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Anthrenus (*Florilinus*) *pintilioaiei* (Coleoptera: Dermestidae: Megatominae), a new species from Romania

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Abstract. A **new species**, *Anthrenus* (*Florilinus*) *pintilioaiei* Holloway and Herrmann (Coleoptera: Dermestidae: Megatominae), is described from Romania and compared with all other species of European *Florilinus* Mulsant and Rey, 1868. Most European *Florilinus* species could be eliminated based solely on dorsal color pattern. Differentiation from *A. caucasicus* Reitter, *A. museorum* (Linnaeus), and *A. olgae* Kalík is established using genital structure, antennal structure, and color pattern. Images of habitus, ventrites, antenna, and genitalia are presented. Nine species of subgenus *Florilinus* are now recorded from Europe.

Key words. Taxonomy, identification, dissection, genitalia, *caucasicus*, *museorum*, *olgae*.

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Introduction

The family Dermestidae Latreille, 1804 is moderately sized, containing just under 2000 species (Háva 2025). The subfamily Megatominae Leach, 1815 contains the large genus *Anthrenus* Geoffroy, 1762 with about 300 species (Háva 2025). *Anthrenus* is split into ten subgenera based largely on the number of antennal segments (Peacock 1993; Háva 2025) and the subgenus *Florilinus* Mulsant and Rey, 1868 is characterised as having eight antennomeres (Peacock 1993). *Florilinus* contains 44 species spread mostly across the Palaearctic region, although *Anthrenus museorum* (Linneaus, 1761) occurs in many countries across the world as a pest species, and *A. blanci* Beal, 1998 and *A. castaneae* Melsheimer, 1844 have North American distributions (Háva 2025). Only eight *Florilinus* species are currently known from Europe. The present study describes the ninth *Florilinus* species from Europe, *Anthrenus* (*Florilinus*) *pintilioaiei* **new species**, discovered in Romania.

Materials and Methods

The specimens were swept from pasture habitat and euthanised using ethyl acetate ($C_4H_8O_2$) vapor. For dissection, the abdomen was removed and placed in glycerol, where the male genitalia were separated into their corresponding parts. Habitus, ventrites and antennae images were taken with a ZEISS SteREO Discovery.V20 stereo microscope equipped with a photo stacking function. Images of aedeagi and sternite IX were captured at ×200 magnification using a Canon EOS 1300D camera mounted on a Brunel monocular SP28 microscope. After dissection, all body parts were mounted on cards. Aedeagi and sternite IX images were fed through Helicon Focus Pro version 8.2.2 focus-stacking software. Habitus measurements were made using a calibrated eyepiece. Body length (BL) measurements were taken by measuring the distance from the anterior margin of the pronotum to the apex of the elytra.

Distribution maps were created using Shorthouse (2010). Scale bars were added using ImageJ 1.53M (Schneider et al. 2012). All type specimens of the new species are deposited in the Natural History Museum, London, UK (NHMUK). Additional specimens of *Anthrenus* were examined from the following collections: **GHEC** = Graham Holloway's Entomology Collection, Reading, UK, **OUMNH** = Oxford Natural History Museum, Oxford, UK, **SMNS** = Staatliches Museum für Naturkunde, Stuttgart, Germany.

Taxonomy

Dermestidae Latreille, 1803
Megatominae Leach, 1815
Anthrenini Gistel, 1848
Anthrenina Gistel, 1848
Anthrenus Geoffroy, 1762
Florilinus Mulsant and Rey, 1868

***Anthrenus* (*Florilinus*) *pintilioaiei* Holloway and Herrmann, new species**

Figures 1–3

Type specimens. Holotype male. Romania, Neamț county, Poiana Teiului, 585m alt., 47.1196N 25.9278E, leg Alexandru-Mihai Pintilioaie & Laura-Elena Topală. Pasture habitat. NHMUK.

Paratype female. Same data as holotype. NMHUK.

