**Attagenus** Latreille, 1802 (Coleoptera: Dermestidae: Attageninae) in Turkey with a description of a new species

Marcin Kadej & Jiří Háva


A new species of the large genus *Attagenus* Latreille, 1802, *A. hadesi* sp. n. from Turkey is described and illustrated. Morphological characteristics useful for identification are provided. A list of species of *Attagenus* from Turkey is also given.

M. Kadej, Department of Invertebrate Biology, Evolution and Conservation, University of Wroclaw, Poland; E-mail: entomol@biol.uni.wroc.pl
J. Háva, Department of Forest Protection and Entomology, Faculty of Forestry and Wood Sciences, Czech University of Life Sciences, Kamýcká 1176, Prague 6 – Suchdol, CZ-165 21, Czech Republic; E-mail: jh.dermestidae@volny.cz

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1. Introduction

The genus *Attagenus* Latreille, 1802 of Attageninae is the most speciose in the family Dermestidae, and currently includes nearly 200 valid species, most of them found in Palaearctic, Ethiopian and Nearctic regions. The genus, as shown in the study of larval characteristics (Kiselyova & McHugh 2006), is closely related to the Nearctic genus *Novelsis* Casey, 1900. Of the two currently accepted subgenera, *Aethriostoma* Motschulsky 1858a includes only 6 species, while nearly 190 have been so far described in *Attagenus s. str.* (Háva 2003a, 2013).

The wide variability within the genus is manifested in size, colouration, shape of antennae, and male and female genitalia. Some species are very similar and difficult to identify, whereas distinct and characteristic morphology makes others easier. Adults of *Attagenus* can be distinguished from all other genera by the first segment of metatarsi at most half as long as the second, free mouthparts, 3-jointed antennal club and lack of distinct antennal cavity on hypomeron. The most characteristic feature of larvae is the extremely long caudal brush and the elongated, cylindrical, strongly sclerotized body (Peacock 1993).

As mentioned above, the genus *Attagenus* is one of the most speciose genera of Dermestidae. Few of the species have been classified as pests of stored products. The genus is known from all biogeographical regions, but includes no more than a few cosmopolitan species. 25 species of *Attagenus* have been described in Turkey so far and a new species found in Turkey is described in this paper.

2. Material and methods

Morphological structures of body were boiled for 3–10 minutes in 10% KOH, and placed in distilled water for c. 1 hour to clean and soften the cuticle. All structures were placed on glycerin mounts. Morphological structures were examined with a Nikon Eclipse E 600® (Tokyo, Japan)
phase contrast microscope with a drawing tube, and a Nikon SMZ–800® (Tokyo, Japan) binocular microscope. Photographs were taken with a Canon 500D® (Taiwan) and a Nikon D5100® (Tokyo, Japan) camera under a Nikon Eclipse 80i® (Tokyo, Japan) and/or a Nikon SMZ–800® (Tokyo, Japan). Image stacks were processed using Combine ZM® (Hadley 2010).

The terminology used in this paper follows Lawrence and Šlipiński (2010). Separate labels are indicated by a slash (/). Author’s remarks are in square brackets [ ].

The following abbreviations are used in this study:
- MKC—Collection of Marcin Kadej, Department of Evolutionary Biology and Ecology, Division of Invertebrates Biology, Evolution and Conservation collection, University of Wrocław, Poland.
- JHAC—Private Entomological Laboratory & Collection, Únětice u Prahy, Prague-west, Czech Republic.

The type specimens were labeled with a red printed label bearing the text as follows: “HOLOTYPE or PARATYPE Attagenus hadesi sp. nov. J. HÁVA & M. KADEJ det. 2012”.

3. Description of *Attagenus* (*Attagenus*) *hadesi* sp. n. (Fig. 1)

*Type locality.* Turkey, Mersin, N Gülnar, N 36°30'22.5"; E 33°07'43.3" Kosecobanli/Tesdüstü.

