



## Generic redefinition, key and two new species of *Acorystus* Townes (Hymenoptera: Ichneumonidae: Cryptinae)

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### Abstract

The taxonomic limits of *Acorystus* are reviewed. The genus is characterized by a body surface shiny and mostly impunctate, supra-antennal area with a conical horn, epomia and posterior transverse carina of propodeum entirely absent, ovipositor tip very slender, without nodus and with very weak teeth. Two new taxa, *A. albicornis* Scherrer et Santos, **sp. nov.**, and *A. circumflexus* Scherrer et Santos, **sp. nov.**, are described and illustrated. *Acorystus albicornis* is diagnosed mainly by the white band of the female flagellum covering only about five flagellomeres, supra-antennal area with a white central horn, with a very weak and slightly rugose longitudinal swelling, orbital band reaching supra-clypeal and supra-antennal areas, propodeum with anterior transverse carina almost straight, and pleural carina very weak, with short transverse wrinkles. It is recorded from two close localities at Espírito Santo State (19°57'55"S 40°32'25"W and 20°16'21"S 40°28'40"W), in the Atlantic Forest of Southeastern Brazil. *Acorystus circumflexus* is diagnosed mainly by the white band of the female flagellum covering about fifteen flagellomeres, supra-antennal area with a black central horn, with a strong and rugose longitudinal swelling, orbital band absent, propodeum with anterior transverse carina centrally arched forwards, and pleural carina entirely absent. It is recorded only from Caxiuanã (2°4'54"S 51°51'5"W), Eastern Amazon Basin. A key to all three known species of the genus is provided.

**Key words:** Mesostenina, Cryptini, Phygadeuontinae, Neotropical region

### Introduction

Townes (1970) erected *Acorystus* to include a single known species, from Peru, *A. fulvus* Townes. The new genus was placed in Mesostenina, sharing many features with other Neotropical genera of that subtribe, such as *Polycyrtus* Spinola, *Bicristella* Townes, *Hercana* Townes, and *Mecistum* Townes. Such features include the body shiny, notaulus very strongly impressed and supra-antennal area with a distinct conic horn. *Acorystus* was characterized mainly by the propodeum with coarse punctures, without any trace of the posterior transverse carina, and the ovipositor without nodus.

Since the original description, no new species or distribution records were provided. This work aims to provide the first taxonomic reassessment of *Acorystus*, review its generic limits, describe new species and report new distribution records.

### Material and methods

This work deals with material acquired through two extensive, 15-day long surveys using both Mörücke and Malaise traps at *Reserva Biológica de Duas Bocas* (Brazilian Atlantic Forest, 20°16'21"S 40°28'40"W) and *Floresta Nacional de Caxiuanã* (Amazon forest, 2°4'54"S 51°51'5"W), as well as a small field trip in the *Reserva Biológica de Santa Lúcia* (Brazilian Atlantic Forest, 19°57'55"S 40°32'25"W). Over 23,000 specimens of Neotropical Cryptinae from the following institutions were also sorted for *Acorystus*, but no additional specimens were found: American Museum of Natural History (AMNH), Canadian National Collection of Insects (CNCI),

Instituto Biológico de Ribeirão Preto (IRBP), Museu Paraense Emílio Goeldi (MPEG), The Natural History Museum (BMNH), Zoological Museum of University of Copenhagen (ZMUC) and the Zoologisches Staatssammlung München (ZSMC).

Ratios cited to nearest tenth represent estimated values; those cited to the nearest hundredth are direct measurements, performed with a micrometer attached to a Leica MZ12.5 stereomicroscope. Images were captured using the extended-focus system EntoVision (GTVision, Hagerstown, Maryland), including a Leica MZ16 zoom lens attached to a JVC KY-75U 3-CCD digital video camera that feeds image data to a desktop computer. Biometric ratios used in descriptions are as follows:

CWH: clypeus, maximum width / maximum height.

CWW: clypeus, maximum width / minimum width.

MLW: mandible, maximum length / maximum width.

MWW: mandible, minimum width / maximum width.

MSM: malar space, maximum width / basal width of mandible.

FLW: hind femur, maximum length / maximum width.

SWL: propodeal spiracle, maximum width / maximum length.

APH: fore wing cell 1+2Rs (areolet), height / pterostigma maximum width.

AWH: 1+2Rs, maximum width / maximum height.

HW1C: hind wing vein Cua / cu-a, length.

T1LW: first metasomal tergite, maximum length / maximum width (dorsal view).

T1WW: first metasomal tergite, maximum width / minimum width (dorsal view).

T2LW: second metasomal tergite, maximum length / maximum width (dorsal view).

T2WW: second metasomal tergite, maximum width / minimum width (dorsal view).

