

A contribution to the knowledge of *Anthrenus* Geoffroy, 1762 from Yemen and Socotra Island (Coleoptera: Dermestidae: Anthrenini)

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Abstract. The species *Anthrenus (Anthrenodes) hulai* sp. nov. from Yemen and *Anthrenus (Nathrenus) bezdeki* sp. nov. and *Anthrenus (s. str.) socotranus* sp. nov. from the Socotra Island are described, illustrated and compared with similar species. The new species differ from similar species by the structure of antennae, male genitalia and colour of scales. The species *Anthrenus (s. str.) ardoi* Kadej & Háva, 2011 is newly recorded from Yemen.

INTRODUCTION

The family Dermestidae (Coleoptera: Bostrichoidea) currently contains about 1500 species and subspecies worldwide (Háva 2015); 54 species are known from the Arabian Peninsula, and 10 species have been recorded from the Socotra Island so far (Wranik 2003, Háva 2007a,b, 2011, 2013, 2014; Háva et al. 2013a,b, Kadej & Háva 2011). The genus *Anthrenus* Geoffroy, 1762 currently contains about 250 species and subspecies worldwide (Háva 2015), 12 species from Yemen and one species from Socotra Is. (Háva 2014). Study of the rich Dermestidae material recently collected in Socotra by Czech entomological expeditions and deposited in the National Museum, Prague revealed further undescribed species of the genus *Anthrenus* Geoffroy, 1762. Their description is presented below.

MATERIAL AND METHODS

The size of the beetles or their body parts can be useful in species identification and thus, the following measurements were made:

TL total length - linear distance from anterior pronotal margin to elytral apex.
EW elytral width - maximum linear transverse distance of elytra.

The material included in the present study is deposited in the following collections:

JHAC Private Entomological Laboratory & Collection, Únětice u Prahy, Prague-West, Czech Republic;
MZHF Finnish Museum of Natural History, Helsinki, Finland;

NMPC National Museum, Praha, Czech Republic.

The nomenclature and zoogeography follow the catalogue by Háva (2015).

RESULTS

Genus *Anthrenus* Geoffroy, 1762 Subgenus *Anthrenodes* Chobaut, 1898

Anthrenus (Anthrenodes) pulchellus Gestro, 1889

Material examined: Yemen, Sana'a gov., 5 km SW of Al Badia vill., (steppe with *Aervam Opuntia*), 15°04.7'N 43°46.7'E, ca. 1475 m, 5+19.xi.2010, J. Hájek lgt., 3 exx., (NMPC); Yemen, Al Hudaydeh Gov., Wadi Zabid, E Zabid, 14°09'N 43°31'E, 325 m, 22.iii.2007, S. Kadlec lgt., 1 ex., (NMPC); Yemen, Hadramaut, Al Qatr, 21.iv.1992, R. Linnavuori lgt., 1 ex., (MZHF).

Remarks. A new locality from Yemen.

Anthrenus (Anthrenodes) hulai sp. nov. (Figs. 1-3)

Type material. Holotype (♂): Yemen, Haraz Mts., S slope of Al Ian, 2600 m, 23.vi.2010, V. Hula & J. Niedobová lgt., (NMPC). Paratypes: (1 ♀): same data as holotype, (NMPC); (1 ex.): Yemen, Sana'a gov., Dar Al-Hajar, 2500 m, 30.v.2010, V. Hula & J. Niedobová lgt., (JHAC).

Description. Holotype. Measurements. TL = 2.2 mm, EW = 1.3 mm; body oval, elytra oval, slightly broader behind middle (Fig. 1). Integument of elytra and pronotum black, integument of head dark brown. Dorsal surface covered with grey and brown scales, ventral side mainly with grey scales.

Head with a mixture of brown and grey scales. Labial palpi brown. Antennae with 11 antennomeres, antennomeres I-VIII light brown, antennomeres IX-XI darker; antennal club oblong oval, trimerous (Fig. 2). Eyes large, with brown microsetae; inner margin not emarginate. Median ocellus present on frons.

Pronotum (Fig. 1) discally with brown scales; lateral parts and area adjacent to scutellum covered with grey scales. Anterior angles not visible from above.

Scutellum triangular, black, small, without scales.

Elytra covered with grey scales, brownish scales forming one transverse spot at middle and one large spot in posterior half. Scales drop-shaped, widest in posterior third; apex broadly rounded. Epipleuron very short, with light brown scales.

