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A new species of *Ataenius* Harold (Coleoptera: Scarabaeidae: Aphodiinae) from the southeastern United States, with a lectotype designation

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A new species of *Ataenius* Harold
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Abstract. A new species of *Ataenius* Harold, *Ataenius thomasi* Schnepf and Ashman (Coleoptera: Scarabaeidae: Aphodiinae), from Florida, Georgia, and Mississippi, U.S.A. is described. The lectotype for *Ataenius brevis* Fall is designated.

Key words. Eupariini, taxonomy, *Ataenius strigatus* group, descriptions, biodiversity.

ZooBank registration. urn:lsid:zoobank.org:pub:44CB9DF0-0165-4365-AACF-BF4DE1842503

Introduction

In the United States and Canada the genus *Ataenius* Harold (Coleoptera: Scarabaeidae: Aphodiinae) contains 46 species (Stebnicka 2007; Smith 2009). The most recent faunal review of this genus in these countries was completed by Cartwright (1974). However, several species in that paper have been moved to other genera or synonymized (Stebnicka 2007). Stebnicka and Lago (2005) provide a key and catalog to the *Ataenius strigatus* group. Specimens of a putative new species of *Ataenius* occurring in northern Florida were located in the Florida State Collection of Arthropods (FSCA). This new species is similar to *Ataenius brevis* Fall, but several morphological differences have been identified and are outlined in this paper. In looking for supplementary material, additional specimens of the new species were found in the Snow Entomological Museum Collection (SEMC) and United States National Museum of Natural History (USNM). After consulting the original description of *A. brevis*, it was discovered that no holotype was designated and that two specimens were present in the type series. Syntypes of *A. brevis* were borrowed to confirm the new species is morphologically distinct and a lectotype is designated to eliminate potential confusion with the new species and to fix the name to a single specimen.

Materials and Methods

Label data. Label information is given verbatim in quotes. A space+slash+space (/) indicates line breaks and space+double slash+space (//) indicates a different label. Labels are typed on white paper unless otherwise indicated by information between brackets ([]).

Specimens examined. Specimens were examined with a Leica S6D microscope. Habitus photographs were taken on a Leica Z16 APO microscope using a JVC KY-F75U digital camera and stacked with Syncroscopy Automontage

software, version 5.01.005. Images were compiled into plates using GIMP 2 software (version 2.10.12). A total of 264 specimens were examined from the following collections:

CMNC Canadian Museum of Nature Collection, Ottawa, ON, Canada
CMNH Carnegie Museum of Natural History, Pittsburgh, PA, USA
CNC Canadian National Collection, Ottawa, ON, Canada
CUAC Clemson University Arthropod Collection, Clemson, SC, USA
FMNH Field Museum of Natural History, Chicago, IL, USA
FSCA Florida State Collection of Arthropods, Gainesville, FL, USA
INHS Illinois Natural History Survey, Champaign, IL, USA
MCZ Museum of Comparative Zoology, Cambridge, MA, USA
RAAC Robert A. Andrew Collection, Pittsburgh, PA, USA
RHTC Robert H. Turnbow Collection, Enterprise, AL, USA
SEMC Snow Entomological Museum Collection, Lawrence, KS, USA
USNM United States National Museum of Natural History, Washington, D.C., USA

Results and Discussion

Ataenius brevis Fall, 1930

Figures 1–6, 13.

Ataenius brevis Fall 1930: 98. **Lectotype:** MCZ, **here designated**, sex unknown.