OST: ovipositor sheath, length/hind tibia length.

Wing venation was interpreted as in Sharkey and Wharton (1997). General morphological terminology follows Gauld *et al.* (1997), except that face and frons are called supra-clypeal area and supra-antennal area, respectively; the usually pale stripe around the eye is referred as *orbital band* (Fig. 4, *ob*). When potentially ambiguous, color names are followed by their respective RGB formula, in the format (XXX, XXX, XXX), as determined from digital pictures of the studied specimens, according to procedures described by Aguiar (2005).

## Results and discussion

Although the taxa described here fit well to the original definition of *Acorystus*, the generic description must be expanded and consolidated as follows. The redescription combines the information provided by Townes (1970), both textually and by means of illustrations, with new features for the genus, as observed in the new taxa.

### *Acorystus* Townes

*Acorystus* Townes, 1970: 225–226, 455. Description, figure. Type species: *Acorystus fulvus* Townes, by monotypy and original designation.

**Redescription.** Fore wing 5.1–7.6 mm. Body entirely shiny, sparsely punctate. *Head:* clypeus small, in front view somewhat triangular, base much narrower than apex, strongly convex; apical margin convex, without median tooth; mandible small, slightly to moderately tapered toward apex, ventral tooth about 0.4–0.5 as long as dorsal tooth; supra-antennal area with median conical horn slightly below its center; female flagellum regular, not flattened or enlarged subapically, with white band covering 4–15 flagellomeres; temple and gena very narrow, giving head triangular aspect in frontal view; gena about 0.9 as long as basal width of mandible; profile of temple at dorsal 0.3 about 0.1–0.2 as long as eye; occipital carina high, sharp near mandible, meeting hypostomal carina near mandible base.

*Mesosoma:* dorsal margin of pronotum weakly to moderately swollen; pronotal collar bordered by distinct carina; epomia absent; mesoscutum subcircular; notaulus reaching beyond middle of mesoscutum, slightly to

strongly impressed, convergent, smooth; scuto-scutellar groove smooth; epicnemial carina restricted to ventral 0.5–0.8 of mesopleuron; sternaulus incomplete, stronger at anterior half, posterior 0.3–0.5 very shallow to indistinct; median portion of postpectal carina short, almost indistinct, arched forwards; justacoxal carina present only as very short subvertical ridge; pleural carina absent; hind margin of metanotum with short teeth-like projections; transverse furrow at base of propodeum smooth, shallow and moderately wide. Propodeum: covered with sparse to moderately dense long hairs; anterior margin centrally concave; spiracle elliptical, SWL 2.00–2.33; anterior transverse carina strong, almost straight or slightly arched forwards; posterior transverse carina and longitudinal carinae completely lacking. Legs: fore tibia of female regular, not swollen; all pre-apical tarsomeres weakly to moderately bilobed; FLW 5.21–5.94. Wings: bulla at fore wing vein 1M+Rs large, placed at basal 0.25; ramellus absent; crossvein 1cu-a ending opposite or shortly basad to base of vein 1M+Rs; crossvein 2-Cu about 0.43–0.54 as long as crossvein 2cu-a, veins distinctly angled; cell 1+2Rs (areolet) small, APH 0.30–0.37, transversely elongate, AWH 1.86–2.67; crossvein 3r-m spectral, longer than 2r-m; vein 3-M tubular, as long as 2-M or shorter; hind wing vein M+Cu subapically strongly convex; HW1C 1.10–1.27; crossvein 1r-m with bulla at ventral 0.3; veins 1Rsa and 1Rsb weakly angled or almost continuous; veins Cub and 2-1A not reaching wing margin.

**Metasoma:** all metasomal tergites smooth, shiny, sparsely pilose; first tergite very elongate, slender, T1LW 3.48–4.08, T1WW 1.76–1.96, without a lateral tooth or flange at base, without longitudinal carinae; spiracle at basal 0.6–0.8, not prominent; T2LW 1.54–2.16, T2WW 2.18–2.22; OST 0.84–0.89; ovipositor moderately slender, straight, smooth, apically strongly compressed, moderately pointed; dorsal valve without or with very weak nodus and notch, ventral valve with very weak apical teeth restricted to tip.