Description, external characteristics. Holotype *Anthrenus* (*Florilinus*) *pintilioaiei* (Fig. 1), BL holotype = 2.6 mm, paratype = 2.55 mm. No clear difference between male (Fig 1A, 1B) and female coloration (Fig 1C, 1D). Single central brown ocellus well below level of top of eyes, inner margin of eyes complete. Integument of head and pronotum dark brown. Vertex coated in dark brown scales with some yellow and white scales close to eyes. Widely spaced pale scales continue down inner margins of eyes and across face between antennal bases. Mixture of brown and pale scales on clypeus down to red labrum. Lateral margins of pronotum sinuate. Posterior angles of pronotum covered in elongated, triangular, pale scales, white along posterior margin becoming pale yellow towards anterior. Pronotal disc with scattered pale-yellow scales, otherwise pronotum covered in dark brown scales. Scutellar shield dark brown.

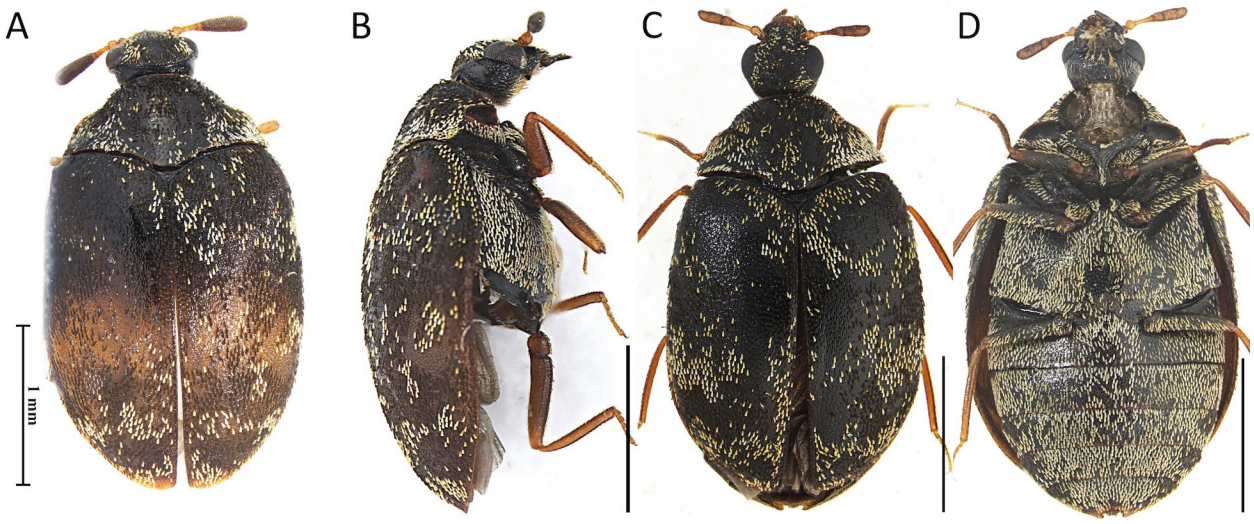

Figure 1. *Anthrenus pintilioaiei* **sp. nov. A)** Habitus, holotype male, dorsal aspect. **B)** Habitus, holotype male, lateral aspect. **C)** Habitus, paratype female, dorsal aspect. **D)** Habitus, paratype female, ventral aspect. All scale bars = 1 mm.

