: C Madagascar, Anjozorobe, Saha forest, S 18°24'30'', E 47°56'51'', 1412 m, 6-9.i.2024, M. Trýzna lgt., 1 spec., J. Háva det., (JHAC).

Distribution. A species known from Madagascar.

***Trogoderma sahondrae* Háva & Baňář, 2017**

Material examined: C Madagascar, Ambohitantely Spec. Res., circuit Botanique, 1623 m, S 18°11'44'' E 47°17'16'', primary forest, 19-22.i.2024, M. Trýzna lgt., 1 spec., J. Háva det., (JHAC).

Distribution. A species known from Madagascar.

LIST OF MADAGASCAN SPECIES OF THE FAMILY DERMESTIDAE

i - introduced species

Family Dermestidae Latreille, 1804

Subfamily Dermestinae Latreille, 1804

Genus *Dermestes* Linnaeus, 1758

Subgenus *Dermestinus* Zhantiev, 1967

ⁱDermestes frischii Kugelann, 1792

ⁱDermestes maculatus DeGeer, 1774

Dermestes madagascariensis Lepesme, 1939

Subgenus *Dermestes* Linnaeus, 1758

ⁱDermestes ater DeGeer, 1774

Dermestes brutus Háva, 2023

ⁱDermestes haemorrhoidalis Küster, 1852

Dermestes impressipennis Pic, 1942

ⁱDermestes wittei Kalík, 1955

Subfamily Trinodinae Casey, 1900

Genus *Evorinea* Beal, 1961

Evorinea madagascarica Háva, 2002

Evorinea marie Háva, 2005

Genus *Trinoparvus* Háva, 2004

Trinoparvus laboriosus Háva, 2004

Subfamily Attageninae Laporte de Castelnau, 1840

Genus *Aethriostoma* Motschulsky, 1858

Aethriostoma madecassus (Pic, 1916)

ⁱ*Aethriostoma undulata* (Motschulsky, 1858)

Genus *Attagenus* Laporte de Castelnau, 1840

ⁱ*Attagenus fasciatus* (Thunberg, 1795)

Attagenus indrii Háva, 2024

Attagenus poggii Háva, 2017

Subfamily Megatominae Leach, 1815

Genus *Anthrenus* Geoffroy, 1762

Subgenus *Anthrenus* Geoffroy, 1762

ⁱ*Anthrenus flavipes* LeConte, 1854

Subgenus *Nathrenus* Casey, 1900

ⁱ*Anthrenus verbasci* (Linnaeus, 1767)

Genus *Orphinus* Motschulsky, 1858

Orphinus binotatus Pic, 1937

Genus *Phradonoma* Jacquelin du Val, 1859

Phradonoma albonotatum (Pic, 1927)

Genus *Thaumaglossa* Redtenbacher, 1867

Thaumaglossa baobab Háva, 2012

Thaumaglossa maculata Háva, 2010

Thaumaglossa ooparasitica Háva & Mériguet, 2018

Thaumaglossa pauliani Pic in Paulian, 1953

Thaumaglossa purpurea (Pic, 1915)

ⁱ*Thaumaglossa rufocapillata* Redtenbacher, 1867

Genus *Trogoderma* Dejean, 1821

Trogoderma banari Háva & Trýzna, 2022

Trogoderma caneparii Háva, 2018

Trogoderma fasciolata (Fairmaire, 1897)

Trogoderma friedmani Herrmann & Háva, 2011

ⁱ*Trogoderma granarium* Everts 1898

Trogoderma horaki Háva, 2013

Trogoderma housei Háva, 2014

Trogoderma impressiceps (Pic, 1915)

Trogoderma korinae Háva & Trýzna sp. nov.

Trogoderma madecassum (Pic, 1924)
Trogoderma nosybeana Háva & Trýzna sp. nov.
Trogoderma parasambiranum Háva, 2018
Trogoderma sahondrae Háva & Baňař, 2017
Trogoderma sambiranum Háva, 2009
Trogoderma seminigrum Pic, 1915
Trogoderma sharpi Háva & Matsumoto, 2021
Trogoderma taomasinum Háva, 2009
Trogoderma trifasciatum Háva, 2009
Trogoderma tryznai Háva & Matsumoto, 2021
Trogoderma wolfgangi Háva & Herrmann, 2008
Trogoderma zhantievi Háva & Matsumoto, 2021

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