South American Coccinellidae (Coleoptera), Part XIX: Overview of Cryptognathini and systematic revision of South American *Cryptognatha* Mulsant

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Abstract. Genera of Cryptognathini (Coleoptera: Coccinellidae) are discussed and a key to all recognized genera is provided. Cryptognatha is revised, and species of this genus are keyed. New species, authored by González and Hanley, are Cryptognatha pam, C. kellie, C. hannah, C. whitney, C. karla, C. celia, C. sheila, C. gayle, C. della and C. vicki. The following new synonymies are proposed: Cryptognatha simillima Sicard = Cryptognatha gemellata Mulsant, Cryptognatha fryii Crotch = Cryptognatha pudibunda Mulsant, Cryptognatha bryanti Brèthes = Cryptognatha pudibunda Mulsant. Lectotypes are here designated for Cryptognatha amicta Gorham, C. weisei Brèthes, C. pudibunda Mulsant and C. fryii Crotch.

Key words. Systematics; keys; illustrations; taxonomy; new species.

Introduction

Cryptognathini are not particularly distinctive among coccinellid tribes because they lack a single obvious identifying character. A combination of characters renders this tribe recognizable; among these are five visible abdominal ventrites, a glabrous body, the head at least partially concealed by the prothorax in some genera, a short, compact antenna, and a securiform maxillary palpus. It is a primarily Neotropical tribe, without apparent Old World relatives, and is known from Mexico, Central America, and South America.

The following is a revision of Cryptognatha containing comments on Cryptognathini as a whole. Following publications will be treatments of all remaining genera without tribal comments.

Nomenclatural history

Mulsant (1850) first described a member of this tribe as Cryptognatha auriculata, along with two other species, and described the genera Oeneis and Pentilia. Crotch (1874) included Cryptognatha Mulsant and Pentilia Mulsant in his subfamily Chilocorides. Korschefsky (1931) treated Oeneis Mulsant as a valid genus, placing it and Cryptognatha in the tribe Oeneini, and placing Pentilia in Pentiliini. Chapin (1940) pointed out that Oeneis was a preoccupied name but did not propose a replacement name. Blackwelder (1945) considered Oeneis a synonym of Cryptognatha in the tribe Oeneini and placed all genera other than Cryptognatha in other tribes. Chapin (1955) proposed Dargo as a new name for the preoccupied Oeneis and stated that the type species of Oeneis, O. nigrans Mulsant, might belong in what is now known as Delphastus Casey, a member of the Serangini.
Gordon (1971) recognized Cryptognathini as having priority over the tribes Oeneini and Pentiliini, and proposed the genus Delphastopis (as a replacement for Oeneis, Cryptogath, Pentilia and the new genus Curticornis). A specimen labeled O. nigrans Mulsant from Brazil (type locality) in the Korschelsky collection has been dissected and is an Oeneis, as is another Brazilian specimen labeled as O. nigrans. Dissection of the type specimen of Delphastus amazonica shows it is congeneric with Oeneis, thus making Delphastopis available to replace the preoccupied Oeneis and making Dargo Chapin unnecessary. However, Calloeneis Grote, 1873 is the earliest replacement name for Oeneis, as pointed out by Belicek (1976), and is used herein.

This tribal study is split into individual publications, each treating a different genus. All types were examined regardless of supposed generic assignments, because authors subsequent to Mulsant (1850) often assigned specific taxa to incorrect genera, either by mistake or due to differing generic concepts.

Materials and Methods

Biology. Prey records are rare for members of Cryptognathini. Label data for examples of Calloeneis amazonica list “diaspine scale” as prey. Label data for Calloeneis bennetti list Aspidiotus destructor Signoret as prey. Other label data list Pinnaspis aspidistre and Selenaspis articulatus (Diaspididae) for Cryptogath auriculata, Aspidiotus destructor and Pinnaspis aspidistre (Diaspididae) for Pentilia bernardette, and Pinnaspis aspidistre and Coccus hesperidium (Coccidae) for Pentilia chelsea, showing a marked predilection for Coccoidea, especially Diaspididae. Some species of Cryptognathini have been considered agents of biological control, consuming species considered important pests. Cryptogath nodiceps was used in biological control programs against Aspidiotus destructor (Signoret), and was introduced in the Fiji Islands from Trinidad in 1928 to control coconut scale, obtaining a spectacular result. In only nine months the scale was reduced to a level without agricultural importance, and within 18 months became almost undetectable in the islands. Later it was introduced with the same purpose on Principe Island, Florida, Puerto Rico, the Dominican Republic, St. Kitts and Nevis with similar results (Fisher et al. 1999). Pentilia egena has been studied in Brazil, where it has become one of the most important predators of citrus armored scales such as Selenaspis articulatus Morgan, Parlatoria pergandii Comstock, Parlatoria cinerea Deane and Hadden, Chrysomphalus aonidum L. and Unaspis citri Comstock (Guerreiro et al. 2003). This species has been reared on Chrysomphalus ficus (Diaspididae).

Diagnostic characters. Coccinellidae morphological structures, both external and internal, were discussed and illustrated by Gordon (1985) and Gordon et al. (2013). Some of the same terminology is used here, but changes have been made to conform to terminology used by Slipinski (2007) and Seago et al. (2011), which should be consulted for clarification. A few Cryptognathini characters merit explanation below.

