

*Anthrenus (Nathrenus) turneri*  
(Coleoptera: Dermestidae: Megatominae),  
a new species from South Africa

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# *Anthrenus (Nathrenus) turneri* (Coleoptera: Dermestidae: Megatominae), a new species from South Africa

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**Abstract.** A new species, *Anthrenus (Nathrenus) turneri* Holloway (Coleoptera: Dermestidae: Megatominae), is described from South Africa and compared with other *Nathrenus* Casey, 1900 species from the same region. South African *Nathrenus* species are understudied, but of the known species, many could be eliminated as confounding species based on color pattern. The new species is compared with *A. boyesi* Háva, 2004 and *A. margarethae* Háva and Kadej, 2006, both South African species. Images of genitalia, antenna, and habitus are presented. *Anthrenus turneri* represents the fifteenth *Nathrenus* species described from South Africa.

**Key words.** Taxonomy, identification, dissection, genitalia, *boyesi*, *margarethae*.

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## Introduction

The family Dermestidae Latreille, 1804 contains just under 2000 species (Háva 2025) but with ongoing work, that number continues to increase. The genus *Anthrenus* Geoffroy, 1762 sits within the subfamily Megatominae Leach, 1815 and contains about 300 species. Since the genus *Anthrenus* is large, it is split into 10 subgenera (Peacock 1993), one of which is *Nathrenus* Casey, 1900. *Nathrenus* is characterized as having antennae with 11 antennomeres and no notch on the inner eye margin. Fourteen *Nathrenus* species have been described from South Africa (Háva 2025). In the current study an additional species, *Anthrenus (Nathrenus) turneri*, is added to the *Nathrenus* species from South Africa.

## Materials and Methods

Four unidentified *Nathrenus* specimens from South Africa were borrowed from the Natural History Museum, London. Specimens were relaxed in tap water prior to maceration and dissection. Each specimen was macerated in a 10% solution of potassium hydroxide (KOH) for 40 minutes, removed and rinsed in tap water to dilute the remaining surface KOH and finally dipped in acetic acid for 10 minutes to terminate action of any remaining KOH. Dissection was carried out under a Brunel BMSL zoom stereo LED microscope and involved detaching the abdomen from the rest of the insect using two entomological pins. The soft tergites were peeled away from harder ventrites to expose genitalia. The aedeagus was detached from the ring sclerite, and then sternite IX was detached from the ring sclerite and aedeagus. Habitus images, both dorsal and ventral views, were captured at  $\times 20$  magnification using a Canon EOS 2000D camera mounted on the BMSL microscope. Images of aedeagi and sternite IX were captured at  $\times 100$  magnification using a Canon EOS 1300D camera mounted on a Brunel monocular SP28 microscope. After dissection, all body parts were mounted on a card. The antennae were teased out and images taken at  $\times 200$  magnification through the SP28 microscope. All images were fed through Helicon Focus Pro version 8.2.2 focus-stacking software. Habitus measurements were made using a calibrated eyepiece. All other measurements were made using DsCap.Ink software version 3.90. Measurements were taken as follows:

- Body length (BL): distance from anterior margin of pronotum to the apex of the elytra.
- Body width (BW): distance across widest part of abdomen.
- Paramere length (PL): distance from the anterior end of the parameres to the apex of the parameres.

- Median lobe length (ML): distance from posterior tip to tip of one anterior stirrup.
- Sternite IX length (SL): distance from the tip of one anterior horn to the tip of the posterior lobe

The distribution map was created using SimpleMappr (Shorthouse 2010). Scale bars were added using ImageJ 1.53M (Schneider et al. 2012). **NHMUK** = Natural History Museum, London, UK, **SMNS** = Staatliches Museum für Naturkunde, Stuttgart, Germany.

