

## The genus *Anasa* from Ecuador with description of three new species and key to the Ecuadorian species (Hemiptera: Heteroptera: Coreidae)

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**Abstract.** Three new species of *Anasa* Amyot & Serville, 1843 (Coreidae: Coreinae: Coreini), *A. cotopaxiana* sp. nov., *A. crinita* sp. nov., and *A. humerata* sp. nov., from Ecuador are described and illustrated in dorsal and some in ventral view. The new species are distinguished by a combination of colouration patterns and certain morphological traits, such as the shape of the pronotum and the posteroventral edge of the male genital capsule, as well as the armature of the antenniferous tubercles and femora. Drawings of the male genital capsules and a revised key for the sixteen known species of *Anasa* from Ecuador are also provided.

**Key words.** Hemiptera, Heteroptera, Coreidae, Coreini, *Anasa*, new species, Ecuador, Neotropical Region

### Introduction

BRAILOVSKY (1985) reviewed the genus *Anasa* Amyot & Serville, 1843, and recognized 63 species. Later BRAILOVSKY (1990, 2001, 2008, 2016) and BRAILOVSKY & BARRERA (2000, 2008, 2009) added 13 new species from the Dominican Republic, Ecuador, El Salvador, French Guiana, Guatemala, Honduras, Jamaica, Mexico, Nicaragua, and Peru. Since then, a considerable quantity of additional Coreini material has become available, and three new species of *Anasa* have been identified, bringing the total number of species in the genus to 79.

*Anasa* represents a very common group of medium-sized coreids, distributed in the Nearctic and Neotropical Regions and characterized by having the hind femora usually armed with one or more subdistal spines, the humeral angles not acutely spined, the tylus not compressed and raised above the juga, the rostrum reaching or extending beyond the middle third of mesosternum and the head below the antenniferous tubercle lacking a raised shelf-like plate.

Thirteen species of *Anasa* were known from Ecuador: *A. auricularia* Brailovsky 1985, *A. bellator* (Fabricius, 1787), *A. guayaquila* Brailovsky, 1985, *A. hesperia* Brailovsky, 1985,

*A. maculiventris* Stål, 1854, *A. mimetica* Brailovsky, 1985, *A. onorei* Brailovsky & Barrera, 2009, *A. rapax* Brailovsky & Barrera, 2009, *A. scitula* Brailovsky & Barrera, 2000, *A. scorbutica* (Fabricius, 1775), *A. siblica* Brailovsky, 1985, *A. trilineata* Stål, 1870, and *A. umbrina* Brailovsky, 1985 (PACKAUSKAS 2010). In this paper, three new species from Ecuador are described and illustrated, and a key to identify the sixteen species is given.

## Materials and methods

Pictures were taken with a Nikon D200 camera. The following abbreviations are used for the institutions cited in this paper:

- AUNH Auburn University Museum of Natural History, Auburn, USA;  
BMNH Natural History Museum, London, United Kingdom;  
PUCE Pontificia Universidad Católica del Ecuador, Quito, Ecuador;  
UNAM Colección Entomológica, Instituto de Biología, Universidad Nacional Autónoma de México, Mexico;  
USNM Smithsonian Institution, National Museum of Natural History, Washington, D.C., USA.

