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A new species in the genus *Ardistomis* Putzeys, 1846 from Ecuador (Coleoptera: Carabidae: Scaritinae: Clivinini)

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Abstract. *Ardistomis allegroi* sp. nov. from Ecuador is described, figured including its male and female genitalia and is differentiated from the nearest species.

INTRODUCTION

The genus *Ardistomis* Putzeys, 1846 comprises about 45 valid species (one of them with two subspecies) widespread almost exclusively in the Neotropical Region, with only two species occurring in N America. A modern revision of the genus is needed; since only limited manuscripts with new descriptions were published e.g. by Kult (1950), Nichols (1988) and most recently eight species were described by Valdés (2009, 2012) and one by Makhan (2010) as well as Balkenohl et al. (2018). Valdés (2009) listed all the known species with their synonymy and general distribution, redefined some Ardistomini species groups (including *A. muelleri* group) and provided a key to the six species known of the group.

MATERIAL AND METHODS

The study of dry-mounted specimens, including measurements and examination of microsculpture, was done at a magnification up to 98×. Aedeagi and female styli were fixed in Euparal or with water soluble glue on a label and placed on the same pin below the beetle. Measurements: length of body is measured from the anterior margin of the closed mandibles to the apex of the elytra along the suture; length of the pronotum along its midline; width of the pronotum at widest point; length of the elytra from its base to its apex along the suture; width of the elytra at its widest point. Length of body is given with 0.05 mm accuracy; other measurements including ratios and means are rounded to two decimal places. Label locality data are quoted verbatim except for standardized dates.

Macrophotographs were taken by the second author using a Nikon D2X or D800 digital camera, applied to a Nikon Labophot II binocular optical microscope or a Nikon SMZ 1000 stereomicroscope, with diaphragmed lenses.

The terms and methods mentioned in Valdés (2009) are followed as closely as possible except for measurements of the head and the body length.

The following abbreviations are used to indicate the depository of specimens:

GAMI Gianni Allegro collection, Moncalvo, Italy;
PBPC Petr Bulirsch collection, Praha, Czech Republic;
PMFI Paolo Magrini collection, Firenze, Italy;
PMGT Pier Mauro Giachino collection, Torino, Italy.

Other abbreviations:

SP: setiferous puncture(s); BSP: basal setiferous puncture(s); DSP: dorsal setiferous puncture(s); HT: holotype(s); PT: paratype(s); /, // by locality labels: end of line, label.

RESULTS

Genus *Ardistomis* Putzeys, 1846

Type species: *Ardistomis fasciolatus* Putzeys, 1846,118.

Ardistomis allegroi sp. nov.

(Figs. 1-7)

Type material. Holotype (♂): Ecuador Prov. Cotopaxi / Otonga Nature Reserve / m 1800-2200 9.vii.2023 / Gianni Allegro legit, (PBPC). Paratypes: (1♀): Ecuador, Las Damas / 28.vi.2014 / Sifting litter / N. Dupérré & E. Tapia leg., (PMGT); (1 ♀): Ecuador, Las Damas / 3.vii.2014 / Sifting litter / E. Tapia legit, (PMFI); (1 ♂): Ecuador, Cotopaxi / S. Francisco de las Pampas / Otonga, m 2000, 30.iv.2014, Oscar Maioglio legit // E270, (GAMI).

Diagnosis. According to Valdés (2009) the new species belongs to the monophyletic *A. muelleri* group, who defined this group as follows: "Sternum VII with an irregular row of accessory setae near base, and phallus elongate, tubular, with reduced and blunt apical portion, reduced endophallus with few sparse microtrichia and distinctly developed basal sclerite. The members of the *muelleri* group that inhabit montane wet forest habitats show a tendency to metathoracic wing and eye reduction."

Description. Habitus as in Fig. 1. Measurement. Length 4.55-4.90 mm (HT 4.65 mm, n=4); pronotum 1.03-1.07 (mean 1.05, HT 1.05) times as broad as long; elytra 1.55-1.60 (mean 1.57, HT 1.55) times as long as broad, 1.32-1.37 (mean 1.34, HT 1.34) times as broad as pronotum; head 1.66-1.72 (mean 1.70, HT 1.70) times as broad as pronotum.

Color. Body dark ferruginous to light fuscous, without metallic tinge; elytra unicolored, unspotted; antennae, mouthparts and legs ferruginous.

Microsculpture. Clypeus and supraantennal lobes with most of surface with very fine, irregular, clypeus anteriorly and postero-laterally with fine microsculpture; mandibles, vertex and genae with mesh pattern fine, irregularly transverse; gula with fine transverse reticulation. Mandibles with rather rough, almost isodiametric; submentum and especially mentum with very rough isodiametric reticulation. Pronotal disc with slightly transverse, moderately fine, proepisterna with isodiametric mesh pattern; submarginal band of microsculpture

almost indistinct; prosternum with fine, transverse and metasternum with transverse mesh pattern. Elytra disc shiny, not reticulated, irregular, fine reticulation on apex and more distinct on base and humeri. Abdominal sterna with mesh pattern transverse.