Type material. Fall (1930) described *Ataenius brevis* from two specimens of undetermined sex from Pennsylvania collected by Henry Ulke. There are two specimens in the MCZ with typed and handwritten designation labels reading “TYPE brevis” and “brevis PARATYPE Fall. 1930”. Fall gave no indication which specimen was the holotype and these designations may have been added later. We are here designating a specimen (Fig. 1–5) with the following data (Fig. 4) as the lectotype to fix the name to a single specimen: “Pen // Horn Coll / H // [underlined in red] TYPE / [handwritten] brevis // [on red] M. C. Z. / Type / [handwritten] 24767 // H. C. FALL / COLLECTION // Aug-Dec 2005 / MCZ Image / Database // MCZ-ENT / 00024767 // [on red] LECTOTYPE / *Ataenius brevis* Fall, 1930 / Designated by / Schnep & Ashman, 2020”. The second specimen in the MCZ with the following data becomes a paralectotype: “Pen // [on red] [handwritten] brevis / PARATYPE / [handwritten] Fall. 1930 // Liebeck / Collection // MCZ-ENT / 00731922 // [on red] PARALECTOTYPE / *Ataenius brevis* Fall, 1930 / Designated by / Schnep & Ashman, 2020”.

Fall’s original description is adequate to define *A. brevis*, however, Cartwright (1974) gave a thorough redescription. Both syntypes match these descriptions, therefore no redescription is given here.

Distribution. *Ataenius brevis* appears to be restricted to the Appalachian region of eastern North America (Fig. 13). Label data indicate specimens have been collected in the following situations: “Berlesed from leaf litter”, “Berlese forest floor”, “under leaves in path”, “under leaves”, “leaf litter”, “under log”, “on beach”, “Lindgren funnel trap”, and “in ice Jan. thaw”.

Remarks. Specimens collected by month: January (1), March (4), April (9), May (55), June (69), July (59), August (28), September (5), October (3), November (1).

Ataenius thomasi Schnep & Ashman, new species

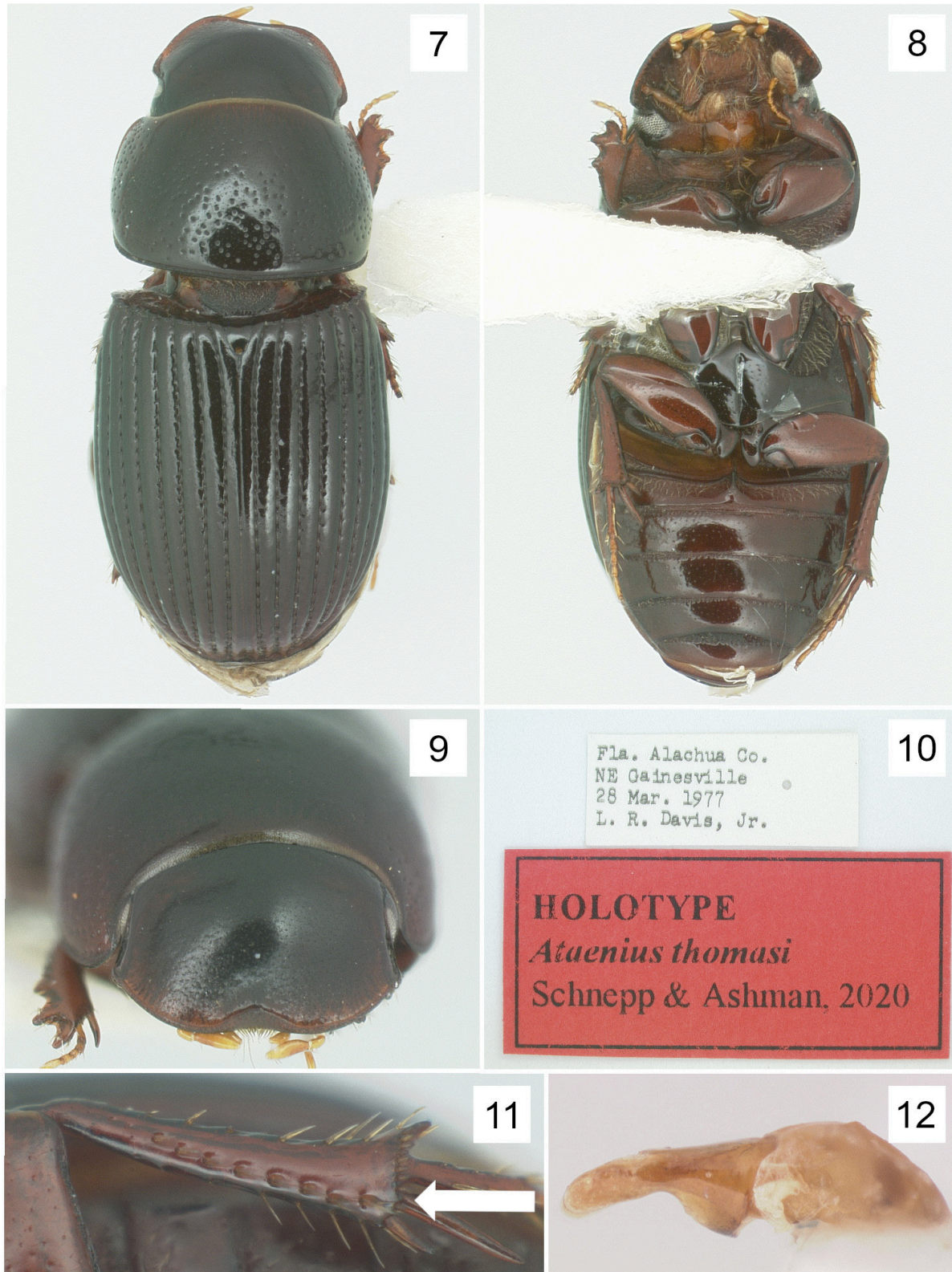
Figures 7–12, 14.