## Taxonomy

### *Anasa humerata* sp. nov.

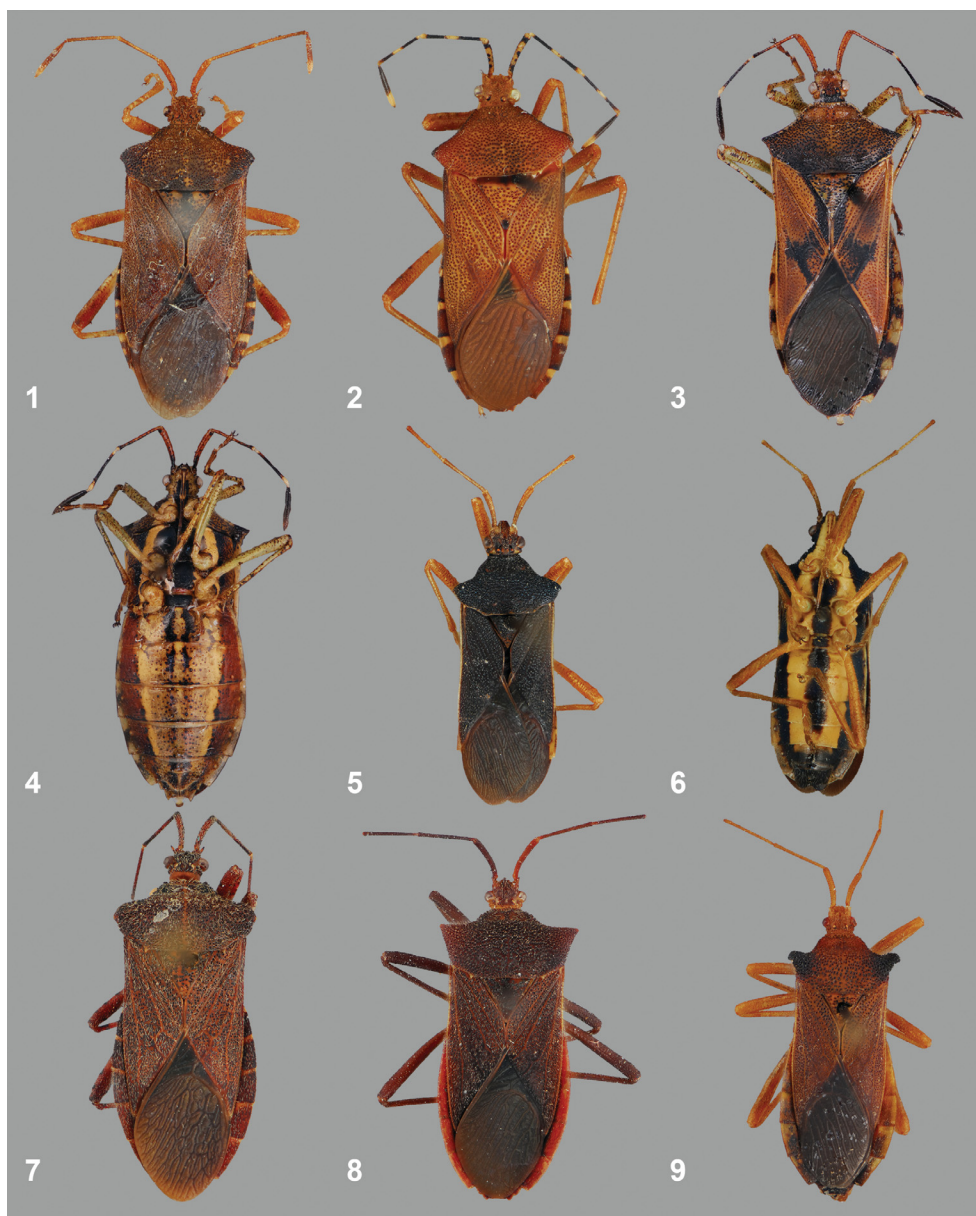
(Figs 9, 21)

**Type material.** HOLOTYPE: ♂, **ECUADOR: ORELLANA:** Napo, Loreto, 500 m, 15.1.1995, A. Moscoso (UNAM). PARATYPES: 2 ♂♂ 2 ♀♀, **ECUADOR:** without locality, ("summer") 1965, C. R. Patrick (AUNH, UNAM).