**Comments.** *Acorystus* can be readily differentiated from other Neotropical Mesostenina by lacking entirely the posterior transverse carina of propodeum. In all other genera of the subtribe, the posterior carina is at least partially developed (*Harpura* Townes, *Mecistum* Townes, *Mesostenus* Gravenhorst) or represented by distinct crests or spine-like apophyses (*Cryptanura* Brullé, *Bicristella* Strand, *Hercana* Townes, *Polycyrtus* Spinola – see Townes 1970). According to the present generic redefinition, it can be additionally diagnosed by the following combination of characters: body surface entirely shiny and mostly impunctate (Figs 1–3); mandible short and slender; supra-antennal area with a single conical horn (Figs 4, 8); epomia absent (Fig. 1); first tergite without lateral tooth at base (Figs 2, 3); and ovipositor tip very slender, without nodus, ventral valve apex with very weak teeth (Figs 7, 11). Both of the new species fit well in the key for the mesostenine genera provided by Townes (1970), except by the propodeal punctures, very weak and widely spaced in the new taxa, contrasting with the “coarse punctures” observed in *A. fulvus*. In that case, the absence of a pair of apophyses mentioned in the key, as well as the illustrations provided, suffice to clearly differentiate all females of *Acorystus* and *Polycyrtus*. Some males of *Polycyrtus*, however, have weak or almost indistinct propodeal apophyses; in this case, the correct determination of *Acorystus* must consider the generic redefinition provided above.

Considering the large number of Cryptinae specimens examined, it seems remarkable that so few specimens of the genus were found. That might indicate that *Acorystus* is a very rare taxon, even though it is clearly widespread; the known records for each of its species – Peru, Amazon Basin and Atlantic Forest – are between 2,281–3,379 km far apart from each other. The rarity of specimens, however, may also be due not only to rarity itself, but at least in part also to implicit limitations of the sampling methods. This is suggested from the fact that all specimens discussed in the present work were collected with Mörücke traps (yellow pans), even though these were used concurrently with many Malaise traps, in all of the respective collecting trips. While perhaps a surprising fact, it has already been shown that, at least for Neotropical Cryptini, sampling with Mörücke and Malaise traps yields very different genus-level assemblages, with about half of the genera being captured mostly or almost exclusively by Mörücke traps (Aguiar & Santos 2010). Better sampling with Mörücke traps seems therefore likely to reveal further species of *Acorystus* in South America. Even so, *Acorystus* still hardly seems to be a common or speciose group.

**Biology.** Unknown.

**Distribution.** Recorded from only four localities, representing a wide geographic spam, but all of them corresponding to humid rain forests.

## Key to the species of *Acorystus* Townes

1. Head orange, ferruginous near ocelli. Propodeum surface irregular, rugose, with large punctures that are separated from each other by about 1.3x their own diameter (Figs 12, 13) ..... *A. fulvus* Townes
- Head black with whitish marks. Propodeum smooth, with very short punctures that are separated from each other by at least 4.0x their own diameter ..... 2
2. Female flagellum with white band covering about 5 flagellomeres. Supra-antennal area with a white horn (Fig. 4). Orbital band present from supra-clypeal to supra-antennal areas. Propodeum with anterior transverse carina centrally not strongly arched forward, with about the same curvature on its entire length (Fig. 3). Crossvein 1cu-a basad of 1M+Rs by about 0.15 its own length ..... *A. albicornis* Scherrer et Santos, **sp. nov.**
- Female flagellum with white band covering about 15 flagellomeres (Figs 1, 2). Supra-antennal area with a black horn (Fig. 8). Orbital band fully absent (Fig. 2). Propodeum with anterior transverse carina centrally distinctly arched forwards (Fig. 2). Crossvein 1cu-a opposite to vein 1M+Rs (Figs 1, 2).....  
..... *A. circumflexus* Scherrer et Santos, **sp. nov.**

### *Acorystus albicornis* Scherrer et Santos, **sp. nov.**

(Figs 3–7, 14)

**Description.** ♀. Fore wing 5.1–5.8 mm. *Head* (Figs 3–5): antenna with 24–25 flagellomeres; clypeus pronounced, rounded, strongly convex, apex slightly concave; as punctate and pilose as remainder of head; CWH 1.62, CWW 1.62; MLW 1.39, MWW 0.61; mandible moderately long, apex thin, ventral margin sharp, expanded into perpendicular flange with 0.3 of mandible apex width, ventral tooth about 0.5 as long as dorsal tooth; supra-antennal horn conical, with about 0.5 of pedicel length; supra-antennal area with pair of very weak sublateral longitudinal swelling from horn until ocellar triangle, this swelling irregular, with slight rugulosity; occipital carina meeting hypostomal carina near mandible base, forming a high, sharp flange next to mandible, making a deep rift between gena and occipital carina flange with about the extension of mandible base width; MSM 0.8.