## Taxonomy

Dermestidae Latreille, 1803

Megatominae Leach, 1815

Anthrenini Gistel, 1848

Anthrenina Gistel, 1848

*Anthrenus* Geoffroy, 1762

### *Anthrenus (Nathrenus) turneri* Holloway, new species

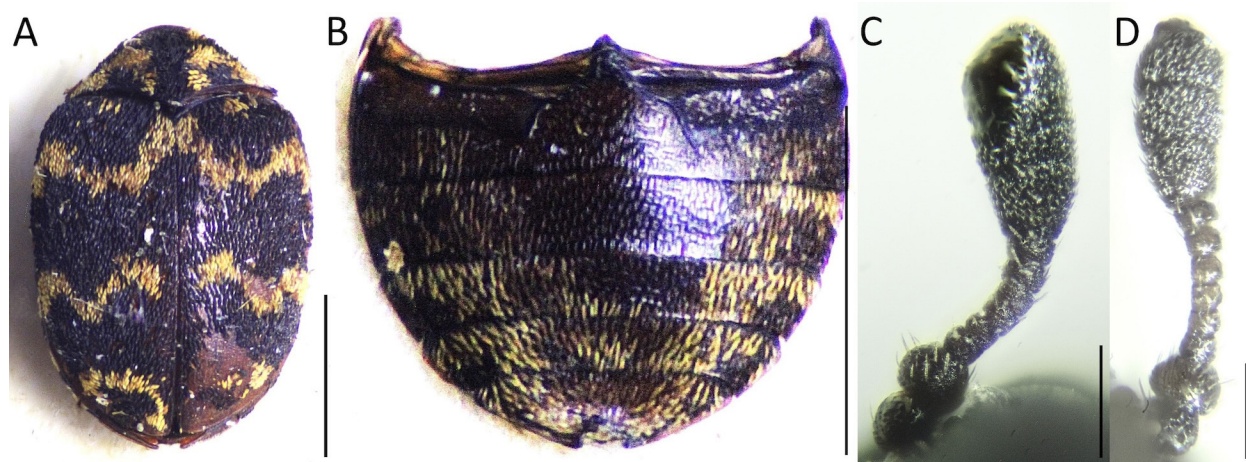
(Figures 1–2)

**Type specimens. Holotype male.** South Africa, Pondolandia, Port St Johns (-31.628, 29.521), October 1923 R.E. Turner leg. (NHMUK).

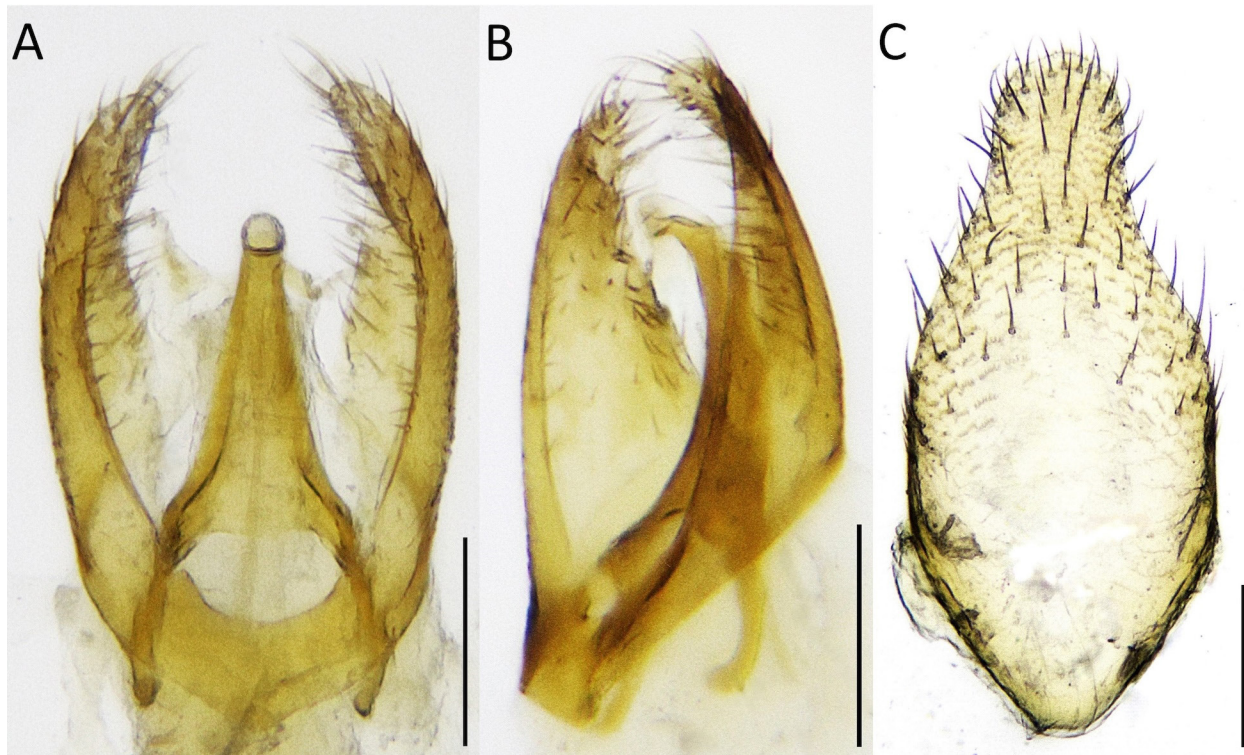
**Paratypes.** Three female specimens, same data as holotype (two NHMUK, one SMNS).