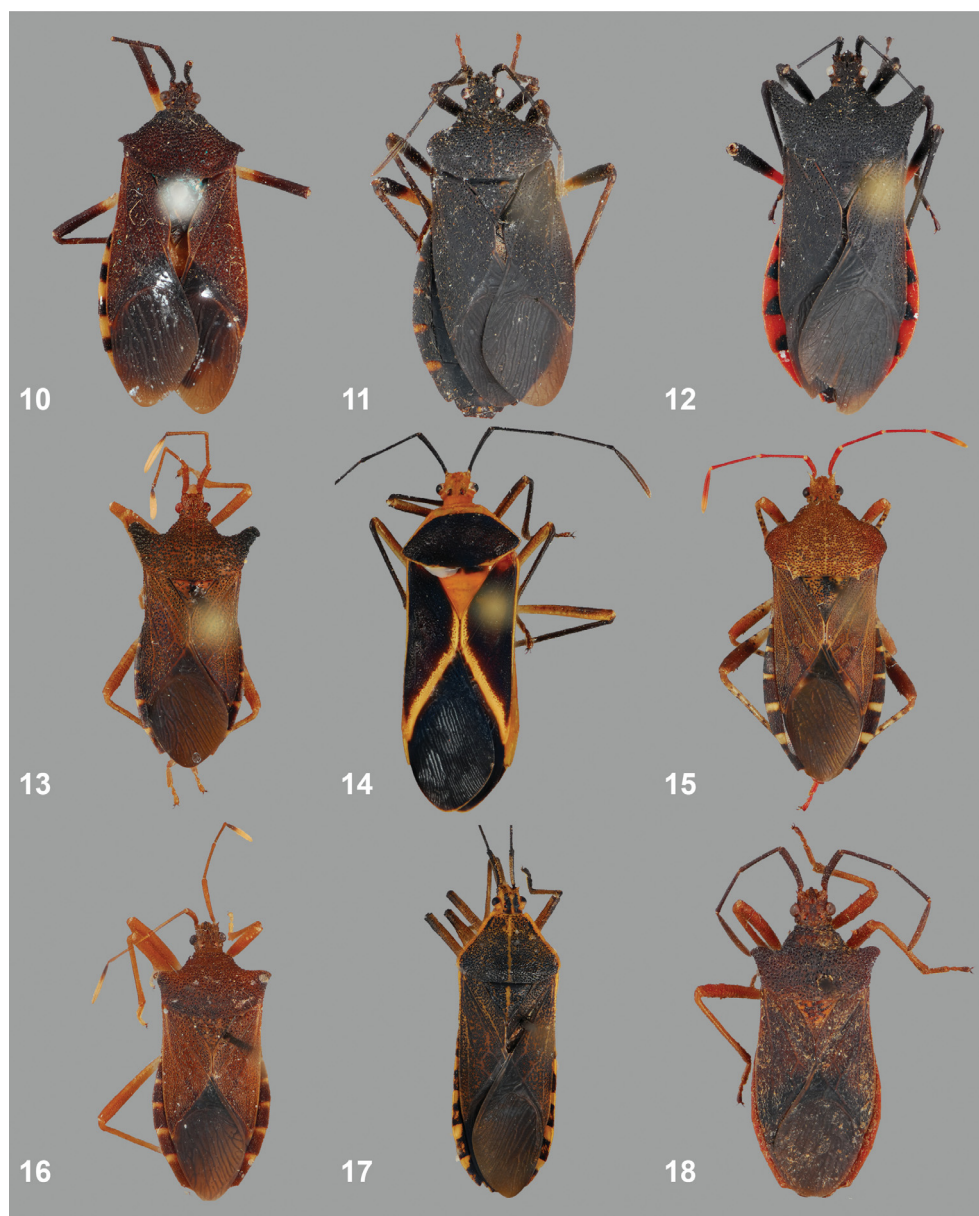
**Description. Male** (holotype). *Dorsal coloration.* Head, including antennal segments I–III, and anterior lobe of pronotal disk pale yellowish orange; antennal segment IV yellow with basal third pale brown; posterior lobe of pronotal disk dark orange, punctures reddish brown and humeral angles dark brown; scutellum, clavus and corium dark orange, punctures reddish brown, costal border and veins paler; hemelytral membrane pale brown; connexival segments III–VI pale yellow, VII with anterior half pale yellow and posterior half pale brown; dorsal abdominal segments III–VI shiny orange, VII dark brown with anterior margin and lateral areas shiny orange.

*Ventral coloration.* Head including rostral segments (apex of IV pale brown) and legs pale yellowish orange; thorax pale yellowish orange, punctures pale reddish orange; anterior and posterior lobes of metathoracic ostiolar peritreme pale yellow; abdominal sternites III–VI pale yellowish orange, VII pale brown with lateral areas pale yellowish orange; pleural margins of abdominal sterna III–VII yellow; abdominal spiracles with yellowish orange rim; genital capsule black with dark orange marks.