Color. Particularly the dorsal pattern is significant and a primary distinguishing character. Discrete maculation is often present, but differentiation in the base color is also useful.

Head. Width and shape of the frons and clypeus are quite distinctive and uniform for each genus. Prosternum. It is expanded to conceal the mouthparts in Cryptogath and Calloeneis, and reduced to a short strap in Pentilia and Curticornis. There is little variation among species, but these characters are consistent within each genus.

Epipleuron. Strongly descending in Cryptogath and Pentilia, not or slightly descending in Curticornis and Calloeneis.

Male genitalia. The penis guide is symmetrical and of the same general type found in many taxa of coccinellidiae. Species in all genera are generally arranged by genitalic similarities.

Dissections. Both sexes should be dissected when examining specimens of Cryptognathini. A specific technique consists of softening a specimen in hot water, removing the abdomen, placing it in a dilute solution of potassium or sodium hydroxide until muscle and fat are removed, rinsing the abdomen and genitalic structures in clean water, and placing the cleaned structures in glycerin for examination. Genitalia may be stored in several ways, but for this study they were stored in glycerin in microvials.

Types. Lectotypes for many species are designated to stabilize current classification for future
researchers. Lectotype labels were affixed to specimens so designated throughout. Type specimens were examined for most specific taxa unless otherwise indicated. Detailed information is included under “Type locality” and “Type material”.

Names. Traditional methods of selecting names were not used. Instead, names were formed as nouns in apposition using female given names, except where otherwise noted.

Locality records. Locality records listed in the text were taken from specimens actually examined; published records were not accepted because genitalia were not examined by previous authors. All information listed for new taxa is given exactly as it appears on labels, with notation of any obviously incorrect spelling.

Collection codes. Specimens were borrowed from several institutions for this study. The following acronyms denote depositories for specimens used herein.

BMNH Natural History Museum, London, UK
CMNH Carnegie Museum of Natural History, Pittsburgh, PA, USA
CPGG Guillermo González, Personal Collection, Santiago, Chile
INBP Inventario Biológico Nacional, Museo Nacional de Historia Natural del Paraguay, Asunción, Paraguay
MUSM Museo de Historia Natural de la Universidad Nacional Mayor de San Marcos, Lima, Peru
USNM United States National Museum of Natural History, Smithsonian Institution, Washington, DC, USA.

González and Hanley are authors of all taxa here described.

Systematics

Cryptognathini Gordon

Cryptognathaires Mulsant 1850: 496.
Pentiliares Mulsant 1850: 501 (in part).
Chilocorides Crotch 1874: XII (in part).
Oeneiini Casey 1899: 74.

Coccinellidae with body form rounded, surface glabrous. Head directed ventrally or slightly posteriorly, usually at least partly concealed behind prosternum; antenna short, compact, extending less than 1/2 distance to posterolateral angle of pronotum, with 8–10 articles; maxillary palpus with apical article ovate to broadly expanded. Prosternum narrow, not produced, or widely produced in front of procoxae. Epipleuron strongly descending externally or nearly horizontal, deeply foveate for reception of femoral apices. Metasternum and basal abdominal sternum deeply impressed for reception of femora. Leg with femora and tibia expanded, modified for reception of tibiae and tarsi, proleg with tibia strongly modified; tarsal claw feebly toothed basally. Abdomen with 5 visible ventrites, male ventrite 5 unmodified, identical to female ventrite 5; postcoxal line incomplete. Male genitalia simple, of basic coccinellid type, all structures symmetrical. Female genitalia simple, of standard coccinellid type with curved spermathecal capsule and no apparent accessory gland.

Key to genera of Cryptognathini

1. Prosternum strongly produced anteriorly, concealing mouthparts in repose (Fig. 117, 120) . . 2
   — Prosternum not strongly produced anteriorly, not concealing mouthparts in repose (Fig. 123, 126) ...................................................... 3

2. Antenna with 8 articles; anterior clypeal margin truncate or arcuate (Fig. 118); elytral epipleuron weakly descending externally (Fig. 119), often horizontal; lateral prosternal carina long,
extended from apex of prosternal process to lateral margin of prosternum ............................... Calloeneis Grote

— Antenna usually with 10, sometimes 9 articles; anterior clypeal margin truncate or nearly so, anterior angle usually abrupt, curved upward (Fig. 115, 117); elytral epipleuron strongly descending externally (Fig. 116); lateral prosternal carina short, not extended to lateral margin of prosternum ........................... Cryptognatha Mulsant

3. Elytral epipleuron strongly descending externally (Fig. 122); eye slightly notched by expanded clypeus (Fig. 121); clypeus recurved (Fig. 123). .................... Pentilia Mulsant

— Elytral epipleuron nearly horizontal, not strongly descending externally (Fig. 125); eye nearly completely divided by expanded clypeus (Fig. 124, 126); clypeus flat, not recurved ........................................ Curticornis Gordon

Cryptognatha Mulsant


Type species. Cryptognatha auriculata Mulsant, 1850; subsequent designation by Crotch (1874).