*Material examined.* Holotype ♂: Labeled: Turkey, Mersin, 40 km N Gülnar N 36°30'22.5"; E 33°07'43.3 Kosecobanli/Tesdüstü W-trap 3 Hollow Quercus 2006-08-26 Nicklass Jansson/ Mustafa Avcı [terminalia placed in plastic vial with glycerin], MKC. Paratype ♀: Labeled: Turkey, vil. Icel (Mersin), Göktepe Dagi, Aslanli env., 10.–12.6.1998, Bezděk lgt., JHAC.

*Diagnosis.* The new species closely resembles *Attagenus* (*s. str.*) *pantherinus*, *A. (s. str.*) *quadricolor*, *A. (s. str.*) *incognitus* and *A. (s. str.*) *maculatus*. It can be distinguished from them by the characteristics given in Table 1.

*Description.* Male (holotype). Body: OVate, convex and slightly elongated; dorsal and ventral pubescent recumbent, white, light brown or light golden (Figs 1a–c); length from anterior margin of pronotum to apex of elytron 3.65 mm, median length of pronotum 0.9 mm, maximum width of pronotum 1.75 mm, length of elytron 2.7 mm, maximum width across elytra 2.0 mm. Ratio of width (across humeri) to length (of pronotum and elytra combined) 1.0:1.82.

Head: Visible from above; integument of head dark brown; densely but sparsely and finely punctured. Eyes iridescent, with dark brown edge, large, convex, with slight emargination at midlength of inner margin. Median ocellus distinct. Front and clypeus covered with light brown pubescence. Anterior part of clypeus light brown, posterior (basal) part dark brown. Antenna with 11 antennomeres. Antennal club elongated, 3-jointed (Fig. 1c); antennomeres I–VIII light brown, IX–XI brown (generally darker, only basal part of IX can be slightly lighter). Antennal club has almost the same length as flagellum; with relative length of terminal joint to length of penultimate joints nearly 0.9:1.0 (terminal joint almost as long as the two preceding joints combined). Ratio of width to length of terminal antennomeres: 1.0:1 (IX and X) and 0.53:1 (XI).

Pro-, meso- and metasternum (Fig. 1b): Dark brown (almost black), sparsely and finely punctured, densely covered with fine recumbent light golden setae. Prosternal process thin but distinct and reaching midlength of mesosternum. Its apex slightly sharpened. Mesosternum deeply incised for prosternal process.

Pronotum, hypomeron and elytron (Figs 1a–b): Integument mainly covered with light brown (only near angles white) pubescence. Hypomeron covered with light brown pubescence. Pronotum with lateral carina continued around anterolateral angle (invisible from above); basal part of pronotum rounded. Antennal fossa densely and shallowly punctured. Elytra (Fig. 1a) with white and light brown pubescence. Small spots (discontinuous bands) of white setae situated as follows: two near humeri, two under humeri (visible in lateral aspect only), two near suture in midlength of elytra, other two at the same level but closer to lateral margins, and the last pair near apex of elytra. Scutellum small, dark brown (almost black) and triangular.
Table 1. Comparison of species closely resembling *Attagenus* (s. str.) *hadesi* sp. n.