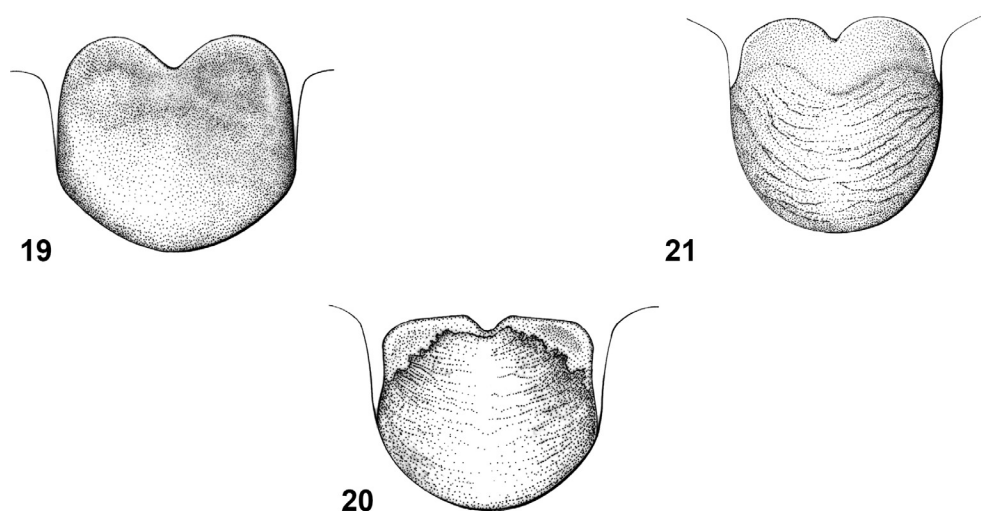
*Structure.* Head. Antenniferous tubercles armed with a short acute spine; rostrum reaching posterior margin of mesosternum. Thorax. Pronotum: anterolateral margins uniformly nodulose; posterolateral margins sinuate, smooth; posterior border straight; triangular process short, rounded, convex, not clearly exposed; anterior lobe rounded, without conical expansion; humeral angles expanded on a medium sized rectangular process, directed outward and upward, apically truncated with borders uniformly nodulose. Legs. Femora armed with two tiny



Figs 1–9. Habitus in dorsal and some in ventral view of *Anasa* spp. 1 – *A. auricularia* Brailovsky, 1985 (female), 2 – *A. bellator* (Fabricius, 1787) (female), 3–4 – *A. cotopaxiana* sp. nov. (female), 5–6 – *A. crinita* sp. nov. (male), 7 – *A. guayaquila* Brailovsky, 1985 (male), 8 – *A. hesperia* Brailovsky, 1985 (female), 9 – *A. humerata* sp. nov. (female).



Figs 10–18. Habitus in dorsal view of *Anasa* spp. 10 – *A. maculiventris* Stål, 1854 (female), 11 – *A. mimetica* Brailovsky, 1985 (female), 12 – *A. onorei* Brailovsky & Barrera, 2009 (female), 13 – *A. rapax* Brailovsky & Barrera, 2009 (female), 14 – *A. scitula* Brailovsky & Barrera, 2000 (female), 15 – *A. scorbutica* (Fabricius, 1775) (male), 16 – *A. sibilica* Brailovsky, 1985 (male), 17 – *A. trilineata* Stål, 1870 (female), 18 – *A. umbrina* Brailovsky, 1985 (male).



Figs 19–21. Male genital capsule of *Anasa* spp. in caudal view. 19 – *A. crinita* sp. nov., 20 – *A. cotopaxiana* sp. nov., 21 – *A. humerata* sp. nov.

subapical spiniform tubercles. Genital capsule. Posteroventral edge with small “V”-shaped concavity at middle third (Fig. 21).

**Measurements** (mm). Total body length 11.13. Head length 1.32; width across eyes 1.64; interocular distance 0.98; interocellar distance 0.46; preocular distance 0.75; antennal segments: I – 2.36, II – 2.64, III – 2.56, IV – 2.24. Pronotal length 2.36; maximum width across humeral angles 4.45. Scutellar length 1.36, width 1.44.

**Female** (Fig. 9). Color and habitus similar to male holotype. Connexival segments III–VI yellow with inner margin pale brown, VII with anterior half yellow and posterior half pale brown, VIII–IX dark brown to black; dorsal abdominal segments III–VI dull orange, VII dull orange with posterior border black, VIII–IX black; genital plates dark orange with diffuse dark brown marks.

