Attagenus (*Attagenus*) *freyi* sp. nov., a new species from South Africa (Coleoptera: Dermestidae: Attageninae)

Andreas HERRMANN[1)], Jiří HÁVA[2)] & Marcin KADEJ[3)]

[1)] Bremervörder Straße 123, D - 21682 Stade, Germany
e-mail: herrmann@coleopterologie.de

[2)] Department of Forest Protection and Entomology
Faculty of Forestry and Wood Sciences, Czech University of Life Sciences
Kamýcká 1176, CZ-165 21, Prague 6 - Suchdol, Czech Republic
e-mail: jh.dermestidae@volny.cz

[3)] Department of Invertebrate Biology, Evolution and Conservation
Institute of Environmental Biology, Faculty of Biological Science
University of Wrocław, Przybyszewskiego 65, PL-51-148 Wrocław, Poland
e-mail: marcin.kadej@uwr.edu.pl

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Abstract. A new species, *Attagenus* (*Attagenus*) *freyi* sp. nov. occurring in South Africa is described, illustrated and compared with similar looking species. Furthermore a list of the species of the genus *Attagenus* from South Africa is provided.

INTRODUCTION

The genus *Attagenus* Latreille, 1802 is one of about 60 genera established within the Carpet Beetles (Dermestidae). It includes ca. 230 different species (respectively subspecies) worldwide (Háva 2015), somewhat more than 30 of them have been recorded from South Africa (Kadej & Háva 2015, Háva 2016, Herrmann et al. 2016). Some of them have been classified as economically important pests of stored products, museum collections and other goods (Peacock 1993, Kadej & Háva 2014). The genus *Attagenus* contains the species sharing the following combination of characters: first segment of hind tarsi almost half as long as the second, free mouthparts, three-jointed antennal club and lack of distinct antennal cavity on the hypomeron (Kadej & Háva 2014, 2015).

In the present paper we describe new species of this genus which have been recognized during the identification of dermestids deposited in the collection of the Staatliches Museum für Naturkunde, Stuttgart (SMNS), Transvaal Museum (TMSA) and Zoologisches Forschungsinstitut und Museum Koenig, Bonn (MZFK). Other additional specimens of the new taxon have also been discovered in two private collections.

MATERIAL AND METHODS

The specimens were stored for 5 days in a solution of 1% pepsin in hydrochloric acid to remove roughly protein tissues and make their extremities of the body moveable. The abdomen was disconnected from the body and glued upside-down onto the same cardboard plate, just behind the beetle. Before this, the genitalia were excluded and then cleaned with a fine needle in a drop of 99 percent glycerol. Afterwards they were also glued onto the plate behind the beetle, firmly embedded in a drop of a solution consisting of polyvinylpyrrolidone, aqua demineralisata and

diglycerin (the liquid solution is permanently solidified after a few minutes). Photos of body and abdomen were taken with a digital SLR camera Sony alpha 35, connected with an objective Nikon CF N Plan Achromat 4x 160/- and extension rings; for the photos of the genitalia and antenna the Bresser Junior USB-Handmikroskop at 200x magnification was used. Because of the low depth of field all photos were taken as layered images, afterwards combined by using a PC software. The nomenclature and systematic in this paper follow Háva (2015).

The size of the beetle and of its body parts can be useful in species recognition, so the following measurements were made:

a) total length (TL) - linear distance from anterior margin of pronotum to apex of elytra.
b) pronotal length (PL) - maximal length measured from anterior margin to posterior margin.
c) pronotal width (PW) - maximal linear transverse distance.
d) elytral length (EL) - linear distance from shoulder to apex of elytron.
e) elytral width (EW) - maximal linear transverse distance.

The type specimens of the described species are provided with a red, printed label showing the following text: „HOLOTYPUS [respectively PARATYPUS], *Attagenus* (s. str.) *freyi* n. sp., Herrmann, Háva & Kadej det. 2016".

Acronyms of type depositories:

AHEC private collection of Andreas Herrmann, Stade, Germany;
JHAC Jiří Háva, Private Entomological Laboratory and Collection, Únětice u Prahy, Prague west, Czech Republic;
SMNS Staatliches Museum für Naturkunde, Stuttgart, Germany;
MZFK Zoologisches Forschungsinstitut und Museum Koenig, Bonn, Germany;
TMSA Distong National Museum of Natural History, Pretoria, Republic of South Africa;
ZBEOB Department of Invertebrate Biology, Evolution and Conservation, University of Wrocław, Wrocław, Poland.