Type material. Holotype (Fig. 7–9, 11): “Fla. Alachua Co. / NE Gainesville / 28 Mar. 1977 / L. R. Davis, Jr. // [on red] HOLOTYPE / *Ataenius thomasi* / Schnep & Ashman, 2020” (FSCA).

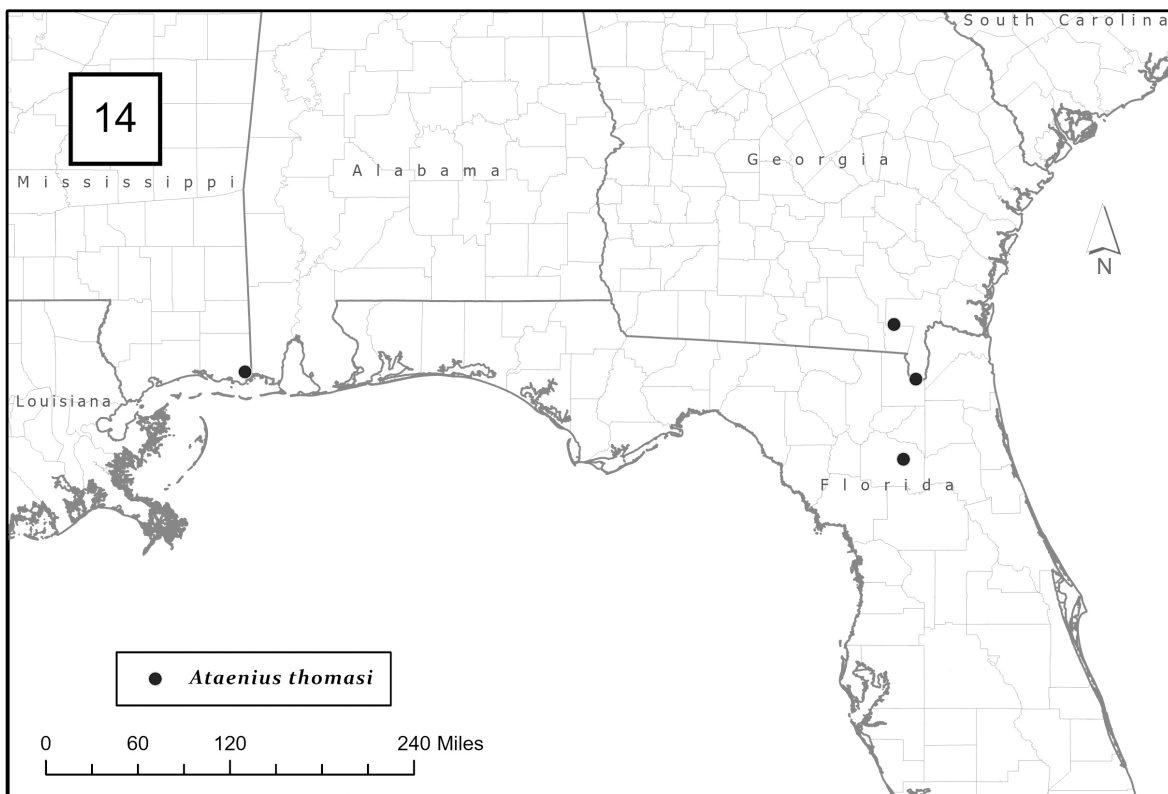
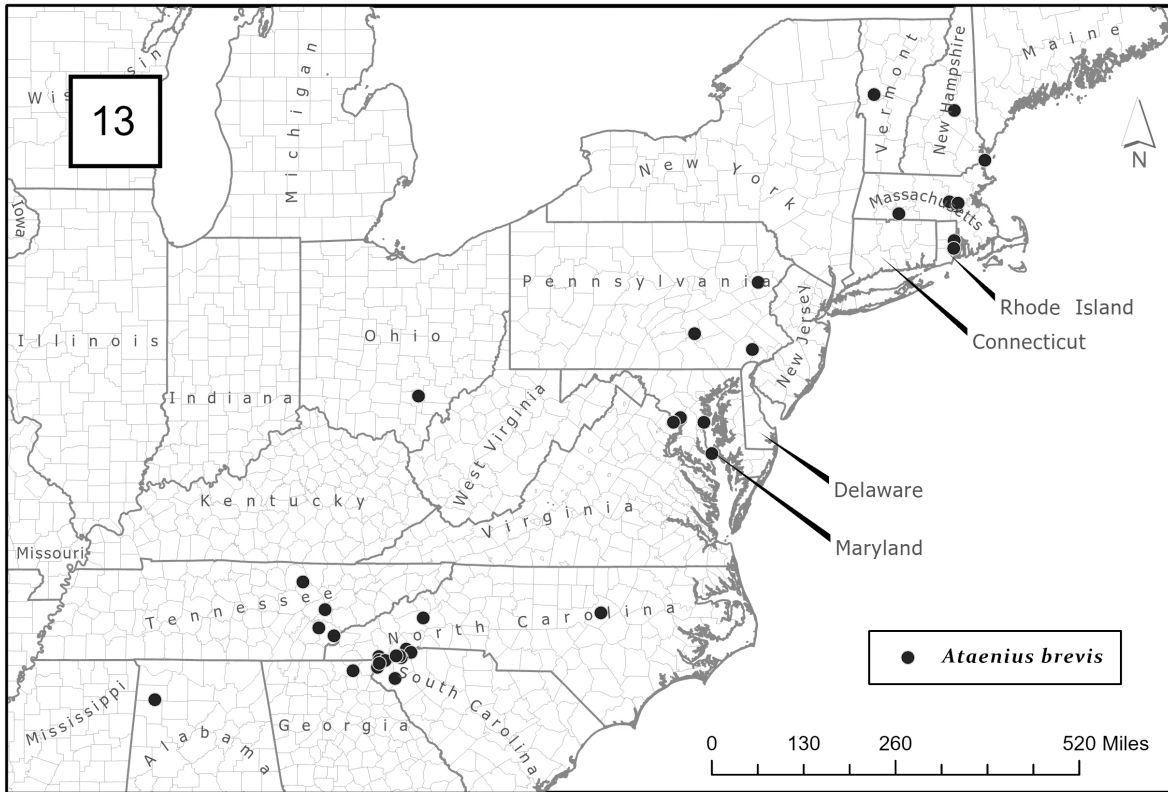
Paratypes: “Fla. Alachua Co. / NE Gainesville / 28 Mar. 1977 / L. R. Davis, Jr.” (2 FSCA) (Fig. 12); “FLORIDA: Alachua Co., / Gainesville / [handwritten] 25-III-1977 / L. R. Davis, Jr.” (1 FSCA); “FLA. Baker County / St. Mary’s R. at / Fla. Hgw. 23 #484 / xii.30.47 FNYoung” (1 FSCA); “Orange Grove / Miss 7-10-34 / R. H. Beamer” (4 SEMC); “Billy’s Island / Okefenokee Swamp / June 1912. Ga. // Cornell U. / Lot. [handwritten] 440 / Sub. [handwritten] 37 // Cornell U. / Lot. 539 / Sub. [handwritten] 459 // OLCartwright / Collection / 1961” (1 USNM).