**Measurements** (mm). Total body length 13.18. Head length 1.28; width across eyes 1.68; interocular distance 1.00; interocellar distance 0.44; preocular distance 0.75; antennal segments: I – 2.16, II – 2.56, III – 2.64, IV – 2.24. Pronotal length 2.64, maximum width across humeral angles 4.85. Scutellar length 1.52, width 1.64.

**Differential diagnosis.** Very similar to *A. rapax* (Fig. 13) by having antennal segments I–III pale to dark yellowish orange and IV yellow with basal third pale brown; antenniferous tubercles armed with short spine; femora armed; and posteroventral edge of male genital capsule with V-shaped concavity at middle third. The humeral angles on each species are expanded and rectangular but in *A. rapax* they are conspicuously more expanded (Fig. 13), and the connexival segments III–VI are dark orange with upper angle and anterior third yellow. In *A. humerata* sp. nov., the expansion of the humeral angles is shorter (Fig. 9) and connexival



segments III–VI are uniformly yellow (yellow with inner margins pale brown in females).

**Etymology.** The species epithet is the Latin adjective *humeralus* (-a, -um), meaning shouldered, given in reference to the distinct development of the humeral angles of pronotum.

**Distribution.** Ecuador.

*Anasa crinita* sp. nov.

(Figs 5–6, 19)

**Type material.** HOLOTYPE: ♂, **ECUADOR: TUNGURAHUA:** Baños, 1900 m, 29.iv.1930, W. M. Clarke Macintyre (USNM). PARATYPE: 1 ♂, same data as holotype (UNAM).

**Description.** *Male* (holotype). *Dorsal coloration* (Fig. 5). Head dark orange with upper margin of postocular tubercle, two irregular stripes running lateral to midline, ocellar tubercle, and vertex dark brown; inner surface of antenniferous tubercle pale yellow; antennal segment I pale yellow, II–III pale yellow with apical third pale castaneous, and IV with basal half dark brown, and apical half pale castaneous; antennal segments I to III with scattered pale red granules; pronotum, scutellum, clavus and corium dark brownish black with posterolateral and posterior border of pronotal disk, lateral border and apex of scutellar disk, inner border of clavus including the claval commissure and the costal border of corium dark yellow ochre; hemelytral membrane brown with veins darker; upper margin of connexival segments III–VI yellowish orange, and inner margin brown with anterior and posterior border yellowish orange; segment VII brownish black with posterior border yellow; abdominal segments black.

*Ventral coloration* (Fig. 6). Head including the bucculae pale creamy yellow, with outer margin, including the postocular tubercle and juga shiny black; rostral segment I pale creamy yellow, II–IV yellowish orange (apex of IV brown); thorax shiny black with wide creamy yellow stripe that covers the acetabula and the anterior and posterior lobes of metathoracic ostiolar peritreme; pro-, meso-, and metasternum dark brown; legs pale yellowish orange; femora with scattered pale red granules; abdominal sternite III–VI with wide creamy yellow stripe delineated on the sides by a wide shiny black longitudinal stripe; middle third of abdominal sternite III–V and anterior margin of VI with dull brownish stripe; sternite VII shiny black with anterior margin yellow; pleural margins III–VII dark yellow; rim of abdominal spiracle brown; male genital capsule shiny black.

*Structure.* Body slightly flattened dorsoventrally. Head. Antenniferous tubercles unarmed; rostrum reaching posterior border of mesosternum. Thorax. Pronotum: anterior angles unarmed, rounded, not exposed; anterolateral margins crenulate, with humeral border smooth; humeral angles slightly expanded laterally; posterolateral borders with outer third crenulate, and inner third smooth; posterior border straight, smooth; triangular process absent; legs unarmed. Genital capsule. Posteroventral edge with wide “V”-shaped concavity at middle third (Fig. 19).

*Measurements* (mm). Total body length 10.78. Head length 1.36; width across eyes 1.68; interocular distance 0.94; interocellar distance 0.40; preocular distance 0.83; antennal segments: I – 1.60, II – 2.04, III – 1.80, IV – 1.88. Pronotal length 2.24; maximum width across humeral angles 4.12. Scutellar length 1.28; width 1.44.