**Description, external characteristics.** Holotype BL = 2.15 mm (mean paratype BL = 2.6 mm), BW = 1.5 mm, BW/BL = 0.7). Overall appearance (Fig. 1A) dark brown with orange fasciae (no white scales). Single brown central ocellus just below level of eyes, inner margin of eyes complete. Integument of head and pronotum dark brown. Vertex and center of face with dark brown scales, orange scales across upper face through ocellus and down inside eye margins. Labrum tinted dark red. Pronotum covered in dark brown scales with patches of orange scales. Outer half of posterior margin and posterior half of lateral margin covered in orange scales apart from patch of dark brown scales on posterior corners of pronotum. From patch of yellow scales along posterior margin, yellow scales extend as arcs towards the pronotal disc and posterior to terminate in front of and either side of the dark brown triangular scutellar shield. Some orange scales scattered along anterior pronotal margin terminating at two sub-medial patches of orange scales. Other than orange scales, all scales on pronotum dark brown.

Elytral integument dark, more reddish brown towards apex (Fig. 1A). Elytra covered in dark brown scales apart from three distinct fasciae of orange scales, one sub-basal, one sub-medial, and one sub-apical. Sub-basal



**Figure 1.** *Anthrenus turneri* Holloway sp. nov. A) Habitus, paratype (scale bar = 1 mm). B) Ventrites (scale bar = 1 mm). C) Antenna, holotype male (scale bar = 100  $\mu$ m). D) Antenna, paratype female (scale bar = 100  $\mu$ m).



**Figure 2.** *Anthrenus turneri* Holloway **sp. nov.** holotype male. **A)** Aedeagus, dorsal aspect. **B)** Aedeagus, dorsolateral aspect. **C)** Sternite IX. All scale bars = 100  $\mu\text{m}$ .

fascia starts at lateral margin, crosses elytra and curves up to the scutellar shield. Sub-medial fascia starts at lateral margin and crosses elytra as a rising zigzag terminating at elytral suture. Sub-apical fascia starts at lateral margin, crosses elytra curving down towards apex forming an open circle.

Ventrites (Fig 1B) with integument dark brown covered in orangey-brown and dark brown scales. Brown scales distributed mainly across center of each ventrite with orange-brown scales laterally. Large spots of dark brown scales at posterior end of lateral margins of ventrites 1–4. Thin strip of dark brown scales along ventrite 5 lateral margins.