*Mesosoma* (Figs 3, 6): pronotum with high carina bordering collar, posterior margin with weak and short wrinkles, dorsal margin moderately swollen; mesoscutum with sparse, thin, shallow punctures, with lateral flange behind tegula; notaulus strongly impressed; lateral carina of scutellum high, sharp, reaching 0.25 of scutellum; epicnemial carina restricted to ventral 0.5 of mesopleuron, almost straight; mesopleuron anterior margin with short, tick transversal wrinkles; sternaulus moderately impressed at anterior 0.5, with very weak wrinkles at anterior 0.3, posterior 0.5 very shallow; mesopleural suture with strong transversal wrinkles; metapleuron with long hairs, with almost indistinct, rather shallow punctures that are separated by about 5.0x their own diameter; pleural carina very weak, with short transverse wrinkles. Propodeum: limit between anterior margin and transverse furrow at base of propodeum centrally indistinct; spiracle elliptical, SWL 2.00; anterior transverse carina almost straight, area behind it smooth, with almost indistinct, rather shallow punctures that are separated by about 7.0–10.0x their own diameter. Legs: pre-apical tarsomeres bilobed, mesal lobe slightly longer than lateral lobe; FLW 5.94. Wings: fore wing vein 2+3Rs and crossvein 1m-cu perfectly continuous with each other; vein 1M+Rs slightly sinuous; crossvein 1cu-a weakly convex, forming slightly acute angle with M+Cu, basad of 1M+Rs by about 0.15 its own length; vein 2-Cu about 0.43 as long as crossvein 2cu-a; APH 0.37, AWH 1.86; veins 3-M and 2-M about same size; hind wing vein Cua forming obtuse angle with vein 1M; HW1C 1.10; vein 1Rsb with constricted diameter during its apical 0.85; veins 1Rsa and 1Rsb almost continuous; vein Cub straight, reaching about 0.8 of distance to wing margin; vein 2-1A reaching about 0.6 of distance to wing margin.

*Metasoma* (Figs 3, 6, 7): T1LW 4.08, T1WW 1.76, spiracle at basal 0.6, not prominent; T2LW 1.54, T2WW 2.18; thyridium almost circular; OST 0.84; dorsal valve with nodus and notch absent.

*Color:* Head black; thorax, legs, metasoma yellow. Head: black; scape dorsally brown, ventrally yellow; pedicel and flagellomeres 1–2 dorsally mostly light brown, apical flagellomeres dark brown, except flagellomeres 8–10 and most of 6–7 and 11–12, white; orbital band present only at supra-clypeal and supra-antennal areas; supra-clypeal area, clypeus, mandible except apex, mouth parts and medial part of malar space, whitish (207,179,116); supra-antennal horn white; apex of mandible dark brown. Mesosoma: dorsally brownish orange (150,098,050), ventrally yellowish (150,098,050); propleuron and collar whitish; wings hyaline; legs yellowish, fore leg lighter, hind coxa darker; fore and median tarsi centrally brown, median ones darker, most of hind pre-apical tarsomere brown, apical tarsomeres dark brown. Metasoma: ranging from orange in T1-2 (196,134,035) to light yellow (240,219,127) at apical tergites; ovipositor brown, sheath dark brown, with lateral longitudinal white band.

**Male.** Very similar to female, but differs from it by the following: body more pilose; antenna with 27 flagellomeres; weaker swelling at supra-antennal area; fore wing crossvein 2Cua about 0.5 as long as vein 2cu-a; vein 2-M longer than 3-M; mesopleural fovea very shallow; justacoxal carina indistinct; pleural carina entirely absent; tarsi brown, except by hind tarsomere 1 posterior half, and hind tarsomeres 2–3, white; anterior transverse carina of propodeum centrally slightly arched; spiracle at T1 prominent.

**Variation.** Body varying from light orange (213, 161, 071) to brownish orange (156, 100, 029); flagellomere 2 sometimes light brown; two specimens with orbital band reaching dorsal area of gena, dorsal margin of pronotum whitish, central lobe of mesoscutum dark brown, lateral margin of mesoscutum posteriorly whitish, thorax ventrally lighter, propodeum with anterior transverse carina very slightly arched forward; posterior half of hind tarsomere 1 and hind tarsomeres 2–3 sometimes whitish; pleural carina sometimes with very weak wrinkles restricted to anterior area; metasomal T1–3 sometimes orangish.

**Comments.** Can be separated from *A. fulvus* by having the head black with whitish marks (vs. head orange, ferruginous near ocelli); propodeum with very short, rather shallow punctures that are separated by about 7.0–10.0x their diameter (vs. large punctures that are separated by about 1.3x their diameter); and propodeum not wrinkled (vs. with weak coarse wrinkling). Differs from *A. circumflexus* by the female flagellum with white band covering about 5 flagellomeres (vs. about 15); supra-antennal area with white central horn (vs. black), with longitudinal swelling very weak, slightly rugose (vs. more pronounced and rugose); orbital band present at supra-clypeal and supra-antennal areas (vs. absent); sternaulus with very weak wrinkles at anterior 0.3 (vs. with anterior 0.5 wrinkled); propodeum with anterior transverse carina almost straight (vs. centrally arched forwards); propodeum and metapleuron with more sparse punctures that are separated by about 7.0–10.0x their diameter at propodeum and 5.0x at metapleuron (vs. more dense punctures that are separated by about 4.0–6.0x their diameter at propodeum and 3.0x at metapleuron); vein Cub straight (vs. slightly irregular); crossvein 1cu-a forming slightly acute angle with M+Cu, basad of 1M+Rs by about 0.15 of its own length (vs. convex, ending opposite to vein 1M+Rs); pleural carina very weak, with short transverse wrinkles (vs. absent).