**Female.** Unknown.

**Differential diagnosis.** This new species runs to couplet 52 in the key of BRAILOVSKY (1985) and shares with *A. discifera* from Colombia and Venezuela and *A. flavovittata* from Costa Rica and Panama, the unarmed antenniferous tubercles and femora; thorax and abdominal sterna provided with a wide creamy yellow stripe that covers the acetabula and is delineated on the sides by a wide or narrow shiny or dull black or pale orange longitudinal stripe; head dorsally without two black, complete longitudinal stripes; anterolateral margins of pronotum finely crenulated; antennal segments II–III yellowish orange without black rings; femora of the three pairs of legs concolorous and never with black discoidal patches; and humeral angles slightly exposed laterally. In *A. crinita* the color of the pronotum, scutellum, clavus and corium are mostly entirely dark brownish black; the thorax and abdominal sterna creamy yellow and laterally delineated by a wide, shiny black longitudinal stripe; abdominal sternite VII is shiny black with anterior margin yellow; the dorsal abdominal segments III–V are black; the anterior angle of pronotal disk unarmed, rounded; and the hemelytral membrane brown with veins darker. In *A. discifera* and *A. flavovittata* the color of the pronotum, scutellum, clavus and corium are mostly pale yellowish orange with punctures reddish brown; and having the anterior angle of pronotal disk armed with a short acute spine. In *A. discifera*, the thorax and abdominal sterna are creamy yellow, delineated on the sides by a slender dull brownish black longitudinal stripe, and the abdominal sternite VII is yellow or with a tiny black spot. In *A. flavovittata*, the thorax and abdominal sterna are creamy yellow to yellow and laterally delineated on the sides by a wide, pale orange longitudinal stripe, the abdominal sternite VII is entirely yellow, dorsal abdominal segments III–V yellow, and hemelytral membrane pale brown with dark brown discoidal spots irregularly scattered.

**Etymology.** The species epithet is the Latin adjective *crinitus* (*-a, -um*), meaning hairy, long-haired, in reference to the short setae that irregularly cover its dorsal surface.

**Distribution.** Ecuador.

*Anasa cotopaxiana* sp. nov.

(Figs 3–4, 20)

**Type material.** HOLOTYPE: ♀, ECUADOR: COTOPAXI: Calupina, vii.1987, G. Onore (PUCE). PARATYPES: ECUADOR: COTOPAXI: Calupina, vii.1987, 1 ♂, G. Onore (UNAM). PICHINCHA: Tandapi, 17.vi.1965, 1 ♂, L. E. Peña (BMNH).

**Description.** *Female* (holotype). *Dorsal coloration* (Fig. 3). Head dark yellowish ochre, punctures and ocellar tubercle reddish brown; antennal segment I pale castaneous, segment II pale castaneous with tubercles pale reddish brown and apical third dark brown, III black with basal and apical joint pale yellow to yellowish white, and IV black with basal joint pale yellow to yellowish white and apical third dark castaneous; pronotal disk dark yellowish ochre, punctures and humeral plate including the humeral angles reddish brown; anterior border and anterolateral borders (except humeral plate) pale yellow; scutellum pale yellow, punctures reddish brown; basal half of clavus pale castaneous, punctures reddish brown, and outer margin black; apical half of clavus black except for the dark ochre claval commissure; corium pale castaneous with a black irregular spot near endocorium; costal margin entirely pale castaneous; hemelytral membrane dark brown; connexivum pale castaneous with

a large and irregular black spot close to the middle third of each segment; dorsal surface of abdominal segments black.

**Ventral coloration** (Fig. 4). Head pale yellowish with middle third black; rostral segments pale yellowish castaneous (apex of segment IV brown); thorax with a wide longitudinal, creamy yellow stripe that covers the acetabula and the anterior and posterior lobes of metathoracic ostiolar peritreme, and is delineated on the outer sides by a narrow black stripe; pro-, meso-, and metasternum black; pro-, meso-, and metapleura pale yellowish castaneous, punctures reddish brown; legs yellow, femora and tibiae with scattered pale castaneous orange granules; abdominal sterna III–VI with wide longitudinal, creamy yellow stripe, delineated on the outer sides by a narrow black irregular stripe; abdominal sternites III and IV with a black narrow stripe interrupted near the posterior margin of sternite IV; abdominal sterna laterally pale castaneous orange; pleural margin pale castaneous orange with a large and irregular pale brown spot close to middle third; abdominal sternite VII pale castaneous orange with a wide brown spot at middle third; gonocoxae I and paratergites VIII and IX brown with borders pale castaneous.