Description. Cryptognathini with anterior margin of clypeus margin truncate or nearly so, anterior angle upturned, usually acute (Fig. 117); antenna usually with 10 articles, sometimes with 9 articles, club with 4 articles, maxillary palpus with apical article widened apically (Fig. 93). Prosternum approximately as long as 1/3 of basal ventrite, wide anterior to coxae, completely concealing mouthparts in repose (Fig. 117); prosternal carina short, not reaching lateral margin of prosternum. Epipleuron strongly descending externally (Fig. 116). Proleg with tibia strongly expanded for reception of tarsus, outer margin sinuate or angulate, as wide as femur or slightly narrower, femur notched for reception of tibia (Fig. 23, 28). Meso- and metatibia less strongly expanded, grooved on outer margin for reception of tarsi, femur narrow, notched for reception of tibia. Abdomen with postcoxal line incomplete, extended nearly to lateral margin of abdomen. Male genitalia unmodified, of basic Coccinellidae type. Female genital plate with stylus and stiff setae; spermatheca curved, narrowed from base to apex (Fig. 17, 109).

Remarks. Cryptognatha is clearly defined by key characters. An apically truncate or slightly arcuate clypeus with upturned anterior angles is the most significant character, along with an anteriorly expanded prosternum concealing the mouthparts and a strongly expanded protibia with sinuate outer margin. Species descriptions list the head as impunctate, however, punctures are present but concealed in a dense alutaceous sculpture.

Cryptognatha nigrans Mulsant is not included in the text because the type(s) cannot be located. Mulsant (1850) indicated they were in the Melly collection, at least parts of which are in the Muséum d’Histoire Naturelle, Geneva. However, the type(s) of C. nigrans could not be located there (G. Cuccodoro, pers. comm). Similarly, type(s) of C. obscura Mulsant. stated by Mulsant (1850) to be in the collection of Germar and Schaum, could not be located. Type material of Cryptognatha amabilis Gorham is not present in the BMNH and cannot be located elsewhere, hence it is not included in the present publication.

Members of this genus may be grouped based on type of male genitalia. For example, C. auriculata Mulsant, C. gemellata Mulsant and several other species possess apparently identical or extremely similar male genitalia. Species groups are defined as follows:

auriculata group. This group contains those species with length nearly always more than 2.2 mm, male genitalia long, penide guide long, side parallel, apical 1/8 abruptly narrowed to rounded split off apex (Fig. 4, 11, 18), prosternal carina short or moderately long, rarely curved, female genitalia with base of sperm duct not sclerotized.

reedi group. Length in this species group is usually less than 2.2 mm, male genitalia with penide guide short, lobe more or less tapered from base to nearly acute or abruptly rounded apex (Fig. 51, 75, 79), prosternal carina long, usually curved outward, female genitalia with base of sperm duct sclerotized in at least two species (Fig. 98).
Key to Cryptognatha species

1. Elytron immaculate, entirely yellow, brownish yellow, or black ................................................... 2
   — Elytron maculate, with pale maculae on dark background, or with dark maculae on pale background ................................................ 3

2(1). Elytron entirely yellow, brownish yellow (Fig. 1) ...................................................... 1. C. auriculata Mulsant
   — Elytron entirely black ........................................................................................................ 13

3(1). Elytron with pale maculae on dark background ...................................................... 9
   — Elytron with dark maculae on pale background .................................................... 4

4(3). Maculae simple, usually single macula on lateral margin, occasionally with indistinct macula on sutural basal border ................................................... 5
   — Maculae composed of multiple maculae on elytral surface ........................................ 7

5(4). Maculae consisting of short, dark maculae on lateral border outside of humeral callus and sometimes with indistinct sutural macula in basal 1/2 (Fig. 55). ................................................................. 10. C. karla González and Hanley, n. sp.
   — Maculae consisting of single, complete macula on or near lateral margin from base of elytron to sutural margin in apical 1/2. .................................................... 6

6(5). Lateral macula wide, reaching lateral margin (Fig. 26) ............................................. 5. C. amicta Gorham
   — Lateral macula separated from lateral margin (Fig. 21) ........................................ 4. C. pam González and Hanley, n. sp.

7(4). Maculae consisting of two short vittae in basal 1/2 of elytron, single macula in apical 1/2, and irregular sutural macula (Fig. 15) .................................................... 3. C. gemellata Mulsant
   — Maculae differently arranged ......................................................................................... 8

8(7). Dorsal pattern consisting of single large macula on basal 1/2 of elytron, two small maculae in basal apical 1/2, and irregular sutural vitta (Fig. 110) ................................................................. 21. C. vicki González and Hanley, n. sp.
   — Dorsal pattern consisting of irregularly arranged vittae with three more or less fused vittae in basal 1/2 becoming an irregular, large macula in basal 1/2 (Fig. 8) ........................................ 2. C. nodiceps Marshall

9(3). Elytron mostly dark with lateral margin pale ................................................................. 10
   — Elytron with distinct central color pattern .................................................................. 12

10(9). Pale lateral margin of elytron wide, reddish yellow; pronotum entirely yellowish red (Fig. 106) ................................................................. 20. C. della González and Hanley, n. sp.
   — Pale lateral margin of elytron narrow, yellow; pronotum yellow with basomedian black macula ............................................................................................................. 11

11(10). Lateral margin on elytron sharply defined (Fig. 40); Peru ........................................ 7. C. hannah González and Hanley, n. sp.
   — Lateral margin on elytron obscure defined (Fig. 32); Guyana ........................................ 6. C. kellie González and Hanley, n. sp.