**Etymology.** From the combination of the Latin *albus*, meaning “white”, and *cornus*, meaning “horn”; in reference to the white horn at supra-antennal area.

**Material examined.** 9 ♀ and 1 ♂. Holotype ♀ (UFES): BRAZIL, ES, Cariacica, Reserva Biológica de Duas Bocas, Pau Amarelo, 23–25.X.2005, yellow pans, Pt. 18 [field point], APAGuiar *et al.* In good shape. Paratypes (UFES): 1 ♀ from BRAZIL, ES, Cariacica, Reserva Biológica de Duas Bocas, Pau Amarelo, 23–25.X.2005, yellow pans, Pt. 16, APAGuiar *et al.*; 1 ♀, same data except Pt. 17; 1 ♀, same data except Pt. 18; 1 ♀ and 1 ♂, same data except 27–29.X.2005, Pt. 16; 1 ♀, same data except Pt. 17; 1 ♀, same data except Pt. 18; 1 ♀ from BRAZIL, ES, Santa Teresa, Estação Biológica Santa Lúcia, 09–13.V.2006, yellow pans, MTavares, CAzevedo *et al.*; 1 ♀, same data, except 09.V.2006.

**Distribution.** Atlantic Forest, Brazil, ES. Recorded from two close localities at Reserva Biológica de Duas Bocas (20°16'21"S 40°28'40"W) and Estação Ecológica Santa Lúcia (19°57'55"S 40°32'25"W) (Fig. 14).

### *Acorystus circumflexus* Scherrer et Santos, sp. nov.

(Figs 1, 2, 8–11, 14)

**Description.** ♀. Fore wing 7.05 mm. *Head* (Figs 1, 2, 8, 9): antenna with 30 flagellomeres; clypeus evenly convex, as punctate and pilose as remainder of head; CWH 1.56; CWW 1.60; MLW 1.26; MWW 0.58; mandible moderately long, apex thin, ventral margin sharp, expanded into perpendicular flange with 0.5 of mandible apex width; ventral tooth about 0.5 as long as dorsal tooth; supra-antennal horn conical, with about 0.5 of pedicel length; supra-antennal area with distinct, irregular, rugose swelling from horn until ocellar triangle, centrally with slight depression as wide as horn base; occipital carina meeting hypostomal carina near mandible base, forming high, sharp flange next to mandible, making a subcircular deep depression between gena and occipital carina flange with about 0.8 as wide of mandible base width; MSM 0.71.