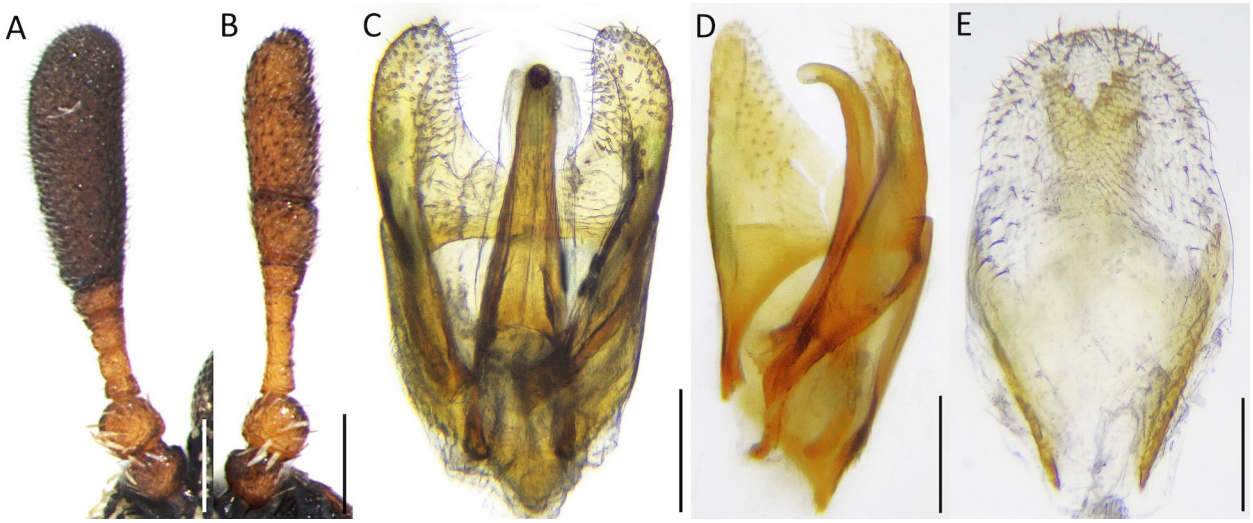

Figure 2. *Anthrenus pintilioaiei* **sp. nov. A)** Antenna, holotype male. **B)** Antenna, paratype female. **C)** Aedeagus, dorsal aspect. **D)** Aedeagus, dorsolateral aspect. **E)** Sternite IX. All scale bars = 100 μm.

Elytral integument reddish (Fig. 1A), appearing brown in undissected specimens (Fig. 1C). Base of elytra with white and pale-yellow scales that spread down elytral suture for short distance from scutellar shield, then form a fascia going across elytra to lateral margin, up lateral margin to elytral base (Fig. 1C). Pale scales in basal section of elytra form a circle. Two further fasciae consisting of white and pale-yellow scales cross elytra, one sub-medial, one sub-apical. Apical spot of pale scales. Latter two fasciae and apical spot connected with line of pale scales running down elytral suture.

Ventrites with brown integument covered in white and pale-yellow, elongated triangular scales. Anterior halves of lateral margins of ventrites 3–5 with spots of brown scales.

Antenna with eight red antennomeres (Fig. 2A, 2B). Antennomeres 1 and 2 globular. In male (Fig. 2A), antennomere 3 transverse, antennomere 4 square, antennomeres 5–7 becoming progressively more transverse, antennomere 8 forming hirsute club, darker and longer than all preceding antennomeres combined. In female (Fig. 2B), antennomeres 3–5 elongate, antennomere 6 transverse, antennomeres 7 and 8 forming hirsute club approximately the same length as all preceding antennomeres combined. Tibiae and tarsi red (Fig. 1B–1D). Femora a slightly darker red in male (Fig. 1B), but brown in female (Fig. 1D). Ventral surfaces of femora, trochanters and coxae covered in pale scales (Fig. 1D).

Description, internal characteristics. Aedeagus (Fig. 2C) with pale brown parameres with diverging outer margins. Tips of parameres pale, blunt and rounded with inward pointing setae emerging from pale tissue. Parameres connected by ventral bridge approximately at halfway. Short setae on dorsal surface of parameres posterior to bridge. Median lobe slim with lateral margins converging to narrow, hooked, pale tip (Fig. 2D) falling short of paramere tips. Two parallel stirrups at anterior end of median lobe. Sternite IX (Fig. 2E) leaf-shaped with margins diverging from anterior end to halfway, then converging to convex posterior margin. Posterior margin carrying short setae. Anterior half of sternite IX pale brown. Pale brown tissue extends in posterior half through disc terminating as bilobed extension falling short of posterior margin. Rest of tissue in posterior half pale.

Etymology. The new species is named after Alexandru-Mihai Pintilioaie (University of Iași, Romania) who collected the type specimens.