<table>
<thead>
<tr>
<th>Antennae</th>
<th>A. (s. str.) <em>pantherinus</em></th>
<th>A. (s. str.) <em>quadricolor</em></th>
<th>A. (s. str.) <em>incognitus</em></th>
</tr>
</thead>
<tbody>
<tr>
<td>no. of segments</td>
<td>11</td>
<td>10</td>
<td>11</td>
</tr>
<tr>
<td>antennomere I</td>
<td>Dark brown</td>
<td>Light brown to brown</td>
<td>Dark brown</td>
</tr>
<tr>
<td>antennomeres II–VIII</td>
<td>Light brown</td>
<td>Light brown to brown</td>
<td>Dark brown</td>
</tr>
<tr>
<td>antennomeres IX–X</td>
<td>Blackish-brown</td>
<td>Light brown to brown</td>
<td>Dark brown</td>
</tr>
<tr>
<td>antennomere XI</td>
<td>Blackish-brown</td>
<td>–</td>
<td>Dark brown</td>
</tr>
<tr>
<td>Labial palpi</td>
<td>Dark brown</td>
<td>Light brown</td>
<td>Light brown</td>
</tr>
<tr>
<td>terminal segment</td>
<td>Short</td>
<td>Very long</td>
<td>Short</td>
</tr>
<tr>
<td>Pronotal pubescens</td>
<td>Distinctly white</td>
<td>Intermixed yellow and white</td>
<td>Whitish</td>
</tr>
<tr>
<td>laterally (near angles)</td>
<td>Yellow</td>
<td>Light brown</td>
<td>Black</td>
</tr>
<tr>
<td>discally</td>
<td>Dark brown with brown setae</td>
<td>Brown with white setae</td>
<td>Brown with black setae</td>
</tr>
<tr>
<td>Pygidium</td>
<td>Broad with apices</td>
<td>Narrow with apices</td>
<td>Broad with apices</td>
</tr>
<tr>
<td>Parameres of phallus</td>
<td>slightly curved inward</td>
<td>slightly curved inward</td>
<td>slightly curved inward</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Antennae</th>
<th>A. (s. str.) <em>maculatus</em></th>
<th>A. (s. str.) <em>hadesi</em> sp.n.</th>
</tr>
</thead>
<tbody>
<tr>
<td>no. of segments</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td>antennomere I</td>
<td>Yellowish-red</td>
<td>Light brown</td>
</tr>
<tr>
<td>antennomeres II–VIII</td>
<td>Yellowish-red</td>
<td>Light brown</td>
</tr>
<tr>
<td>antennomeres IX–X</td>
<td>Dark brown</td>
<td>Brown</td>
</tr>
<tr>
<td>antennomere XI</td>
<td>Dark brown</td>
<td>Brown</td>
</tr>
<tr>
<td>Labial palpi</td>
<td>Dark brown</td>
<td>Light brown</td>
</tr>
<tr>
<td>terminal segment</td>
<td>Short</td>
<td>Short</td>
</tr>
<tr>
<td>Pronotal pubescens</td>
<td>Black with small isolated white spots (near angles) and two near scutellum</td>
<td>Whitish</td>
</tr>
<tr>
<td>laterally (near angles)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>discally</td>
<td>Black</td>
<td>Light brown</td>
</tr>
<tr>
<td>Pygidium</td>
<td>Black with black setae</td>
<td>Brown with golden light setae</td>
</tr>
<tr>
<td>Parameres of phallus</td>
<td>Narrow with apices</td>
<td>Narrow with apices</td>
</tr>
<tr>
<td></td>
<td>slightly curved inward</td>
<td>distinctly curved inward (Fig. 1e)</td>
</tr>
</tbody>
</table>

Legs: Dorsal surface covered with light golden pubescence. Trochanters, coxae and femora dark brown; tibiae, tarsi and claws light brown. Tibiae spinose on lateral margin, with distinct, short but thick, brown setae. Tarsus with two slightly curved claws.

Ventrrites I–V (Fig. 1d): Integument dark brown with golden-brown pubescence. Sides of first visible sternite without striae. Pygidium: Brown, with light golden, semi erect setae.

Phallus: As in Fig 1e. Parameres deeply u-shaped, covered with few, rather short setae on the lateral margins as well as in the central and inner areas; longer setae present only on apex of parameres. Distal parts of parameres distinctly curved inward. Penis in lateral view straight, with distal end pointing up; wider posteriorly (in frontal aspect), with narrow apodemes occupying 1/3 of penis length (Fig. 1e).

IX abdominal ventrite: Rhomboidal, more pigmented laterally and basally, apex slightly rounded, setae present on the apical and lateral margins (Fig. 1f).