12(9). Elytron with basal 1/2 dark brown, apical 1/2 yellow (Fig. 49) ................. 9. C. reedi Crotch
   — Elytron with elongate yellow macula next to scutellar shield, macula narrowly extended posteriorly parallel to suture ending in triangular macula at base of apical declivity (Fig. 103) ................................................................. 19. C. gayle González and Hanley, n. sp.

13(2). Pronotum entirely or mostly yellow ................................................................. 14
   — Pronotum mostly dark brown or black .................................................................. 15

14(13). Pronotum entirely yellow (Fig. 99); Brazil ...................................................... 18. C. batesi Crotch
   — Pronotum mostly yellow with small, apically sinuate basal macula (Fig. 44) ................................................................. 8. C. whitney González and Hanley, n. sp.
15(13). Length 3.4 mm; Colombia (Fig. 113) ........................... 22. *C. aethiops* Crotch

— Length less than 3.4 mm; Brazil .................................................. 16

16(15). Male pronotum with narrow, yellow anterior border (Fig. 82) ...........................

— Male pronotum entirely black or dark brown ................................. 15. *C. shelia* González and Hanley, n. sp.

17(16). Penis guide of male genitalia abruptly narrowed in apical 1/2 (Fig. 75) .............. 18

— Penis guide of male genitalia parallel-sided for most of length, or gradually narrowed in apical 1/2 (Fig. 70) ................................................................. 20

18(17). Penis guide of male genitalia much shorter than paramere, apex very acute (Fig. 75, 76)............ 13. *C. flaviceps* Crotch

— Penis guide of male genitalia about as long as paramere .................. 19

19(18). Penis guide with apex rounded (Fig. 79), weakly curved downward in lateral view (Fig. 80) ................................................................. 14. *C. weisei* Brethes

— Penis guide of male genitalia abruptly narrowed (Fig. 64), sinuate in lateral view (Fig. 64) ........ 11. *C. clarki* Crotch

20(17). Penis guide of male genitalia about as long as paramere, oval, slightly widened in apical 1/2, then narrowed to weakly emarginate apex (Fig. 70) ................................................................. 12. *C. celia* González and Hanley, n. sp.

— Penis guide of male genitalia long slender ........................................... 21

21(20). Male genitalia with phallobase long, penis guide slightly longer than paramere, slender, evenly narrowed from base to abruptly rounded apex (Fig. 88) ................................................................. 16. *C. yolandi* González and Hanley, n. sp.

— Male genitalia elongate, penis guide about as long as paramere, oval, sides parallel in basal 1/2, curved to rounded apex in apical 1/2 (Fig. 95)......................... 17. *C. pudibunda* Mulsant

List of South American species of *Cryptognatha* (in order of text)

**auriculata group**

1. *C. auriculata* Mulsant (Fig. 1–7)
2. *C. nodiceps* Marshall (Fig. 8–14)
3. *C. gemellata* Mulsant (Fig. 15–20)
   
   *C. simillima* Sicard, new synonym
4. *C. pam* González and Hanley, new species (Fig. 21–25)
5. *C. amicta* Gorham (Fig. 26–31)
6. *C. kellie* González and Hanley, new species (Fig. 32–39)
7. *C. hannah* González and Hanley, new species (Fig. 40–43)
8. *C. whitney* González and Hanley, new species (Fig. 44–48)

**reedi group**

9. *C. reedi* Crotch (Fig. 49–54)
10. *C. karla* González and Hanley, new species (Fig. 55–61)
11. *C. clarki* Crotch (Fig. 62–66)
12. *C. celia* González and Hanley, new species (Fig. 67–72)
13. *C. flaviceps* Crotch (Fig. 73–76)
14. *C. weisei* Brèthes (Fig. 77–81)
15. *C. shelia* González and Hanley, new species (Fig. 82–85)
16. *C. yolandi* Crotch (Fig. 86–90)
17. *C. pudibunda* Mulsant (Fig. 91–98)
   
   *C. fryii* Crotch, new synonym
   *C. bryanti* Brèthes, new synonym
18. *C. batesi* Crotch (Fig. 99–102)
species not assignable to a group

19. *C. gayle* González and Hanley, new species (Fig. 103–105)

20. *C. della* González and Hanley, new species (Fig. 106–109)

21. *C. vicki* González and Hanley, new species (Fig. 110–112)

22. *C. aethiops* Crotch (Fig. 113–114)

auriculata group

1. *Cryptognatha auriculata* Mulsant


**Description.** Male. Length 2.5 mm, width 2.3 mm. Dorsal surface shiny except elytron with faint trace of microsculpture. Color pale brownish yellow (Fig. 1); head, anterior 1/3, lateral 1/4 of pronotum pale yellow, pale area weakly indenting basal black macula medially (Fig. 2). Head without punctures; pronotal punctures small, separated by less than a diameter; elytral punctures slightly larger than on pronotum, separated by a diameter or less; prosternal punctures small, separated by less than a diameter; meso- and metasternal punctures large, separated by a diameter or less on mesosternum, widely separated on median 1/3 of metasternum, lateral 1/3 without punctures; basal abdominal ventrite with coarse punctures separated by about a diameter, lateral 1/3 of ventrite and ventrites 2–4 lacking punctuation, ventrite 5 with dense, fine punctuation. Head with frons parallel-sided, medially depressed, twice as wide as eye, apex truncate medially, lateral 1/8 slightly retracted, angle acute (Fig. 2); eye canthus long, about 1/2 width of eye. Prosternum with lateral carina on each side extended from apex of intercoxal process to midpoint of prosternum. Epipleuron strongly descending externally. Postcoxal line on basal abdominal ventrite evenly curved, extended 3/4 distance to rear margin of ventrite. Genitalia long, penis guide nearly as long as paramere, parallel-sided with apical 1/8 narrowed to rounded apex; paramere slender, parallel-sided, apex rounded (Fig. 4, 5); penis slender, equal in width throughout, apex acute, penis capsule with long, slender inner arm, outer arm short, wide (Fig. 6).