Differential diagnosis. Of the eight known *Florilinus* species found in Europe, four (*A. flavidus* Solsky, 1876, *A. kourili* Háva, 2006, *A. sordidulus* Reitter, 1889, and *A. sveci* Háva, 2004) can be clearly distinguished from *A. pintilioaiei* because they are covered entirely in pale scales. *Anthrenus oberthueri* Reitter, 1881 has narrow fasciae consisting of bright spots of white scales bordered with orange scales (Herrmann 2025) and thus does not resemble *A. pintilioaiei*. Three species require further consideration: *A. caucasicus* Reitter, 1881 (specimens

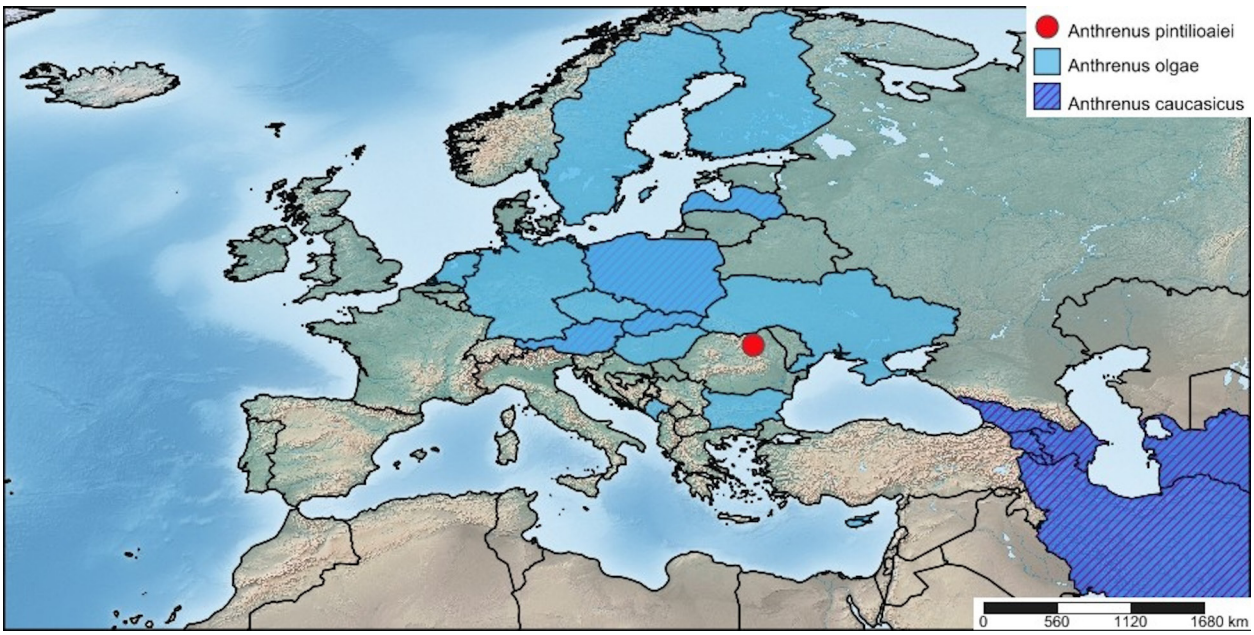

Figure 3. Distributions of A*nthrenus pintilioaiei* **sp. nov.**, *Anthrenus caucasicus* and *Anthrenus olgae* (Háva 2025).

examined from SMNS), *A. museorum* (specimens examined from OUMNH), and *A. olgae* Kalík, 1946 (specimens examined from GHEC). All these species occur in the same region as *A. pintilioaiei* (Fig. 3). *Anthrenus olgae* has not been recorded from Romania but, given it is found in countries surrounding Romania (Háva 2025), it is very likely that it also occurs in Romania. The natural distribution of *Anthrenus caucasicus* appears to span some western Asian countries but there is evidence it has been introduced into some European countries (Háva 2025). The distribution of *Anthrenus museorum* is not shown in Fig. 3 since it has a wide global distribution and occurs across most of Europe (Háva 2025).