**Structure.** Body slightly flattened dorsoventrally. Head. Antenniferous tubercles unarmed; rostrum reaching posterior border of mesosternum. Thorax. Anterior angle with short conical acute projection; anterolateral margins finely crenulate, with humeral borders smooth; humeral angles slightly expanded laterally; posterolateral borders with outer third crenulate and inner third smooth; posterior border straight; triangular process absent; legs unarmed.

**Measurements** (mm). Total body length 13.38. Head length 1.28; width across eyes 1.64; interocular distance 0.92; interocellar distance 0.40; preocular distance 0.77; antennal segments: I – 1.84, II – 2.16, III – 1.95, IV – 1.92. Pronotal length 2.52; maximum width across humeral angles 5.48. Scutellar length 1.84; width 2.12.

**Male.** Color and habitus similar to female holotype. Thorax and abdominal sterna III–VII with a wide longitudinal, creamy yellow stripe that covers the acetabula and anterior and posterior lobes of metathoracic peritreme and is delineated on the sides by wide castaneous stripe; pleural margins creamy yellow; middle third of abdominal sternite III–VII with a narrow interrupted brown stripe. Genital capsule shiny black with posteroventral edge creamy yellow; posteroventral edge with deep “U”-shaped concavity at middle third (Fig. 20).

**Measurements** (mm). Total body length 11.42. Head length 1.32; width across eyes 1.56; interocular distance 0.78; interocellar distance 0.40; preocular distance 0.73; antennal segments: I – 1.72, II – 2.00, III – 1.80, IV – 1.74. Pronotal length 2.32; maximum width across humeral angles 4.44. Scutellar length 1.20; width 1.36.

**Differential diagnosis.** The new species is similar to *A. discifera*, *A. flavovittata*, and *A. crinita*, by having the thorax and abdominal sterna with a wide longitudinal, creamy yellow stripe that covers the acetabula and the anterior and posterior lobe of metathoracic ostiolar peritreme and is delineated on the outer sides by a narrow black or by wide castaneous orange stripe, and with the antenniferous tubercles and femora unarmed. In *A. cotopaxiana*, the antennal segment III is black with basal and apical joints pale yellow to creamy yellow; antennal segment IV black with basal joint pale yellow to creamy yellow and apical third dark castaneous; pronotal disk, scutellum, clavus and corium mostly dark yellowish ochre to pale yellow or pale castaneous with only the punctures and an irregular spot near the endocorium



black; anterior angle of pronotal disk with short conical projection; clavus bicolorous, anterior half pale castaneous with inner border black and posterior half black; hemelytral membrane dark brown; and male genital capsule shiny black with posteroventral edge creamy yellow.

In *A. discifera*, the antennal segment III is pale yellow, and IV with basal half pale brown and apical half pale yellow with apex brown; hemelytral membrane pale brown with veins darker; corium pale yellow without irregular black spot near endocorium. *Anasa flavovittata*, like *A. cotopaxiana* has the anterior margin of pronotal disk with an acute projection, on both the antennal segment III is pale yellow, and segment IV entirely reddish brown or castaneous orange; clavus and corium uniformly pale yellowish castaneous; humeral angles expanded, directed outward; and hemelytral membrane pale brown with dark brown discoidal spots, irregularly scattered. *Anasa crinita*, like *A. discifera* and *A. flavovittata*, has a uniformly pale yellowish castaneous clavus.

**Etymology.** The species epithet is the latinized adjective *cotopaxianus* (-a, -um) given after the type locality, Cotopaxi.