Chaetotaxy. Anterior marginal SP on pronotal disc closer to anterior angles than to posterior SP. Elytral base with basal SP, disc with (4)-5 DSP in interval 3; in HT four DSP on left and five on right elytron. Abdominal sternum VII with ambulatory setae near base, (2)3-4 on each side in irregular rows; inner pair of preapical setae separated about 1.5 times distance between inner and outer setae.

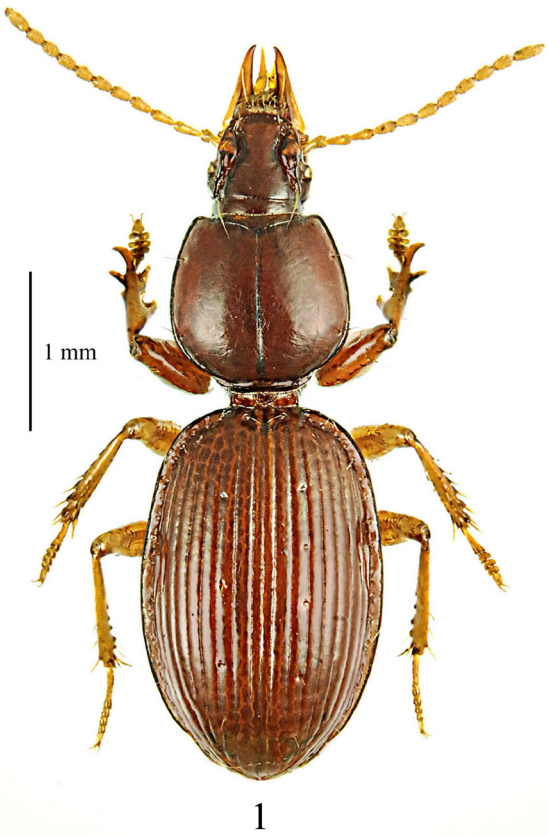


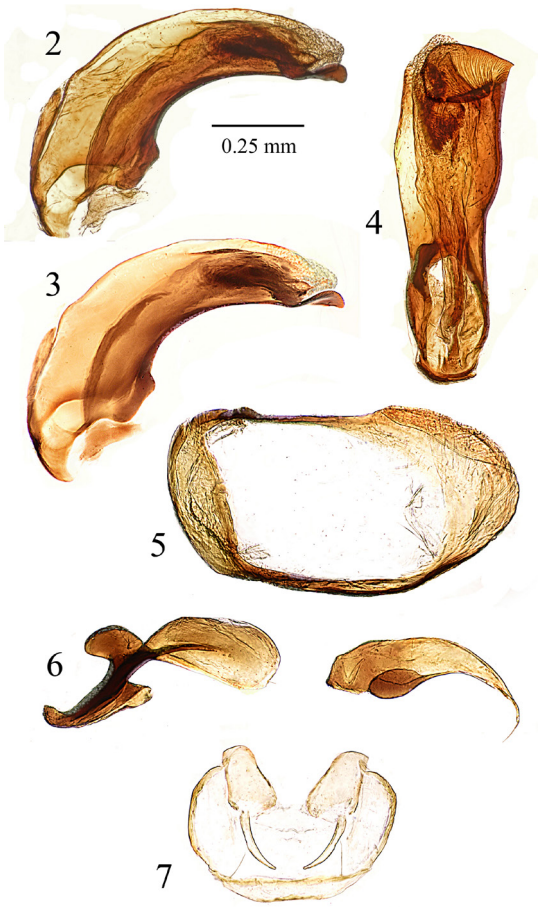
Fig. 1. *Ardistomis allegroi* sp. nov. Habitus of HT.

Head. Clypeus with anterior margin slightly, regularly convex. Vertex with deep and narrow transverse groove between posterior supraorbital SP. Supraantennal lobes with very basal, broad median depressions. Eyes strongly reduced, slightly vaulted, about three times shorter than elongate genae. Antennomere 2 subequal in length to antennomere 3; antennomeres 4–10 distinctly longer than wide.

Mouthparts. Labrum with anterior margin projected medially in very blunt angle. Mandibles rather long, regularly, directly narrowed to short, slightly curved tip. Labium with palpomeres 3 longer than 2.

Thorax. Pronotum subovate; in lateral view on disc moderately, apically strongly convex, lateral margins almost directly, rather strongly narrowed anteriorly to narrowly rounded, slightly protruded anterior angles; anterior transverse and median longitudinal impressions narrow, moderately deep. Proepipleura narrowly visible from above in about anterior half. Metasternum posteriad mesocoxa shorter than metacoxa.