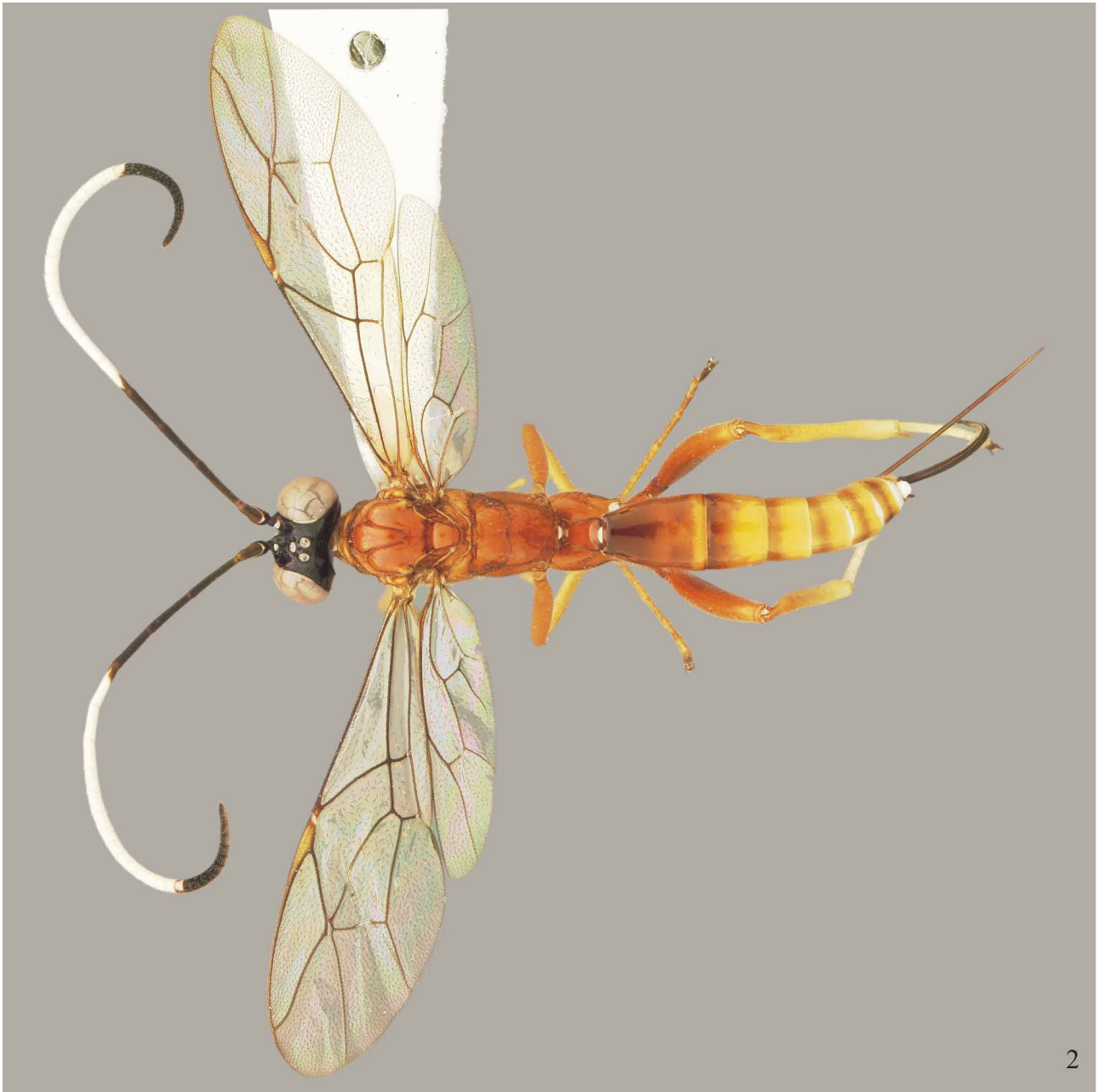
*Mesosoma* (Figs 1, 2, 10): pronotum with high carina bordering collar, posterior margin with weak and short wrinkles, dorsal margin moderately swollen; mesoscutum with sparse, moderately strong punctures, at border with lateral flange behind tegula; notaulus strongly impressed; lateral carina of scutellum high, sharp, reaching 0.3 of scutellum; epicnemial carina restricted to ventral 0.5 of mesopleuron, almost straight; mesopleuron anterior margin

with short, coarse transversal wrinkles; sternaulus strongly impressed, anterior half wrinkled, posterior half shallow, almost indistinct; mesopleural suture with strong transversal wrinkles; metapleuron with long hairs, with very short, rather shallow punctures, separated from each other by about 3.0x their own diameter; pleural carina absent. Propodeum: limit between anterior margin and transverse furrow at base of propodeum centrally indistinct; spiracle elliptical, SWL 2.33; anterior transverse carina centrally arched forwards, area behind it with very small and shallow punctures separated from each other by about 4.0–6.0x their own diameter. Legs: pre-apical tarsomeres weakly bilobed, lobes short, about equal size; FLW 5.21. Wings: fore wing veins 2+3Rs and 1m-cu perfectly continuous with each other; vein 1M+Rs slightly sinuous; crossvein 1cu-a moderately convex, forming slightly acute angle with M+Cu, opposite to vein 1M+Rs; vein 2-Cu 0.54 as long as crossvein 2cu-a; APH 0.30, AWH 2.67; vein 3-M shorter than 2-M; hind wing vein Cua forming obtuse angle with vein 1M; HW1C 1.27; vein 1Rsb entirely tubular; veins 1Rsa and 1Rsb weakly angled; vein Cub slightly sinuous, reaching about 0.8 of distance to wing margin; vein 2-1A reaching about 0.5 of distance to wing margin.

*Metasoma* (Figs 1, 2, 10, 11): T1LW 3.48, T1WW 1.96, spiracle of first tergite at basal 0.6, almost indistinctly prominent; T2LW 2.16, T2WW 2.22; thyridium almost circular; OST 0.89; dorsal valve of ovipositor with nodus and notch very weak.