Anthrenus caucasicus (Fig. 4). Scales on dorsal surface (Fig. 4A) brown, white and orange (rather than pale yellow). No spots of brown scales at lateral margins of ventrites (Fig. 4B). Terminal antennal club (Fig. 4C, male) parallel sided rather than expanding towards apex. Parameres (Fig. 4D) narrower towards posterior end, no white tissue at posterior tip, very long setae at tip and across dorsal surface of paramere. Median lobe much shorter, extending less beyond bridge and falling further short of paramere tips. Sternite IX (Fig. 4E) more elongate with a different pattern of brown and white tissue and a broader posterior margin.

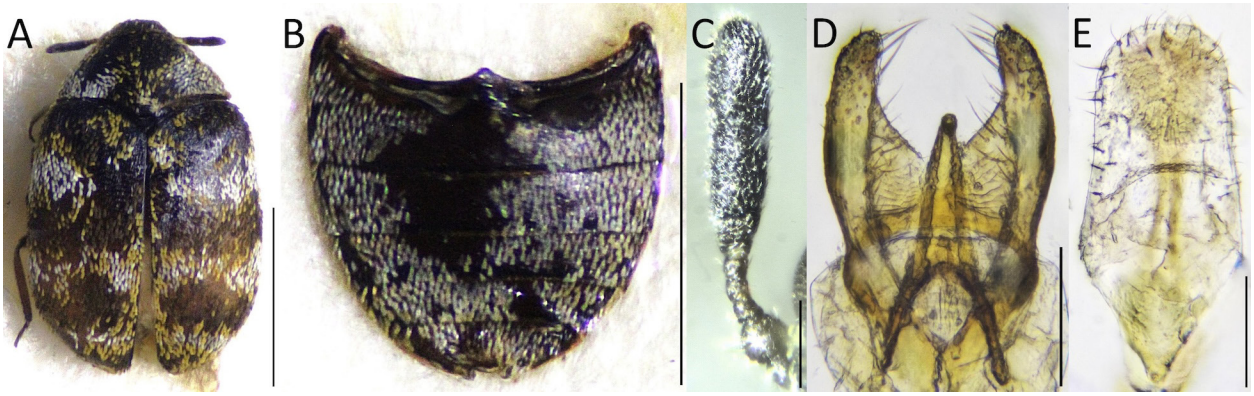

Figure 4. *Anthrenus caucasicus*. **A)** Habitus, dorsal aspect (scale bar = 1 mm). **B)** Ventrites (Scale bar = 1 mm). **C)** Male antenna (Scale bar = 100 μm). **D)** Aedeagus (Scale bar = 100 μm). **E)** Sternite IX (Scale bar = 100 μm).

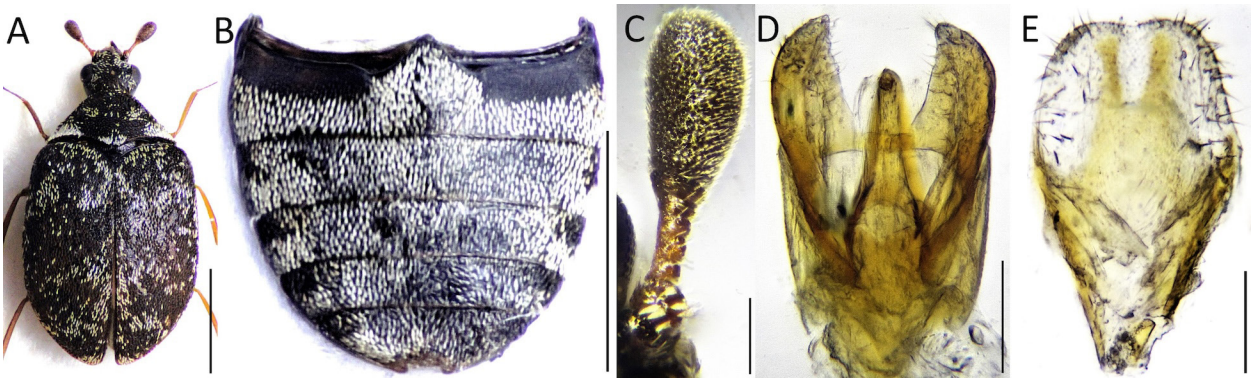

Figure 5. *Anthrenus museorum*. **A)** Habitus, dorsal aspect (Scale bar = 1 mm). **B)** Ventrites (Scale bar = 1 mm). **C)** Male antenna (Scale bar = 100 µm). **D)** Aedeagus (Scale bar = 100 µm). **E)** Sternite IX (Scale bar = 100 µm).