Elytra. Slightly ovate; in lateral view rather strongly convex, especially apically; humeri very broadly rounded; outline without denticulation, slightly convexly broadened almost up to posterior third; apex broadly rounded; striae distinct, deep throughout their length, very densely and very finely punctured; intervals slightly convex medio-basally, more distinctly latero-apically. Interval 7 on apex forming very blunt, slightly to moderately elevated keel.



Figs. 2-7. *Ardistomis allegroi* sp. nov. 2-6 (HT), 7 (PT): 2- median lobe of aedeagus in lateral view (in euparal on vinyl acetate); 3- median lobe of aedeagus in lateral view (on perspex); 4- median lobe of aedeagus in ventral view (on acetate); 6- parameres; 5- urite IX; 7- female gonocoxites and laterotergites

Metathoracic wings. Reduced.

Male genitalia (Figs. 2-6). Phallus rather short, somewhat tubular, broad in lateral view, upper outline regularly, rather strongly convex (Figs. 2-3); in lateral view broad, not curved (Fig. 4); apex very broadly rounded, ventrally broadly concave. Parameres as in Fig. 6; paramere 1 (larger) with apical portion wide and broadly rounded, with one seta apically, lateral apophysis large, broadly rounded, basal apophysis acute. Paramere 2 (smaller) slender, almost as long as paramere 1, apex acute, one apical seta. Urite IX as in Fig. 5, rounded, without lateral teeth.

Female genitalia (Fig. 7). Gonocoxae with very subparallel basal half and abruptly, strongly narrowed, long, almost needle-form, slightly curved apical part without setae.

Differential diagnosis. *A. allegroi* sp. nov. has a rather small body; the eyes are strongly reduced, about three times shorter than the genae; the elytra are strongly vaulted in the lateral view, the humeri are very broadly rounded, and finally, the sternite 7 has a row

of the ambulatory setae so that according to Valdés (2009) the new species belongs to *A. muelleri* group and according to his key it is only related to *A. muelleri* Kult, 1950 from Mexico which has also reduced eyes but the eyes still are larger compared to the genae; its pronotal outline is more vaulted, less narrowed anteriorly. It differs from other species of *A. muelleri* group also by the very different shape of the phallus and the parameres (Figs. 2-4, 6 versus Valdés (2009) p. 64: figs. 8,10,12,14,18) as well as female genitalia (Fig. 7 versus Valdés (2009) p. 64: figs. 13, 16, 19). *A. ferreirai* Balkenohl et al., 2018, the most recently described species has also strongly reduced eyes but it belongs to another group (it has the second palpomeres as long as the third and the abdominal sternum 7 is without ambulatory setae) and among others can be differentiated by the mandibles being longer, by the narrower pronotum, not strongly attenuating forward and by the elytra having the outline distinctly crenulate. Poorly described *A. aschnae* Makhan, 2010 has e.a. large eyes.

Name derivation. Named after our friend Gianni Allegro (Moncalvo, Italy), who collected the type specimen and donated it to the first author.

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REFERENCES

Balkenohl M., Pellegrini T. G. & Zampaulo R. de A. 2018: A peculiar new beetle from Brazil associated with a cave habitat (Coleoptera, Carabidae, Clivinini). *Zootaxa* 4497(3): 398-410.

Kult K. 1950. New Neotropical species of the group Ardistomina (Carabidae. Col.). *Arthropoda* 1: 299-325.

Makhan D. 2010: *Ardistomis aschnae* sp. nov. and new records for *Ardistomis leprieurii* (Chaudoir, 1843) and *Ardistomis venustulus* Putzeys, 1866 from Suriname (Coleoptera: Carabidae: Clivinini). *Calodema* 120: 1-4.

Nichols S. W. 1988*: Systematics and biogeography of West Indian Scaritinae (Co1eoptera: Carabidae).* Doctoral dissertation, Cornell University, Ithaca, New York, 393 pp.

Putzeys J. A. A.H. 1846: Monographie des Clivina et genres voisins, précédée d'un tableau synoptique des genres de la tribu des scaritides. *Mémoires de la Société Royale des Sciences de Liège* 2: 521-663.

Valdés P. 2009: Seven new Neotropical species of the genus *Ardistomis* Putzeys (Coleoptera: Carabidae: Scaritinae: Clivinini): notes about classification and a checklist of species names of that genus. *Bulletin de l'Institut Royal des Sciences naturelles de Belgique, Entomologie* 79: 59-72.

Valdés P. 2012: Notes about morphological features of the Western Hemisphere subtribe Ardistomina, and revision of genus *Semiardistomis* Kult (Coleoptera, Carabidae, Scaritinae, Clivinini). *ZooKeys* 210: 19-67.

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