Antenna with eleven dark, red-tinted antennomeres (Fig. 1C, 1D). Red tint most evident in the smaller antennomeres, appearing dark brown to black in the three antennomeres comprising the antennal club. Male antenna (Fig. 1C) with marginally longer antennal club than female antenna (Fig. 1D), otherwise little difference. Two rounded basal antennomeres, antennomeres 3–8 square to slightly transverse. Femora dark brown, tibiae and tarsi brown with reddish tint Small number of orange scales on ventral surface of femora.

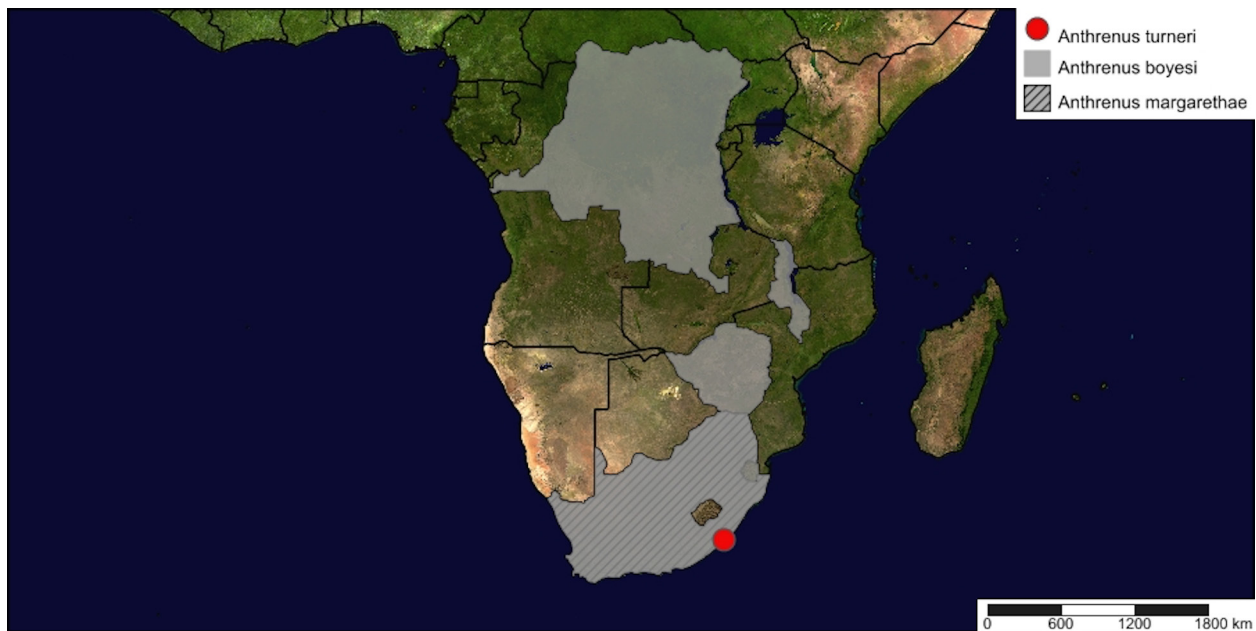
Aedeagus (Fig. 2A) oval. Pale brown parameres (PL = 310  $\mu\text{m}$ ) evenly curved from base to apices, apices slightly paler than rest of paramere. Long setae emerging from tips of parameres and down inner face of paramere (Fig. 2B). Paramere much deeper dorsoventral than lateral (Fig. 2B). Median lobe (ML = 245  $\mu\text{m}$ ) broad at base, tip falling a long way short of paramere tips. Median lobe evenly curved dorsally to hooked tip (Fig. 2B). Sternite IX (Fig. 2C, SL = 420  $\mu\text{m}$ ) pale brown, ovate with posterior lobe extension. Anterior half of sternite IX with no setae. Posterior half with strong black setae, longest on disc, but focused around posterior margin, shorter along convex posterior margin.