DESCRIPTION

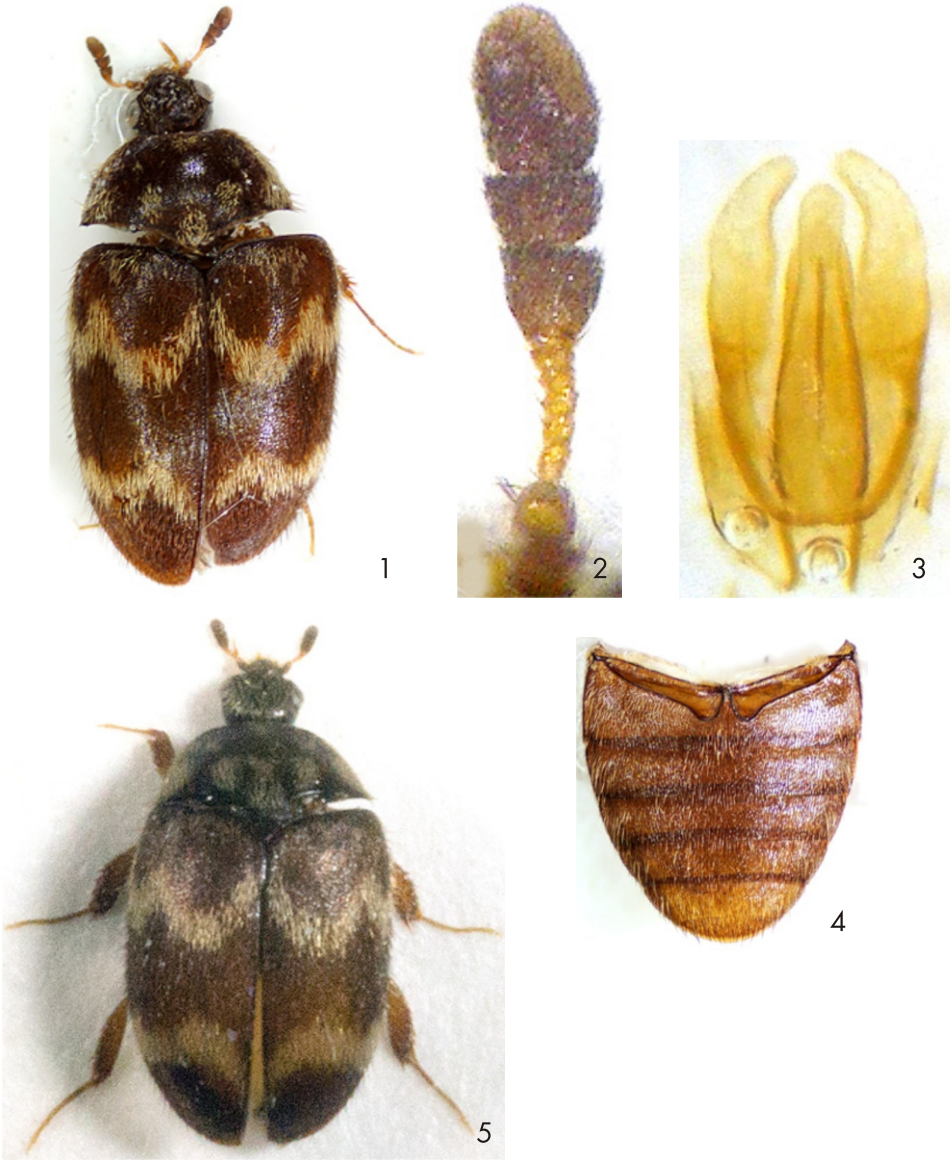
Attagenus (*Attagenus*) *freyi* sp. nov.

(Figs. 1-4)

Material examined: Holotype (♂) labelled: „Durban, Natal S. Afr., Leg. Frey I-1952" (SMNS) [the holotype is slightly damaged (probably by pressure from above), but except the left front leg (which is lost) all parts of the specimen are present]. Paratypes (2 ♀♀): same record data, (SMNS); (1 ♀): "19.I.2007 R.S.A., St. Lucia-Mission Rocks, KwaZulu-Natal, Miroslav Klícha Leg." (AHEC); (1 ♂, 1 ♀): "NatalDr.Martin" / "9/57, ex coll. R. Oberthur", (MZFK, JHAC); (2 ♀♀): "Buffels R; 11.2.49. Koch" (TMSA, ZBEOB) [one specimen without left antenna and right hind tarsi, right antenna broken; second specimen without tarsi, hind legs lost, left antenna broken].