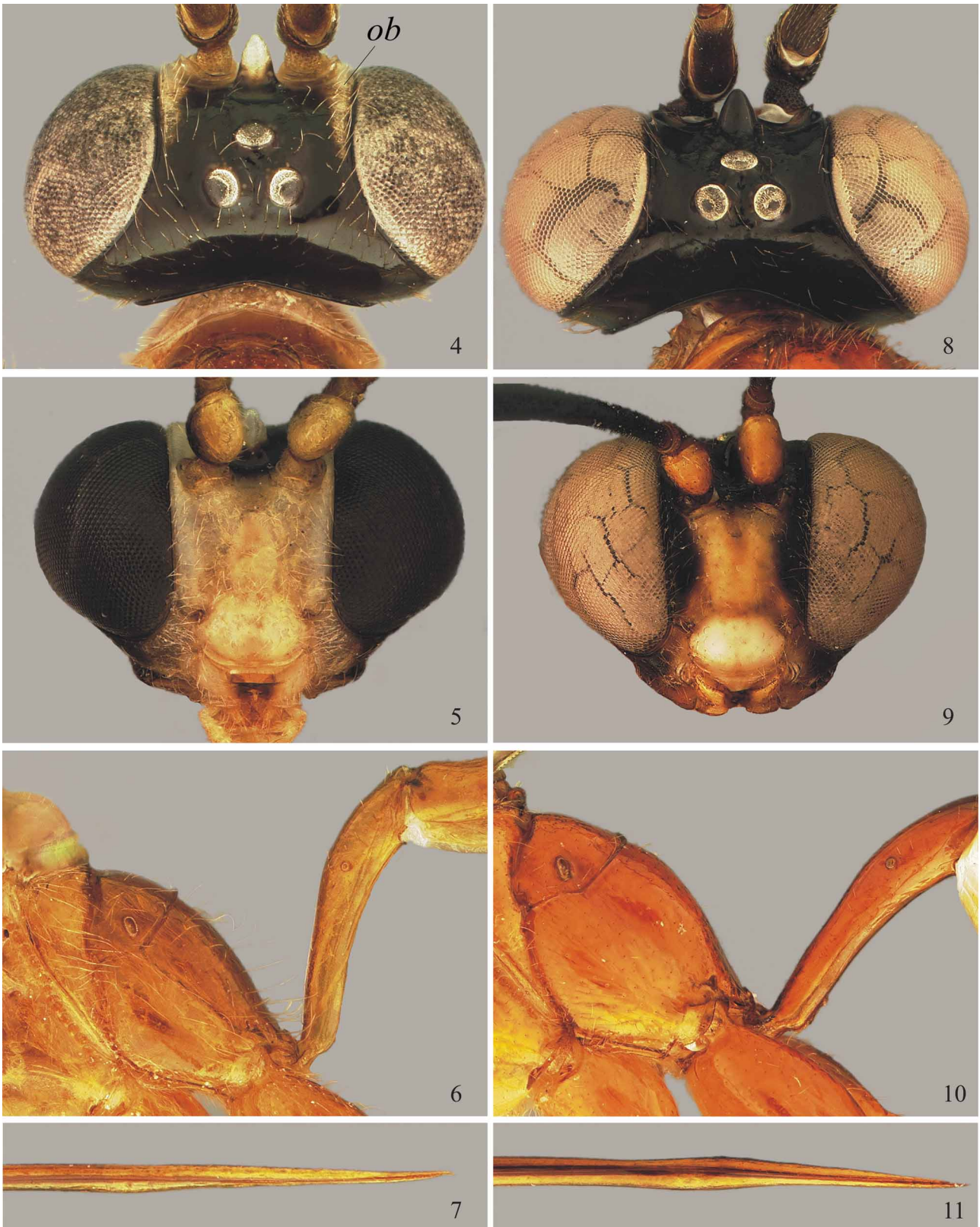
**FIGURE 1.** *Acorystus circumflexus* sp. nov., holotype ♀, habitus. Photographed by Berthil B. Longo.



**FIGURES 2, 3.** 2, *Acorystus circumflexus* **sp. nov.**, holotype ♀, dorsal. 3, *A. albicornis* **sp. nov.**, holotype ♀, dorsal. Illustrations not to scale. Photographed by Berthil B. Longo.