Ventral side. Prosternum covered with grey scales only; antennal fossa broad and closed. Mesoventrite and metaventrite covered with grey scales only. Abdominal ventrites covered with grey scales only.

Legs entirely brown, with some short, light brown setae, femora also with few grey scales; tibiae without spines.

Male genitalia as in Fig. 3.

Female externally similar to male.

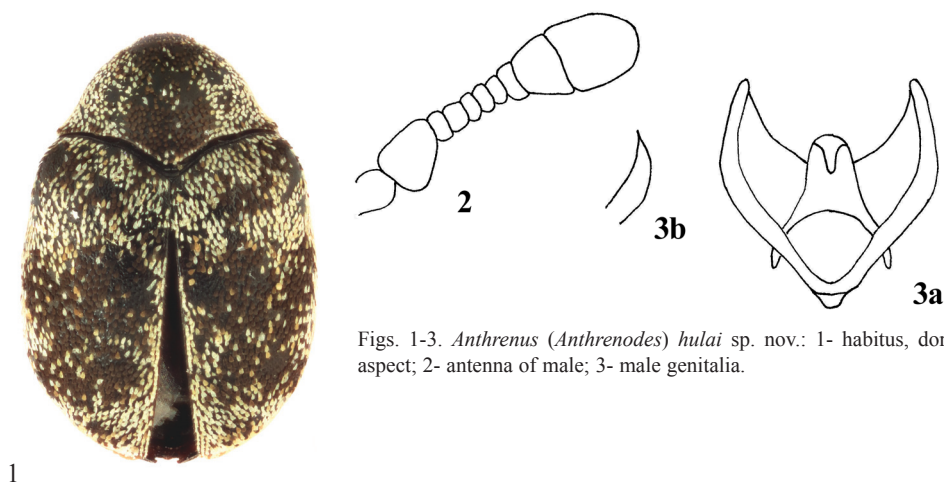
Variability. Both paratypes agree well with the holotype, especially in their shape and distribution of pronotal and elytral scales. Measurements: TL = 2.3-2.4 mm, EW = 1.3-1.5 mm.

Differential diagnosis. The new species is habitually very similar to *A. pulchellus* Gestro, 1889, but differs from it as follows:

A. hulai sp. nov.: anterior tibiae without spines along shaft; aedeagus short and broad, parameres curved.

A. pulchellus Gestro, 1889: anterior tibiae with spines along shaft; aedeagus long and narrow, parameres parallel.

Etymology. Patronymic, dedicated to the collector of the new species and my friend Vladislav Hula (Brno, Czech Republic).



Figs. 1-3. *Anthrenus (Anthrenodes) hulai* sp. nov.: 1- habitus, dorsal aspect; 2- antenna of male; 3- male genitalia.

Subgenus *Nathrenus* Casey, 1900

Anthrenus (Nathrenus) bezdeki sp. nov.

(Figs. 4-6)

Type material. Holotype (♂): Yemen, Socotra Island, Dixam plateau, Firmihin (*Dracaena* forest), 12°28.6'N 54°01.1'E, 490 m, 15-16.xi.2010, J. Hájek lgt., (NMPC). Paratypes: (1 ex.): same data as holotype, (NMPC); (3 ex., 1 ♀): the same data as holotype, but J. Bezděk lgt., (3 NMPC, 1 JHAC).

Description. Holotype. Measurements. TL = 2.2 mm, EW = 1.5 mm; body oval, elytra oval, slightly broader behind middle (Fig. 4). Integument of elytra and pronotum dark brown,

integument of head dark brown. Dorsal surface covered with honey, brown and whitish scales, ventral side with honey and whitish scales.

Head with a mixture of white and honey scales. Labial palpi brown. Antennae with 11 antennomeres, antennomeres black; antennal club narrowly oval, trimerous (Fig. 5). Eyes large, with brown microsetae; inner margin not emarginate. Median ocellus present on frons.

Scutellum triangular, small, black, without scales.

Pronotum with honey scales intermixed with white scales posteriorly and with small white spot near scutellum (Fig. 4). Anterior angles not visible from above.

Elytra covered with honey scales, with spots of brown and white scales (Fig. 4). Scales drop-shaped, widest in posterior third; apex broadly rounded. Epipleuron short, with white scales.

Ventral side. Prosternum covered with whitish scales only; antennal fossa broad and closed. Mesoventrite and metaventrite covered with intermixed whitish and honey scales. Abdominal ventrites covered with whitish scales; ventrites II-V with small spots of honey scales at lateral margins.