**Female.** Similar to male except head weakly depressed; pronotum entirely brownish yellow medially; head not medially depressed, brownish yellow; genitalia with ramus of spermathecal capsule wide, capsule strongly narrowed to acute apex of cornu (Fig. 7).

**Variation.** Length 2.1 to 3.0 mm, width 1.9 to 2.4 mm. Dorsal color varies from typical to darker reddish brown, darker color most prevalent in specimens from Guyana and Suriname. Some specimens, especially from Peru, have margins of pronota brownish and little noticeable.

**Type locality.** Colombia. Lectotype designated by Gordon (1987). The single paralectotype belongs to *Pentilia*.

**Type depository.** UMZC.

**Geographical distribution.** Colombia, Guyana, Suriname, Peru, Venezuela.

**Specimens examined.** 89. Widely distributed in northern South America.

**Remarks.** This species apparently is distinctive based on dorsal color and comparatively large size. However, male genitalia are not separable from those of several following taxa, thus creating a group of species distinguished mostly by dorsal color pattern.

2. *Cryptognatha nodiceps* Marshall


**Description.** Male. Length 2.6 mm, width 2.6 mm. Dorsal surface entirely shiny. Color yellow (Fig. 8); pronotum with 5 pale brown spots, 2 on disc, 3 along posterior margin; elytron with irregular black
spot occupying most of disc, and elongate longitudinal spot close to sutural margin anterior to middle (Fig. 8). Head without punctures; pronotal punctures small, separated by less than a diameter; elytral punctures slightly larger than on pronotum, separated by less than a diameter to twice a diameter; prosternal punctures small, separated by less than a diameter; meso- and metasternal punctures large, separated by a diameter or less on mesosternum, widely separated on median 1/3 of metasternum, lateral 1/3 without punctures; basal abdominal ventrite with coarse punctures separated by about a diameter medially, lateral 1/3 of ventrite and ventrites 2–4 lacking punctuation, ventrite 5 with dense, fine punctuation. Head with frons parallel-sided, medially depressed, twice as wide as eye, apex truncate medially, lateral 1/8 slightly retracted, angle acute (Fig. 9); eye canthus long, about 1/2 width of eye. Prosternum with lateral carina on each side extended from apex of intercoxal process nearly to midpoint of prosternum. Epipleuron strongly descending externally. Postcoxal line on basal abdominal ventrite evenly curved, extended 3/4 distance to rear margin of ventrite. Genitalia long, penis guide nearly as long as paramere, parallel-sided with apical 1/8 narrowed to rounded apex; paramere slender, parallel-sided, apex rounded (Fig. 11, 12); penis slender, equal in width throughout, apex acute (Fig. 13).

**Female.** Similar to male except head weakly depressed, dark yellow; pronotum brownish yellow medially, lacking brown spots; genitalia with spermathecal capsule slender, evenly curved from ramus to acute apex of cornu (Fig. 14).

**Variation.** Length 2.4 to 2.9 mm, width 2.0 to 2.7 mm. Elytral color highly variable from typical to having disc entirely black with reddish yellow spot near suture posterior to middle.

**Type locality.** Trinidad, Cedros.

**Type depository.** BMNH.

**Geographical distribution.** Guyana, Trinidad.

**Specimens examined.** 44. Distributed throughout Trinidad, also a single specimen examined from Blairmont, Guyana.

**Remarks.** This species has a distinctive dorsal color pattern, but male genitalia appear identical to those of *C. auriculata*.

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### 3. Cryptognatha gemellata Mulsant


**Description. Male.** Length 2.6 mm, width 2.4 mm. Dorsal surface entirely shiny. Color yellow (Fig. 15); pronotum with 7 pale brown spots, 2 on disc, 5 along posterior margin, median spot elongate, spot lateral of middle large, irregular, outer spot small, round; elytron with 3 brown spots and an additional spot on sutural margin on disc narrowly continued to apex, 1 slender, elongate spot medially in anterior 1/2, 1 large humeral spot in anterior 1/2, single large, irregular spot on apical declivity (Fig. 15). Head without punctures; pronotal punctures small, separated by less than a diameter; elytral punctures larger than on pronotum, separated by less than a diameter to twice a diameter; prosternal punctures small, separated by less than a diameter; meso- and metasternal punctures large, separated by a diameter or less on mesosternum, widely separated on median 1/3 of metasternum, lateral 1/3 without punctures; basal abdominal ventrite with coarse punctures separated by about a diameter medially, lateral 1/3 of ventrite and ventrites 2–4 lacking punctuation, ventrite 5 with dense, fine punctuation. Head with frons parallel-sided, medially depressed, twice as wide as eye, apex truncate medially, lateral 1/8 slightly retracted, angle acute (Fig. 16); eye canthus long, about 1/2 width of eye. Prosternum with lateral carina on each side extended from apex of intercoxal process nearly to midpoint of prosternum. Epipleuron strongly descending externally. Postcoxal line on basal abdominal ventrite evenly curved, extended 3/4 distance to rear margin of ventrite. Genitalia long, penis guide nearly as long as paramere, parallel-sided with apical 1/8 narrowed to rounded apex; paramere slender, parallel-sided, apex rounded (Fig. 18, 19); penis slender, equal in width throughout, apex acute (Fig. 20).
Female. Similar to male except head weakly depressed, apical 1/2 of frons obscurely brown; genitalia with capsule wide, evenly curved from wide ramus to abruptly rounded apex of cornu (Fig. 17).