Female (paratype). Externally similar to male, but differs by structure of antennae. Antennal club short as in male, terminal antennomere shorter and oval. Body length from anterior margin of pronotum to apex of elytron 4.03 mm, median length of pronotum 0.95 mm, maximum width of pronotum 2.03 mm, length of elytron 3.20 mm, maximum width across elytra 2.22 mm.

**Distribution.** Turkey.

**Etymology.** The epithet comes from the name of Hades (son of Kronos and Rhea and brother of
Zeus and Poseidon). In Greek mythology he is the god of the underworld and death.

4. List of species of *Attagenus* from Turkey

*Attagenus aurantiacus* Reitter, 1900  
*Attagenus bifasciatus* (Olivier, 1790)  
Syn.: *Attagenus wachanmi* Mulsant & Rey, 1868  
*Attagenus brunneus* Faldermann, 1835  
Syn.: *Attagenus sordidus* Heer, 1841  
*Attagenus dalmalinus* Kuster, 1847  
*Attagenus marginicollis* Handschuch in Küster, 1847  
*Attagenus longicornis* Pic, 1894  
*Attagenus picipennis* Pic, 1894  
*Attagenus elongatus* Casey, 1900  
*Attagenus extricatus* Casey, 1900  
*Attagenus bicolor* Casey, 1900  
*Attagenus elongatus* Casey, 1916  
*Attagenus cyphonoides* Reitter, 1881  
Syn.: *Attagenus alfieri* Pic, 1910  
*Telopes senegalensis* Pic, 1915  
*Attagenus dispar* (Redtenbacher, 1843)  
Syn.: *Attagenus redtenbacheri* Peyron, 1857  
*Attagenus fasciatus* Zhantiev, 2007  
*Attagenus glacialis* (Thunberg, 1795)  
Syn.: *Anthrenus gloriosae* Fabricius, 1798  
*Attagenus ionicus* Zhantiev, 2005  
*Attagenus jelineki* Háva, 2004  
*Attagenus lobatus* Rosenhauer, 1856  
Syn.: *Attagenus byruroides* Solsky, 1876  
*Attagenus lynx* (Mulsant & Rey, 1868)  
*Attagenus obtusus* (Gyllenhal in Schönherr, 1808)

5. Discussion

Genus *Attagenus* is divided into two subgenera – *Aethriostoma* Motschulsky, 1858 and *Attagenus* s. str. The greatest number of taxa is in the nomi-
native subgenus, with more than 190 described species, of which 26 (including the new one described herein) are known from Turkey. The detailed studies of materials of unidentified insects (including Dermestidae) from a range of entomological collections showed that Turkey still represents new challenges to researchers and taxonomists (Háva 2000a, b, 2002, 2003b, 2004, 2006; Háva & Tezcan 2004; Avgín et al. 2012). It is certain that new taxa of Dermestidae will be recorded from this region in the near future.

Turkish species of Attagenus present a variety of morphologies, expressed by size but also by dorsal patterns. Some of the species are unicolored, while others have different dorsal spots or bands of setae. Some of the species, for example the black carpet beetle _A. unicolor unicolor_ (Brahm), the fur beetle _A. pellio_ (Linnaeus) or the brown carpet beetle _A. smirnovi_ Zhantiev are the most common and most destructive within the subgenus _Attagenus s. str._ over all. Due to the similarities in morphological characteristics (structure of antennae, male genitalia and form of prosternum), _A. hadesi sp. n._ resembles some Nearctic and Neotropical species [e.g. _Attagenus aequalis_ (Sharp), _A. varicolor_ (Jayne) or _A. bitaeniatus_ (Steinheil)] rather than other Palaearctic representatives of the genus. This interesting similarity should be explored in a further study.

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References


Háva, J. 2000b: _Turricornis kopeczyki_ gen. n., _sp. n._ (Coleoptera: Dermestidae: Megatominae) from Turkey. — Folia Heyrovskyana 8: 115–118.