**Etymology.** The new species is named after the collector of the type specimens, Mr. R.E. Turner (1863–1945), who volunteered at NHMUK for 30 years and presented over 850,000 specimens to the museum (Benson 1946).

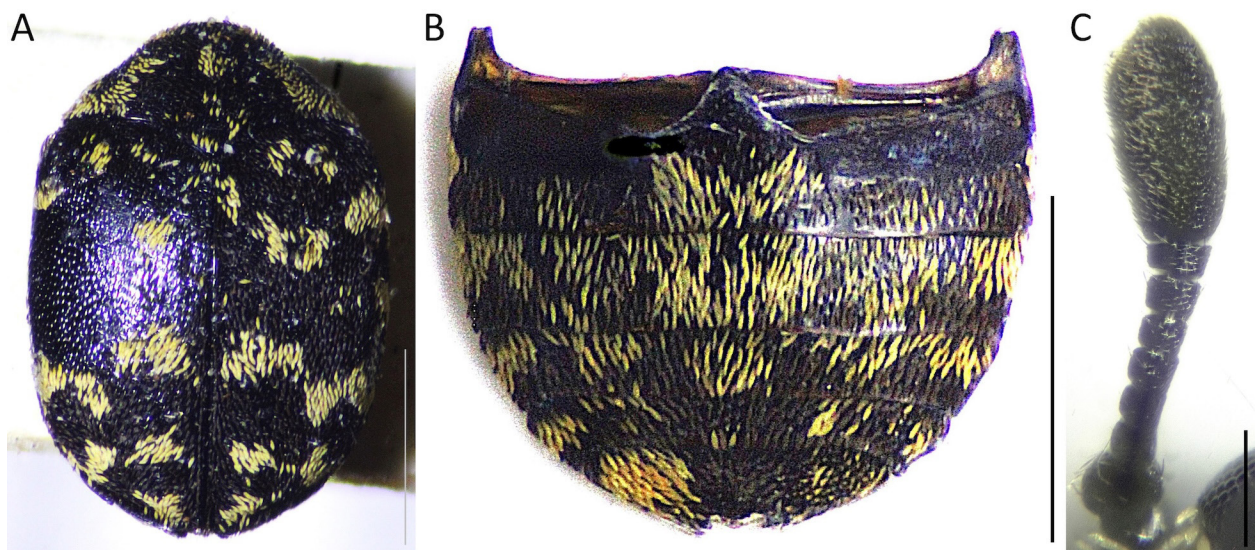
**Differential diagnosis.** The South African *Nathrenus* have not been extensively studied. The main sources of information are Háva and Kadej (2006) and Herrmann (2025). Many of the South African species can be

distinguished from *A. turneri* by the presence of white scales on their dorsal surface. Others have orange in the pattern but far removed from the pattern shown in Fig. 1A. *Anthrenus turneri* appears most similar to the South African species *A. boyesi* Háva, 2004 and *A. margarethae* Háva and Kadej, 2006, both of which have distributions overlapping with *A. turneri* (Fig. 3).

Six *A. boyesi* (one male, five females) were borrowed from NHMUK with a mean BL = 2.7 mm coinciding well with the body length of *A. turneri*. *Anthrenus boyesi* has a dorsal color pattern of pale orange scales on a background of dark brown scales (Fig. 4A), but the patches of orange scales do not line up well to form clearly defined