Variation. Length 1.8 to 2.7 mm, width 1.5 to 2.0 mm. Elytral spots with tendency to unite, sometimes with anterior 3 spots partially fused or with spots united to form a single large spot. Sometimes sutural spot pale brown.

Type locality. *C. gemellata*, Mexico? (Mulsant, 1850, questioned the country of origin.); of *C. simillima*, Trinidad.

Type material. *C. gemellata* and *C. simillima*, PMNH. Not examined.

Geographical distribution. Brazil, Colombia, Panama, Peru, Trinidad.

Specimens examined. 31. Widely distributed in Colombia. Brazil. Bonito Province. Peru. Amazonas, Pedro Ruiz; Loreto, Padre Isla. Trinidad. Blanchisseuse; Maracas; Mayaro; Morne Bleu; St. Augustine; Tunapuna.

Remarks. *Cryptognatha gemellata* has a distinctive color pattern, although spots of that pattern tend to fuse, creating some confusion. This is another species of the auriculata group.

*Cryptognatha simillima* Sicard was described from Trinidad and considered a synonym of *C. gemellata* by Chapin (label data), an opinion agreed upon here.

4. *Cryptognatha pam* González and Hanley, new species

Description. Male holotype. Length 2.6 mm, width 2.4 mm; Dorsal surface shiny, elytron with faint trace of microsculpture. Color yellow; pronotum with 5 faint brown spots, 2 on disc, 3 along posterior margin, all spots small, round; elytron with single dark brown vitta extended from base across humeral angle to apex at suture on apical declivity (Fig. 21). Head without punctures; pronotal punctures small, separated by less than a diameter; elytral punctures larger than on pronotum, separated by less than a diameter to twice a diameter; prosternal punctures large, separated by less than a diameter; mesosternal punctures larger than on pronotum, separated by less than a diameter, metasternal punctures large, separated by 2 or 3 times a diameter medially, entirely absent in lateral 1/3; basal abdominal ventrite with coarse punctures separated by about a diameter medially, lateral 1/3 of ventrite and ventrites 2–4 lacking punctuation, ventrite 5 with dense, fine punctuation. Head with frons parallel-sided, medially depressed, twice as wide as eye, apex truncate medially, lateral 1/8 slightly retracted, angle acute (Fig. 22); eye canthus long, about 3/4 width of eye. Prosternum with lateral carina on each side extended from apex of intercoxal process nearly to slightly more than 1/3 length of prosternum. Epipleuron strongly descending externally. Postcoxal line on basal abdominal ventrite evenly curved, extended 3/4 distance to rear margin of ventrite. Genitalia long, penis guide nearly as long as paramere, parallel-sided with apical 1/8 narrowed to rounded apex; paramere slender, parallel-sided, apex rounded (Fig. 24); penis lost.

Female. Similar to male except head weakly depressed; median 1/3 of pronotum entirely light brown; genitalia with spermathecal capsule comparatively slender, tapered from wide ramus to acute apex of cornu.

Variation. None observed.


Remarks. This species has an extremely distinctive dorsal color pattern unlike any other observed in *Cryptognatha*. The three specimens available for observation did not show color variation.
5. Cryptognatha amicta Gorham


Description. Male. Length 3.0 mm, width 2.8 mm. Dorsal surface entirely shiny. Color yellow; pronotum with black basal maculae in basal 3/8, yellow area weakly indenting basal black macula medially; elytron with complete macula on lateral margin from base of elytron to sutural margin, apical margin of elytron narrowly yellowish red (Fig. 26); ventral surface pale yellowish brown. Head without punctures; pronotal punctures small, separated by less than a diameter; elytral punctures larger than on pronotum, separated by less than a diameter to twice a diameter; prosternal punctures small, separated by less than a diameter; meso- and metasternal punctures large, separated by a diameter or less on mesosternum, widely separated in median 1/3 of metasternum, lateral 1/3 without punctures; basal abdominal ventrite with coarse punctures separated by about a diameter medially, lateral 1/3 of ventrite and ventrites 2–4 lacking punctuation, ventrite 5 with dense, fine punctuation. Head with frons parallel-sided, medially depressed, nearly 3 times as wide as eye, apex truncate medially, lateral 1/8 slightly retracted, angle acute (Fig. 27); eye canthus long, about 3/4 width of eye. Prosternum with lateral carina on each side extended from apex of intercoxal process 1/3 distance to apex of prosternum. Epipleuron strongly descending externally. Postcoxal line on basal abdominal ventrite evenly curved, extended 3/4 distance to rear margin of ventrite. Genitalia long, penis guide nearly as long as paramere, parallel-sided with apical 1/8 narrowed to rounded apex; paramere slender, parallel-sided, apex rounded (Fig. 29, 30); penis slender, equal in width throughout, apex acute, penis capsule with inner arm long, slender, outer arm short, tapered from base to apex (Fig. 31).