Legs entirely black, with some short, light brown setae, femora also with few whitish scales.

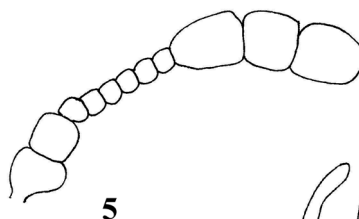
Male genitalia as in Fig. 6.

Female externally similar to male.

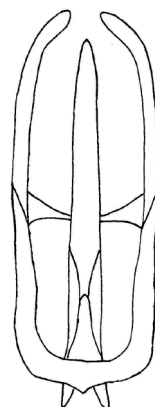
Variability. Both paratypes agree well with the holotype, especially in the shape and distribution of pronotal and elytral scales. Measurements: TL = 2.0-2.2 mm, EW = 1.4-1.7 mm.



4



5



6

Figs. 4-6. *Anthrenus (Nathrenus) bezdeki* sp. nov.: 4- habitus, dorsal aspect; 5- antenna of male; 6- male genitalia.

Differential diagnosis. The new species is similar to the species *Anthrenus* (*Nathrenus*) *purcharti* Háva, 2014 and *Anthrenus* (*Nathrenus*) *jakli* Háva, 2001, but differs from them as follows:

The new species differs from *A. purcharti* Háva, 2014 by the oval body form, black antennae and structure of male genitalia (*purcharti*: body narrow and elongate, elytra parallel-sided, antennae brown, male genitalia with straight parameres, medial lobe narrow and short).

The new species differs from *A. jakli* Háva, 2001 by the broad honey, brown and whitish scales, long and black antennal club, male genitalia 0.5 mm long, parameres very narrow (*jakli*: body oval, elytra covered by yellow, black, brown-yellow and white setiform scales, antennal club black and short, male genitalia 0.37 mm long, parameres broad).

Etymology. Patronymic, dedicated to the collector of the new species and my friend Jan Bezděk (Brno, Czech Republic).

Subgenus *Anthrenus* Geoffroy, 1762

Anthrenus (s. str.) *ardoii* Kadej & Háva, 2011

Material examined: “Jemen, Umg. Sh. Othman (Wadi), XII, 1986, leg. Materlik”, 3 exx., (JHAC); “Yemen SW, 20 km S Taizz, 1200 m, 13°30'N 43°57'E, 24.x.2005, J. Halada leg.”, 8 exx., (JHAC).

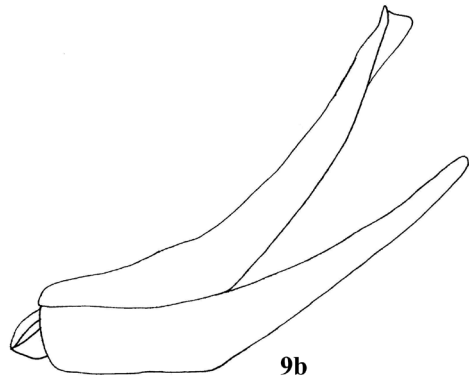
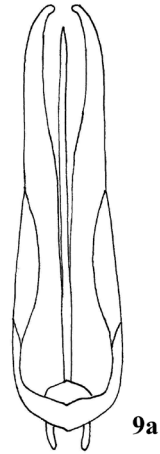
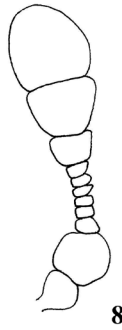
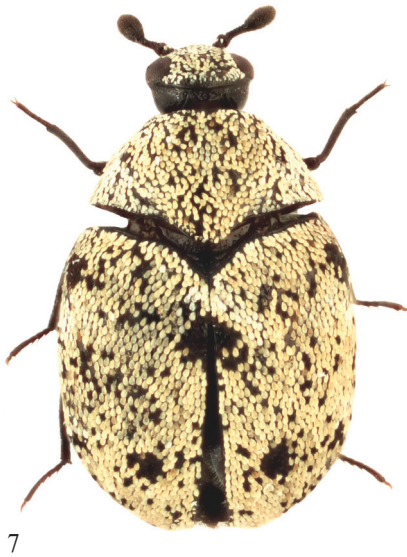
Distribution. A species known from Oman, new to Yemen.

Anthrenus (s. str.) *socotranus* sp. nov.