**Distribution.** Ecuador.

### Key to the species of *Anasa* known from Ecuador

- 1 Antenniferous tubercle unarmed or at most with some nodular processes. .... 2
  - Antenniferous tubercle armed. .... 4
- 2 Thoracic pleura and abdominal sterna with a wide, longitudinal, creamy yellow stripe that covers the acetabula and is delineated on the sides by a wide brown or dark orange or dark castaneous stripe; scutellum black or pale yellow; antennal segment I pale yellow. .... 3
  - Thoracic pleura and abdominal sterna without longitudinal, creamy yellow stripe; scutellum shiny yellow; antennal segment I black (Fig. 14). .... *A. scitula* Brailovsky & Barrera, 2000
- 3 Antennal segment III black with basal and apical joints pale yellow to yellowish white; scutellum pale yellow, punctures reddish brown; basal half of clavus pale castaneous, punctures reddish brown and outer margin black; apical half of clavus black with claval commissure dark ochre; corium pale castaneous with black irregular spot near to middle third of endocorium (Figs 3–4). .... *A. cotopaxiana* sp. nov.
  - Antennal segment III pale yellow with apical third pale castaneous; pronotum, scutellum, clavus and corium mostly black to dark brown (Figs 5–6). .... *A. crinita* sp. nov.
- 4 Antennal segments II and III yellow with two black rings, one subbasal and the other subdistal (Fig. 2). .... *A. bellator* (Fabricius, 1787)
  - Antennal segments II and III without black rings. .... 5
- 5 Antenniferous tubercles armed with a forked spine, the divisions are of almost equal length (Fig. 7). .... *A. guayaquila* Brailovsky, 1985
  - Antenniferous tubercles never armed with a forked spine. .... 6
- 6 All femora unarmed. .... 7
  - All femora armed. .... 8

- 7 Antenniferous tubercle armed with a long spine, the length of which is equivalent to one third of the total length of antennal segment I (Fig. 15). ..... *A. scorbutica* (Fabricius, 1775) (in part)
- Antenniferous tubercle armed with small spine, just reaching the base of antennal segment I (Fig. 17). ..... *A. trilineata* Stål, 1870
- 8 Antenniferous tubercle armed with a long spine, the length of which is equivalent to one third of the total length of antennal segment I. .... 9
- Antenniferous tubercle armed with small or medium-sized spine, reaching base or just beyond. .... 10
- 9 Humeral angles of pronotum projected in a sheet-like process, pointing out and backwards with the tip almost sharp (Fig. 1). ..... *A. auricularia* Brailovsky, 1985
- Humeral angles of pronotum rounded, convex, slightly exposed and weakly projected outward and upward (Fig. 15). ..... *A. scorbutica* (Fabricius, 1775) (in part)
- 10 Humeral angles of pronotum rectangular and apically truncate, and directed outward, upward and usually forward. .... 11
- Humeral angles of pronotum triangular or apically rounded or acute, never apically truncate, and usually directed outward, upward, and slightly forward. .... 12
- 11 Connexival segments III–VI dark orange with upper angle and anterior third yellow; rectangular humeral angles long, directed outward and upward (Fig. 13). ..... *A. rapax* Brailovsky & Barrera, 2009
- Connexival segments III–VI uniformly yellow (in females yellow with inner margins pale brown); rectangular humeral angles shorter, directed outward, upward and slightly forward (Fig. 9). ..... *A. humerata* sp. nov.
- 12 Humeral angles of pronotum long, apically acute and pointing outward, upward and slightly forward. .... 13
- Humeral angles of pronotum shorter, apically rounded, and pointing only outward and upward. .... 14
- 13 Hind femora bicolorous, anterior half shiny pale dark orange and posterior half black; each connexival segment with a black quadrangular spot located on posterior half below dorsal margin; margin between metapleura and abdomen with a black quadrangular spot on posterior half below dorsal margin (Fig. 12). ..... *A. onorei* Brailovsky & Barrera, 2009
- Hind femora uniformly black to reddish brown; connexival segments without black spots; margin between metapleura and abdomen without a black spot (Fig. 8). ..... *A. hesperia* Brailovsky, 1985
- 14 Hind femora bicolorous. .... 15
- Hind femora concolorous. .... 16
- 15 Connexivum mostly black with anterior margin yellow; fore and middle femora concolorous; humeral angles without an acute projection (Fig. 11). ..... *A. mimetica* Brailovsky, 1985
- Connexivum mostly pale yellow with posterior margin black; fore and middle femora bicolorous; humeral angles with a short, acute projection (Fig. 10). ..... *A. maculiventris* Stål, 1854

- 16 Antennal segment IV yellow with basal third brown; connexivum brown with anterior margin yellow (Fig. 16). ..... *A. siblica* Brailovsky, 1985
- Antennal segment IV uniformly dark reddish brown; connexivum dark orange with brown reflections (Fig. 18). ..... *A. umbrina* Brailovsky, 1985

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