Female. None examined.

Variation. Length 2.7 to 3.0 mm, width 1.6 to 2.8 mm. Elytral spots with tendency to unite, sometimes with anterior 3 spots partially fused or with spots united to form a single, large spot.

Type locality. Panama, Bugaba; lectotype here designated.

Type material. Lectotype here designated: A specimen in the BMNH is labeled lectotype “Type/Bugaba. Panama. Champion./Cryptognatha amicta, Gorh./B.C.A., Col., VII. Cryptognatha amicta, Gorh.” Gorham (1897) stated he had two type specimens of this species.

Geographical distribution. Colombia. Panama.

Specimens examined. 4. Colombia. Choco, Istmina. Panama. Type locality.

Remarks. Cryptognatha amicta has a distinctive color pattern not seen elsewhere in Cryptognatha. It is described from Panama but is also present in Colombia.

6. Cryptognatha kellie González and Hanley, new species

Description. Male holotype. Length 2.6 mm, width 2.5 mm. Dorsal surface shiny, pronotum with distinct microsculpture, elytron with faint trace of microsculpture. Color dark brown; head yellow; pronotum with lateral 1/3 yellow; elytron with lateral 1/5 brownish yellow from base to apex (Fig. 32); venter yellow. Head without punctures; pronotal punctures small, separated by a diameter or less; elytral punctures larger than on pronotum, separated by less than a diameter to three times a diameter; prosternal punctures large, separated by less than a diameter; mesosternal punctures larger than on prosternum, separated by less than a diameter, metasternal punctures large, separated by two or three times a diameter medially, entirely absent in lateral 1/3; basal abdominal ventrite with coarse punctures separated by about a diameter medially, lateral 1/3 of ventrite and ventrites 2–4 lacking punctuation, ventrite 5 with dense, fine punctuation. Head with frons parallel-sided, medially depressed, twice as wide as eye, apex truncate medially, lateral 1/8 slightly retracted, angle acute (Fig. 33); eye canthus long, about 1/2 width of eye. Prosternum with lateral carina on each side extended from apex of intercoxal process to midpoint of prosternum. Epipleuron strongly descending externally. Postcoxal line on basal abdominal ventrite evenly curved, extended 3/4 distance to rear margin of ventrite. Genitalia long, penis guide nearly as long as paramere, parallel-sided with apical 1/8 narrowed to rounded apex; paramere
slender, parallel-sided, apex rounded (Fig. 35, 36); penis long, slender, apical 1/3 attenuate; base with inner arm slender, curved, narrowed from base to apex, outer arm short, wide (Fig. 37).

**Female.** Similar to male except head weakly depressed medially; lateral 1/3 of pronotum yellow, median 2/3 dark brown; genitalia with spermathecal capsule short, wide, slightly tapered from ramus to rounded apex of cornu (Fig. 38).

**Variation.** Length 2.6 to 3.0 mm, width 2.5 to 2.7 mm. Brownish yellow macula on elytron often narrowly extended along suture to apex.


**Remarks.** This species has a reduced dorsal color pattern not shared with any other species in *Cryptognatha*.

### 7. Cryptognatha hannah González and Hanley, new species

**Description.** **Male holotype.** Length 3.1 mm, width 2.9 mm. Dorsal surface shiny, pronotum with distinct microsculpture, elytron with faint trace of microsculpture. Color black; head yellow; pronotum with lateral 1/3 yellow, anterior margin of median black macula deeply indented with yellow at apex, lateral angle; elytron with wide yellow border extended from base to apex (Fig. 40); venter reddish brown except epipleuron, abdomen yellow. Head without punctures; pronotal punctures small, separated by a diameter or less; elytral punctures larger than on pronotum, separated by less than a diameter to twice a diameter; prosternal punctures small, barely visible, separated by less than a diameter; mesosternal punctures larger than on prosternum, separated by less than a diameter, metasternal punctures large, separated by two or three times a diameter medially, entirely absent in lateral 1/3; basal abdominal ventrite with coarse punctures separated by about a diameter medially, lateral 1/3 of ventrite and ventrites 2–4 lacking punctuation, ventrite 5 with dense, fine punctuation. Head with frons parallel-sided, medially depressed, twice as wide as eye, apex truncate medially, lateral 1/8 slightly retracted, angle acute (Fig. 41); eye canthus long, about 3/4 width of eye. Prosternum with lateral carina on each side extended from apex of intercoxal process to midpoint of prosternum. Epipleuron strongly descending externally. Postcoxal line on basal abdominal ventrite evenly curved, extended 3/4 distance to rear margin of ventrite. Genitalia long, penis guide about 3/4 as long as paramere, parallel-sided with apical 1/8 narrowed to rounded apex; paramere slender, parallel-sided, apex rounded (Fig. 42, 43); penis lost.

**Female.** Similar to male except head weakly depressed; pronotum with apex of black macula not indented medially; genitalia not examined.

**Variation.** None observed.

**Type material.** Holotype male: Peru, Loreto, Iquitos, Padre Isla, 100 m., 3-XI-2006, Leg. R. Westerduijn, Annually flooded wetland. (MUSM). Paratype; 1, same data as holotype. (MUSM).

**Remarks.** A black elytron with yellow lateral border is thus far a unique pattern in *Cryptognatha* and will distinguish *C. hannah* from other species of the genus.