Description. Body robust, broadly oval (Fig. 1); measurements (in mm): TL 2.8, PL 0.6, PW 1.3, EL 2.1, EW 1.7. Head shiny and black, with fine but distinct and deep punctures, covered sparsely with quite long and recumbent light brown setae; palpi light brown. Eyes large with short and hardly visible erect interfacetal setae. Ocellus distinct, shiny and convex. Antenna entirely yellowish brown, the club as well as the first antennomere slightly darker. Antenna with 11 antennomeres, the last three antennomeres forming distinct club covered densely by fine decumbent brown setae; the last antennomere of the club roughly as long as the two preceding combined, the whole club almost as long as antennomeres 1-8 combined (Fig. 2); on these segments few erect brown setae present. Pronotum slightly bulged, broadest at the apical edges, narrowed towards the anterior part, entirely black and punctured as head, lateral margins

smooth, untoothed, not visible from above; dorsal surface covered sparsely with decumbent brown and light brown setae, the light setae are mainly concentrated in lateral and middle areas of the apical side building some very blurred and indistinct spots of different size.



Figs. 1-5. Holotype (male) of *Attagenus freyi* sp. nov.: 1- habitus, dorsal aspect; 2- antenna; 3- genitalia; 4- abdomen; 5- female, habitus dorsal aspect.

Scutellum small, black and triangular, naked, but with fine punctuation. Cuticle of elytra darkish brown with two bright bent fasciae reaching wave-like from suture to lateral margins; one fascia located in the anterior third, the second one in apical third; elytral punctures coarser and denser than those in pronotum, humeri with a flat and indistinct bump; elytral setation consisting entirely of decumbent brown hairs except some light brown hairs covering elytral fasciae (Fig. 1). Legs robust and brown, covered sparsely with erect, short bright setae. All tibiae with several rows of strong brown spines at their lateral margins. Tarsi quite long, roughly as long as tibiae, brown. Mesosternum darkish brown, covered sparsely with decumbent brown setae. Abdominal ventrites brown, punctured as in the elytra and covered quite densely with decumbent light brown setae (Fig. 4). Male genitalia as shown in Fig. 3.

Female habitually similar to male (Fig. 5), but with a slightly smaller antennal club.

Variability. Variation in size: 2.8-3.2 mm.

Differential diagnosis. The new species resembles habitually *Attagenus schawalleri* Herrmann, Kadej & Háva, 2015 (fig. 5) and *Attagenus heinigi* Herrmann & Háva, 2007 but differs from both abovementioned species by its elytral pubescence showing only two fasciae, there is neither a bright spot nor any fascia at the apical end of the elytra detectable. From all other species belonging to the genus *Attagenus* occurring in the south of the African continent it could easily be distinguished by the conspicuous elytral pubescence in combination with the form of the male antennal club and genitalia.

Name derivation. The new species is named in honour of the late Georg Frey (1902-1976) - well known German coleopterist and collector of the holotype.

Fig. 6. Habitus of holotype (female) of *Attagenus schawalleri* Herrmann, Kadej & Háva, 2015.

THE *ATTAGENUS* SPECIES RECORDED FROM THE REPUBLIC OF SOUTH AFRICA

Attagenus albonotatus Pic, 1927
Attagenus aurofasciatus Háva, 2005
Attagenus boroveci Háva, 2016
Attagenus brunneus Faldermann, 1835
Attagenus capensis Reitter, 1881
Attagenus capronatus Herrmann, Kadej & Háva, 2015
Attagenus cinereus (Thunberg, 1815)
Attagenus constantini Herrmann, Kadej & Háva, 2015
Attagenus danielssoni Herrmann, Kadej & Háva, 2016
Attagenus diversesignatus Pic, 1942
Attagenus diversus Reitter, 1881
Attagenus fasciatopunctatus Reitter, 1881
Attagenus fasciatus (Thunberg, 1795)
Attagenus flexicollis Reitter, 1881
Attagenus freyi sp. nov.
Attagenus fulvicollis Reitter, 1881
Attagenus grandjeani Pic, 1942
Attagenus holmi Kalík & Háva, 2005
Attagenus hottentotus (Guérin-Méneville, 1844)
Attagenus jucundus Péringuey, 1885
Attagenus leopardinus Reitter, 1881
Attagenus matamata Kadej & Háva, 2015
Attagenus muelleri Herrmann, Kadej & Háva, 2015
Attagenus pardus Arrow, 1915
Attagenus prescutellaris Pic, 1927
Attagenus pseudocapensis Herrmann, Kadej & Háva, 2015
Attagenus pustulatus (Thunberg, 1815)
Attagenus rhodesianus Pic, 1927
Attagenus romani Háva, 2016
Attagenus rufiventris Pic, 1927
Attagenus schawalleri Herrmann, Kadej & Háva, 2015
Attagenus thunbergi Mroczkowski, 1968
Attagenus unicolor (Brahm, 1791)
Attagenus vestitus Klug, 1855

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