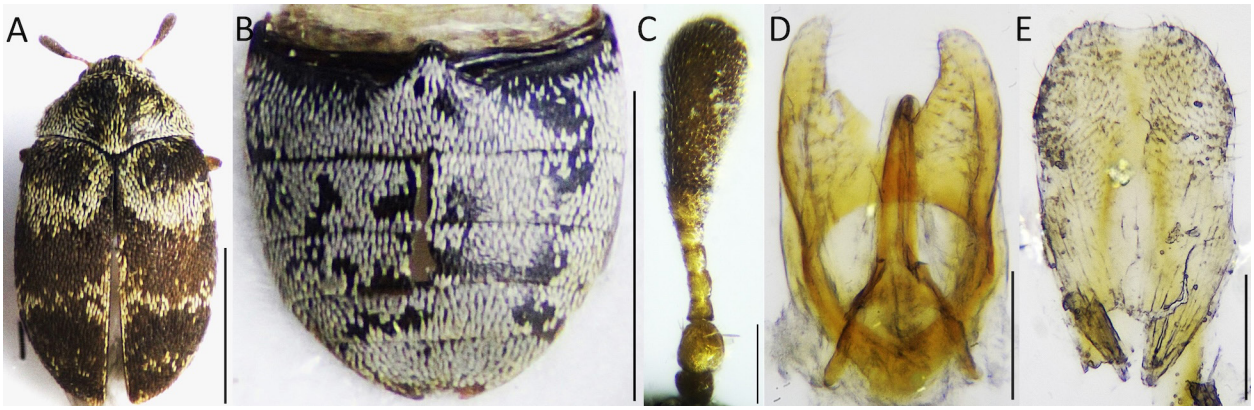

Figure 6. *Anthrenus olgae*. **A)** Habitus, dorsal aspect (Scale bar = 1 mm). **B)** Ventrites (Scale bar = 1 mm). **C)** Male antenna (Scale bar = 100 µm). **D)** Aedeagus (Scale bar = 100 µm). **E)** Sternite IX (Scale bar = 100 µm).

Anthrenus museorum (Fig. 5). Habitus coloration similar to *A. pintilioaiei*. Ventrites covered in white scales (no yellow scales) and spots of brown scales on ventrites 2–5 rather than ventrites 3–5. Antennal club (male) thicker than *A. pintilioaiei* with antennomere 7 forming part of the club. Parameres similar to *A. pintilioaiei* but less evidence of white tissue at apices of parameres. Sternite IX broader overall with broad, flat (slightly notched) posterior margin, and pattern of brown and white tissue differs from *A. pintilioaiei*.

Anthrenus olgae (Fig. 6). Distribution of pale scales on background of brown scale similar to *A. pintilioaiei*, although scales are mostly pale yellow (and broader) than white and yellow as in *A. pintilioaiei*, and the fasciae are broader. Ventrites covered in densely packed, broad, white scales with no spots of dark scales at lateral margins of any of the ventrites. First antennomere brown, antennomeres 2–7 yellow. Antennal club consists of two antennomeres, with the terminal antennomere shorter than antennomeres 1–7 combined. Parameres similar to *A. pintilioaiei* but with no evidence of white tissue at paramere apices. Median lobe shorter and broader at base, not extending so far beyond bridge and falling further short of paramere apices than *A. pintilioaiei*. Sternite IX broader in posterior half with different pattern of brown and white tissue.

Discussion

The study strongly suggests that *A. pintilioaiei* is a valid species. Comparison is made (or considered) against all other European *Florilinus* species focusing on confounding species that resemble *A. pintilioaiei* and likely to occur in the same geographical region. The discovery of *A. pintilioaiei* brings the number of European *Florilinus* species to nine.

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