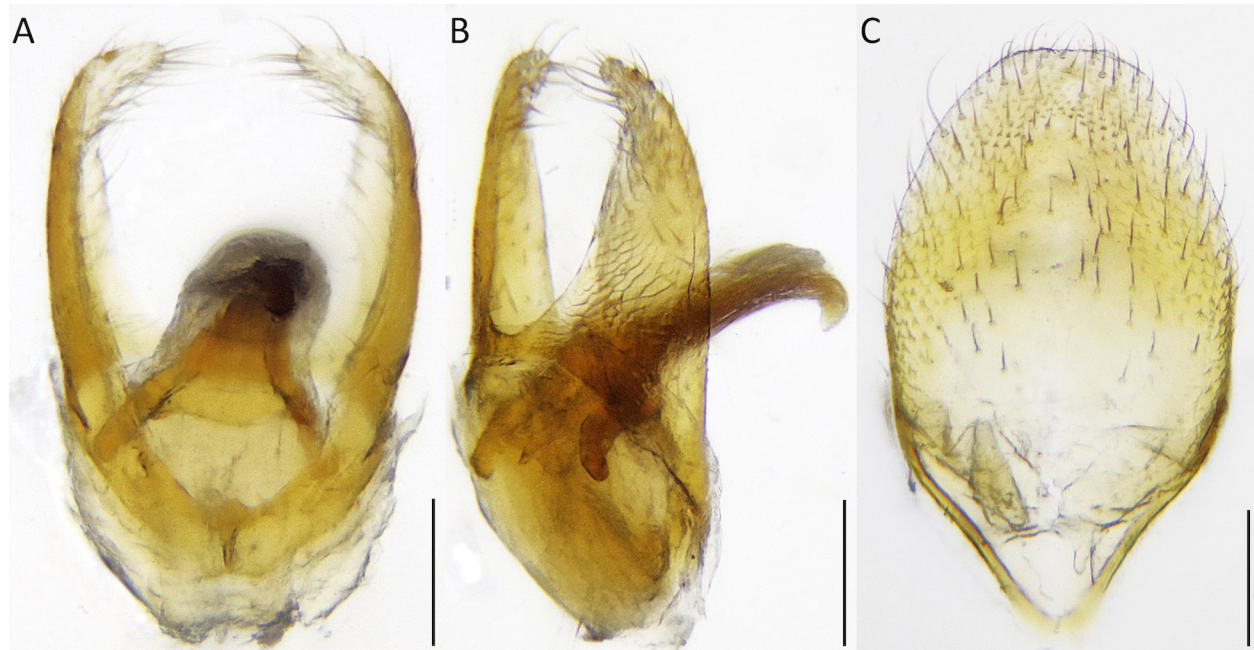
**Figure 3.** Distribution map showing collection location of *Anthrenus turneri*, and distributions of *Anthrenus boyesi* and *A. margarethae* according to Háva (2025).



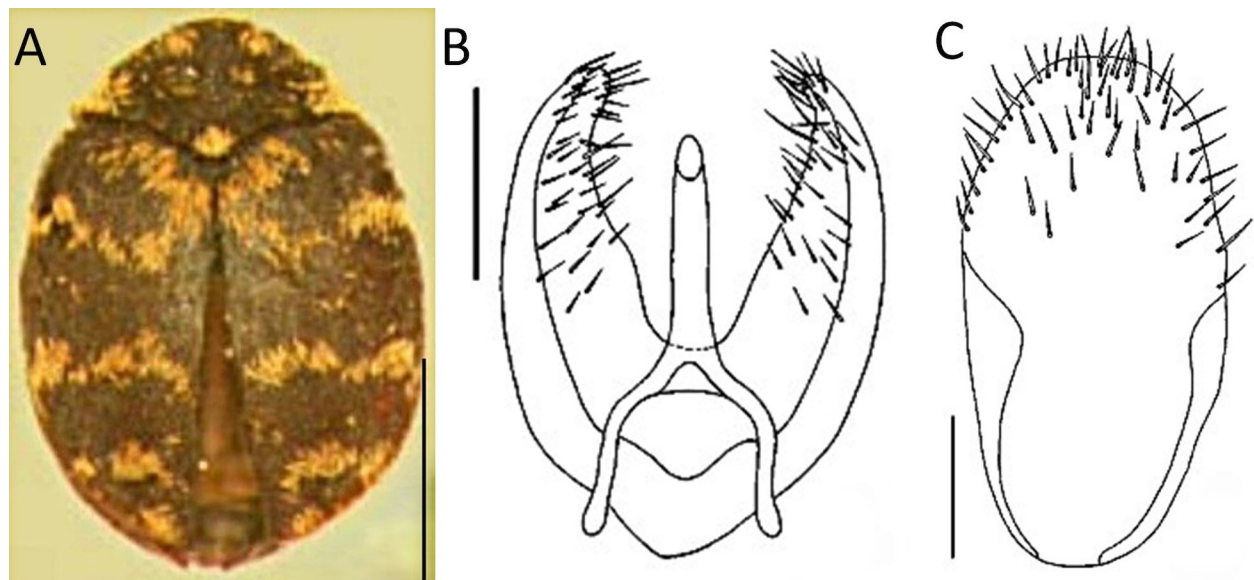
**Figure 4.** *Anthrenus boyesi*. **A)** Habitus (scale bar = 1 mm). **B)** Ventrites (scale bar = 1 mm). **C)** Antenna, male (scale bar = 100  $\mu$ m).