*Color:* Head black; mesosoma orangish; metasoma from deep orange to yellow. Head: black; scape dorsally dark brown, ventrally orange (139,128,51); pedicel and flagellum dark brown, except flagellomeres 5–17 and most of 4 and 18, white; orbital band absent; supra-clypeal area centrally, mandible except apex and medial part of malar





**FIGURES 4–11.** 4–7, *Acrostus albicornis* sp. nov. 4, Holotype ♀, head, dorsal; *ob*, orbital band. 5, Paratype ♀, head, frontal. 6, Holotype ♀, metapleuron, propodeum and first metasomal tergite, lateral. 7, Holotype ♀, ovipositor tip, lateral. 8–11, *A. circumflexus* sp. nov., holotype ♀. 8, Head, dorsal. 9, Head, frontal. 10, Metapleuron, propodeum and first metasomal tergite, lateral. 11, Ovipositor tip, lateral. Illustrations not to scale. All illustrations, except 5 and 9, photographed by Berthil B. Longo.



space, orangish (221,202,144); clypeus and mouth parts whitish (221,202,144); apex of mandible dark brown. Mesosoma: dorsally orange (208,156,088), ventrally yellowish (235,204,111); propleuron and collar orangish; wings hyaline; legs orange, fore leg lighter; hind tibia basally orangish, turning to pale yellow towards apex; hind tarsomeres 1–4, basal half of hind apical tarsomere whitish; apical tarsomere of middle leg and apical half of apical tarsomere of hind leg, dark brown. Metasoma: T1 dark orange; T2 basally dark brown (132,094,063), medially deep orange, apically with yellowish stripe (224,180,087); T3–4 basally brownish, apically bright yellow (236,210,121); T5–8 yellowish, centrally darker; ovipositor brown, sheath dark brown, laterally with longitudinal white band.



**FIGURES 12, 13.** *Acorystus fulvus* Townes, Holotype ♀. 12, Left side. 13, Head and mesosoma, dorsal. Photographed by David B. Wahl.

**Male.** Unknown.

**Comments.** Can be separated from *A. fulvus* by having the head black with whitish marks (vs. head orange, ferruginous near ocelli); propodeum with very short and shallow punctures that are spaced by about 4.0–6.0x their diameter (vs. large punctures separated by about 1.3x their diameter); and propodeum not wrinkled (vs. with coarse wrinkles). Isolated from *A. albicornis* by the female flagellum with white band covering about 15 flagellomeres (vs. about 5); supra-antennal area with black central horn (vs. white), with longitudinal swelling more pronounced and rugose (vs. very weak, only slightly rugose); orbital band absent (vs. present at supra-clypeal and supra-antennal areas); sternaulus with anterior 0.5 wrinkled (vs. with very weak wrinkles at anterior 0.3); propodeum with anterior transverse carina centrally arched forwards (vs. almost straight); propodeum and metapleuron with

denser punctures that are spaced by about 3.0–6.0x their own diameter at propodeum and by 3.0x at metapleuron (vs. with more sparse punctures, spaced by about 7.0–10.0x their diameter at propodeum and by 5.0x at metapleuron); vein Cub irregular (vs. straight); crossvein 1cu-a convex, ending opposite to vein 1M+Rs (vs. forming slightly acute angle with M+Cu, basad of 1M+Rs by about 0.15 of its own length); pleural carina entirely absent (vs. very weak, with short transverse wrinkles).

**Etymology.** From the Latin *circumflexus*, meaning “arched”; in reference to the arched central portion of the anterior carina of propodeum.

**Material examined.** Holotype ♀ (MPEG) from Brazil, PA, Melgaço, Floresta Nacional de Caxiuanã, Estação Científica Ferreira Pena, Trilha, 22–25.XI.2003, yellow pans, APAGuiar & JDias, P05147 [field point]. Fore tarsomeres 3–5 missing, otherwise in good shape.

**Distribution.** Amazon Basin, Brazil. Known only from the *Floresta Nacional de Caxiuanã* (2°4'54"S 51°51'5"W) (Fig. 14).



**FIGURE 14.** Diagram with distribution records for *Acorystus albicornis* sp. nov. (circle), *A. circumflexus* sp. nov. (square), and *A. fulvus* Townes (triangle).

### *Acorystus fulvus* Townes

(Figs 12, 13, 14)

*Acorystus fulvus* Townes, 1970: 226, 455. Description, figure. Holotype ♀ AEIC.

*Acorystus fulvus*: Yu & Horstmann, 1997: 209. Listed.

*Acorystus fulvus*: Yu *et al.*, 2005. Listed.

*Acorystus fulvus*: Carrasco 1972: 327. Listed; Rodríguez-Berrío *et al.* 2009: 8. Listed.

**Comments.** Readily differentiated from *A. albicornis* sp. nov. and *A. circumflexus* sp. nov. by having the head orange, ferruginous near ocelli (vs. head black with whitish marks); propodeum with large punctures separated by about 1.3x their diameter (vs. very short, rather shallow punctures that are separated by at least 4.0x their diameter); and propodeum surface irregular, rugose (vs. propodeum smooth).

**Material examined.** Pictures of the holotype.

**Distribution.** Amazon Basin, Peru. Known only from Santa Isabel (misspelled “Izabel” in the original description), Paucartambo, Peru (around 13°00'00"S 71°18'00"W) (Fig. 14).

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