(Figs. 7-9)

Type material. Holotype (♂): Yemen, Socotra Island, Dexam plateau, Firmihin (Dracaena forest), 12°28.6'N 54°01.1'E, 490 m, 15-16.xi.2010, J. Hájek lgt., (NMPC). Paratypes: (9 exx.): same data as holotype, (8 NMPC, 1 JHAC); (11 exx.): same data as holotype but, J. Bezděk lgt., (9 NMPC, 2 JHAC); (20 exx.): Yemen, Socotra Island, Aloove area, Aloove vill. env., *Jatropha unicostata* shrubland with *Boswellia elongata* trees, 19-20.vi.2012, 12°31.2'N 54°07.4'E, 221 m / Socotra expedition 2012, J. Bezděk, J. Hájek, V. Hula, P. Kment, I. Malenovský, J. Niedobová & L. Purchart leg., (17 NMPC, 3 JHAC); (1 ex.): Yemen, Socotra Island, wadi Ayhaft, 12°36.5'N 53°58.9'E, 200 m, 7-8.xi.2010, J. Bezděk lgt., (JHAC); (1 ex.): Yemen, Socotra Island, Wadi Ireh, woody vegetation on rocks, 13.vi.2012, 12°23.4'N 53°59.8'E, 65 m / Socotra expedition 2012, J. Bezděk, J. Hájek, V. Hula, P. Kment, I. Malenovský, J. Niedobová & L. Purchart leg., (NMPC); (1 ex.): Yemen, Socotra Island, Deioub cave, cave & *Croton socotranus* + *Jatropha unicostata* shrubland, 12°23.1'N 54°00.9'E, 115 m, 12.vi.2012 / Socotra expedition 2012, J. Bezděk, J. Hájek, V. Hula, P. Kment, I. Malenovský, J. Niedobová & L. Purchart leg., (NMPC); (1 ex.): Yemen, Socotra Island, Homhil protected area, open woodland with *Boswellia* & *Dracaena* trees, 10-11.vi.2012, 12°34.5'N 54°18.5'E, 260-500 m / Socotra expedition 2012, J. Bezděk, J. Hájek, V. Hula, P. Kment, I. Malenovský, J. Niedobová & L. Purchart leg., (NMPC).

Description. Holotype. Measurements. TL = 1.7 mm, EW = 1.2 mm; body oval, elytra oval, slightly broader behind middle (Fig. 7). Integument of elytra and pronotum dark brown, integument of head dark brown. Dorsal surface covered with milky scales, ventral side covered with milky scales.



Figs. 7-9. *Anthrenus* (s. str.) *socotranus* sp. nov.: 7- habitus, dorsal aspect; 8- antenna of male; 9- male genitalia: a- dorsal aspect, b- lateral aspect.

Head with milky scales. Labial palpi brown. Antennae with 11 antennomeres, antennomeres black; antennal club oblong oval, trimerous (Fig. 8). Eyes small, with brown microsetae; inner margin with emargination. Median ocellus present on frons.

Pronotum with milky scales. Anterior angles not visible from above.

Scutellum triangular, very small, black, without scales.

Elytral covered with only milky scales, without patterns or fasciae. Scales drop-shaped, widest in posterior third; apex broadly rounded. Epipleuron very short, with light milky scales.

Ventral side. Prosternum covered with milky scales only; antennal fossa broad and closed. Mesoventrite and metaventrite covered with milky scales only. Abdominal ventrites covered with milky scales; ventrites II-V without small spots of otherwise coloured scales at lateral margins.

Legs entirely black, with some short, light white setae, femora also with few milky scales. Anterior tibia without spines along shaft.

Male genitalia as in Fig. 9a-b.

Female externally similar to male.

Variability. Both paratypes agree well with the holotype. Measurements: TL = 1.6-2.0 mm, EW = 1.1-1.5 mm.

Differential diagnosis. The new species differs from all known species belonging to the nominotypical subgenus by small body, milky unicolorous scales on dorsal and ventral surfaces, colour of antennae and structure of male genitalia (Fig. 9);

The new species differs from *A. crustaceus* Reitter, 1881, the new species differs by unicolorous scales, black antennae and structure of male genitalia (*crustaceus*: elytral scales bicolorous, milky and brown spots or fasciae, antennae brown, male genitalia with short and broad parameres, median lobe broad).

The new species differs from *A. kubistai* Háva & Votruba, 2005, it differs by unicolorous scales, black antennae and structure of male genitalia (*kubistai*: elytral scales tricolorous, milky, light brown and dark brown, antennae brown, male genitalia with long and narrow parameres, median lobe broad).

Etymology. Toponymic, named after the type locality - the Socotra Island.

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