Figures 1–6. *Ataenius brevis* Fall. 1) Dorsal view of lectotype. 2) Ventral view of lectotype. 3) Frontal view of lectotype. 4) Lectotype labels. 5) Ventral view of metatibia of lectotype, arrow indicates outlined accessory spine. 6) Male genitalia, specimen from Citico, Tennessee.



Figures 7–12. *Ataenius thomasi* Schnepf and Ashman. 7) Dorsal view of holotype. 8) Ventral view of holotype. 9) Frontal view of holotype. 10) Holotype labels. 11) Ventral view of metatibia of holotype, arrow indicates reduced accessory spine. 12) Male genitalia of paratype.



Figures 13–14. Distribution of *Ataenius brevis* and *Ataenius thomasi* in the southeastern United States. 13) *Ataenius brevis* Fall. 14) *Ataenius thomasi*, new species.

In addition, all paratype specimens have the following bottom label: “[on yellow] PARATYPE / *Ataenius thomasi* / Schnep & / Ashman 2020”.

Diagnosis. *Ataenius thomasi* is distinguishable from other North American *Ataenius* by the combination of: shortened body form; clypeus and frons lacking fine, transverse wrinkles; meso- and metatibiae with apical accessory spine strongly reduced or absent; clypeus lacking teeth; base of head with band of punctures coarser than those on clypeus; scutellar shield lacking punctures or depressions; pronotum apparently lacking marginal setae (possibly abraded in all specimens examined); elytra with striae impressed and distinctly punctate, intervals weakly convex and glossy, with minute punctures; anterolateral margins of pronotum deflexed, scarcely visible in dorsal view.

Description. Holotype: Sex unknown. Body short, elongate oval, 4.2 mm long, width at elytral humeri 1.7 mm, width at middle of elytra 1.9 mm; dorsum glossy black; legs and venter dark rufous. **Head:** Clypeus broadly rounded on each side of shallow median emargination, sides straight to sharply rounded, right-angled gena; surface finely, evenly punctate, punctures separated by about their diameter, surface between punctures smooth; occipital area with crossband of coarser punctures than frons, separated by 1–2 times their diameter. **Pronotum:** About one-fourth wider than long, 1.2 mm long at middle, 1.5 mm wide at base and apex; sides broadly arcuate, anterior angles obtuse, posterior angles broadly rounded; anterolateral margins deflexed, scarcely visible in dorsal view; sides and base margined, finely crenate around posterior angles; surface with mix of evenly spaced fine punctures and irregularly placed, moderately coarse punctures separated by 1–2 times their diameter, becoming denser laterally and finer apically on disk. Scutellar shield short, triangular, impunctate. **Elytron:** Short and convex, 2.4 mm long, together almost one-half longer than wide, sides arcuate, humeral angle strongly dentate; striae strong, distinctly punctate; intervals weakly convex, smooth and glossy but with scattered minute punctures. **Venter:** Mesoventrite weakly carinate posteriorly between coxae. Metaventrite glossy, middle line strong and deep, approximately the length of the first two abdominal ventrites combined; discal area finely punctate, lateral one-sixth becoming scabrous at sides; metaventrite with triangle anterior to metacoxae moderate, not sharply defined. Abdominal ventrites glossy, finely punctate throughout, punctures becoming coarser laterally where they are separated by 2–4 times their diameter; ventrites finely fluted along anterior margins, the fluting increasingly longer on each ventrite posteriorly. **Legs:** Profemur with posterior face smooth, glossy, finely punctate, punctures separated by 3–4 times their diameter. Meso- and metafemur glossy, finely punctate, punctures separated by 3–5 times their diameter; posterior marginal line strong, extending from tibia halfway to the trochanter. Meso- and metatibiae with minute accessory spine, appearing as a slight projection at apex of tibia; lower spurs fine and slender, approximately as long as first tarsomere; first metatarsomere slightly longer than following three tarsomeres combined.