fasciae as in *A. turneri* (Fig. 1A). *Anthrenus boyesi* ventrites (Fig. 4B) are covered in yellow and brown scales, the brown scales occurring in four patches across each ventrite forming vertical lines of patches of brown scales. The antenna of *A. boyesi* (Fig. 4C) is similar to that of *A. turneri* (Fig. 1C).

The single NHMUK *A. boyesi* male contained an aedeagus (Fig. 5A) with the median lobe held at right angles to the parameres. To prevent any damage, the median lobe was left as found since the structure of the parameres was clearly visible. From the base, the parameres diverge for about  $\frac{3}{4}$  of their length before turning



**Figure 5.** *Anthrenus boyesi*. A) Aedeagus, dorsal aspect. B) Aedeagus, ventrolateral aspect. C) Sternite IX. All scale bars = 100  $\mu\text{m}$ .



**Figure 6.** *Anthrenus margarethae*. A) Habitus (scale bar = 1 mm). B) Sketch of aedeagus (scale bar = 100  $\mu\text{m}$ ). C) Sketch of sternite IX (scale bar = 100  $\mu\text{m}$ ).

sharply inwards so that the paramere apices are pointing towards each other (differing from *A. turneri*; Fig. 2A). *Anthrenus boyesi* parameres carry long setae at the apex but overall are less setaceous than *A. turneri*. The median lobes of *A. boyesi* and *A. turneri* are both curved dorsally (Fig. 2B, 5B). *Anthrenus boyesi* sternite IX (Fig. 5C) is a broad oval shape without the extended posterior lobe of *A. turneri* has (Fig. 2C). The setae on *A. boyesi* sternite IX are finer and largely shorter than *A. turneri*.

The NHMUK holds no examples of *A. margarethae* but Herrmann (2025) provides images of the habitus (Fig. 6A) and sketches of the aedeagus (Fig. 6B) and sternite IX (Fig. 6C). The dorsal pattern consists of three fasciae of orange scales. The sub-basal fascia curves round from the scutellar shield to run along the base towards the lateral margin. The sub-medial fascia is relatively flat, unlike the rising zigzag of *A. turneri* (Fig. 1A). The sub-apical fasciae are similar in both species. The pattern of orange scales on the pronotum (Fig. 6A) differs from the *A. turneri* pronotum (Fig. 1A). The *A. margarethae* aedeagus (Fig. 6B) is broader and rounder than *A. turneri* (Fig. 2A), and the median lobe is narrow and parallel-sided differing greatly from the *A. turneri* aedeagus which is broad at the base and tapers inwards to the tip of the median lobe. The *A. margarethae* sternite IX (Fig. 6C) has a broad posterior margin contrasting with the narrow, extended posterior margin of *A. turneri* sternite IX (Fig. 2C).

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