Variation (n = 9). Body length of paratypes 3.8–4.2 mm; width at elytral humeri 1.5–1.7 mm; coarse punctures on the pronotal disc sparser in some specimens.

Distribution. *Ataenius thomasi* appears to be restricted to the Southeast Coastal Plain (Fig. 14).

Etymology. Named in honor of the late Michael C. Thomas, coleopterist, mentor, and friend.

Remarks. Intrageneric groupings in *Ataenius* are not based on comprehensive phylogenetic analyses of the genus and are poorly defined. These assemblages often have members that do not fit easily into any particular species group and could be placed in monotypic “groups”, as well as species that share similar combinations of external character states but may belong to different species groups (Stebnicka and Lago 2005). These issues make it extremely difficult to place new species into established groups. Based on general body form, *A. thomasi* is similar to *A. brevis*, sharing with it many of the characters that would place it in the strigatus group, but is distinguishable from that species by its smooth, punctate head, reduced or absent meso- and metatibial apical accessory spine, deflexed anterolateral margins of the pronotum, and male genitalia. Shared character states that would suggest placement in the aequalis-platensis group (Stebnicka 2005) are the meso- and metatibiae with accessory spine reduced or lacking, the surface of the head lacking wrinkles, and to a lesser degree the form of the male genitalia. The parameres of *A. brevis* are evenly narrowed (in lateral view) from the base to near the apex with the apex slightly deflexed while *A. thomasi* are abruptly narrowed basally then parallel sided (in lateral view) to the broadly

rounded apex. Future phylogenetic analyses are required to confidently place *A. thomasi*, as well as confirm or reclassify current species groups.

From the available label data, it appears neither *A. brevis* nor *A. thomasi* are attracted to lights.

Though the new species is not placed into a group, the following amended key for the *Ataenius strigatus* group is modified from Stebnicka and Lago (2005) to include *A. thomasi*.

- 4(1). Elytra short, oval with convex margins, length less than 2 times as long as pronotum; humeral denticles strong, acutely pointed. USA **4a**
 — Elytra elongate, nearly parallel-sided, length 2.1 times as long as pronotum or longer, humeral denticles fine to moderate, usually obtuse **5**
- 4a(4). Meso- and metatibiae with apical accessory spine conspicuous (Fig. 5); punctures of abdominal ventrites coarse (Fig. 2); clypeus and frons with transverse sculpturing, appearing finely wrinkled (Fig. 3); anterolateral margins of pronotum slightly explanate, clearly visible in dorsal view (Fig. 1) ***A. brevis* Fall**
 — Meso- and metatibiae with apical accessory spine absent or reduced (Fig. 11); punctures of abdominal ventrites fine (Fig. 8); clypeus and frons lacking transverse sculpturing, smooth and punctate (Fig. 9); anterolateral margins of pronotum deflexed, scarcely visible in dorsal view (Fig. 7) ***A. thomasi* Schnepf and Ashman, n. sp.**

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