### 8. Cryptognatha whitney González and Hanley, new species

**Description.** **Male holotype.** Length 3.0 mm, width 2.8 mm. Dorsal surface shiny with faint trace of microsculpture. Color black; head yellow; pronotum with black area restricted to basomedian 1/3, apex of black area sinuate, abruptly indented with yellow medially (Fig. 44); venter reddish brown except mouthparts yellow, legs reddish yellow. Head without punctures; pronotal punctures small, separated by a diameter or less; elytral punctures slightly larger than on pronotum, separated by less than a diameter to 4 times a diameter except lateral margin with coarse punctures separated by a diameter or less; prosternal punctures large, separated by a diameter or less; mesosternal punctures larger than
on prosternum, separated by less than a diameter, contiguous, metasternal punctures large, separated by two or three times a diameter medially, entirely absent in lateral 1/3; basal abdominal ventrite with coarse punctures separated by about a diameter medially, lateral 1/3 of ventrite and ventrites 2–4 lacking punctuation, ventrite 5 with dense, fine punctuation. Head with frons parallel-sided, medially depressed, slightly less than twice as wide as eye, apex truncate medially, lateral 1/8 slightly retracted, angle acute (Fig. 45); eye canthus long, about 3/4 width of eye. Prosternum with lateral carina on each side extended from apex of intercoxal process nearly to midpoint of prosternum. Epipleuron strongly descending externally. Postcoxal line on basal abdominal ventrite evenly curved, extended 3/4 distance to rear margin of ventrite. Genitalia long, penis guide about 3/4 as long as paramere, parallel-sided with apical 1/8 narrowed to rounded apex; paramere slender, parallel-sided, apex rounded (Fig. 46, 47); penis lost.

**Female.** Similar to male except head weakly depressed, brownish yellow with dark brown macula on vertex; pronotum black except anteromedian 1/5 of pronotum yellow; genitalia with spermathecal capsule comparatively slender, tapered from wide ramus to acute apex of cornu.

**Variation.** Length 2.7 to 3.1 mm, width 2.6 to 2.9 mm.

**Type material.** Holotype male: Colombia, Guateque (B), Oct. 10, 1938, Alt. 1900 m, LM Murillo No. (USNM). Paratypes; 10, 8 same data as holotype; 1, Guayata, Colombia, Boy;18.X.40, altitude 1720 m, Murillo No 5295; 1, Colombia, Boy 1720 m, Guayata, Oct. 18, 1940, Murillo No 5296. (USNM).

**Remarks.** This is the only known species of the auriculata group with entirely black elytra. It is distinguished from other entirely black species by its larger size.

**reedi group**

9. *Cryptognatha reedi* Crotch


**Description.** **Male.** Length 2.0 mm, width 1.8 mm. Dorsal surface shiny, pronotum with faint trace of microsculpture. Color dark brown; head yellow; pronotum black with apical 1/2, base, humeral angle narrowly reddish yellow (Fig. 49); venter reddish yellow except epipleuron brownish yellow; basal abdominal ventrite brownish yellow. Head without punctures; pronotal punctures small, separated by a diameter or less; elytral punctures as large as on pronotum, separated by less than a diameter to twice a diameter, becoming gradually larger toward lateral margin; prosternal punctures large, indistinct, separated by a diameter or less; mesosternal punctures larger than on prosternum, separated by less than a diameter, metasternal punctures large, separated by 2 or 3 times a diameter medially, entirely absent in lateral 1/3; basal abdominal ventrite with coarse punctures separated by about a diameter medially, lateral 1/3 of ventrite lacking punctuation, ventrites 2–4 finely punctured, punctures separated by about a diameter, ventrite 5 with dense, fine punctuation. Head with frons parallel-sided, medially depressed, twice as wide as eye, apex truncate medially, lateral 1/8 slightly retracted, angle acute (Fig. 50); eye canthus long, about 3/4 width of eye. Prosternum with lateral carina on each side extended from apex of intercoxal process nearly to apex of prosternum. Epipleuron moderately descending externally. Postcoxal line on basal abdominal ventrite evenly curved, extended 3/4 distance to rear margin of ventrite. Genitalia short, penis guide about 3/4 as long as paramere, oval, with apical 1/8 narrowed to abruptly rounded apex; paramere long, slender, apex rounded (Fig. 51, 52); penis long, robust (?), apical 1/8 attenuate; penis capsule with inner arm short, apex abrupt, outer arm short, large (Fig. 53).

**Female.** Similar to male except head weakly depressed; genitalia with spermathecal capsule short, wide, tapered from wide ramus to abruptly rounded apex of cornu, long portion of heavily sclerotized sperm duct present at base of ramus (Fig. 54).

**Variation.** Length 1.8 to 2.0 mm, width 1.6 to 1.8 mm. Black area on elytron varies in size from typical to completely absent; metasternum black or medium brown.
Type locality. Bahia (Brazil).

Type material. UMCZ (holotype, Gordon 1987).

Geographical distribution. Brazil.

Specimens examined. 21. Brazil. Alagoas, Sao Miguel dos Campos; Bahia; Recife.

Remarks. Cryptognatha reedi is recognized by the distinctive, thus far unique, dorsal color pattern.

10. Cryptognatha karla González and Hanley, new species

Description. Male holotype. Length 1.9 mm, width 1.8 mm. Dorsal surface shiny, pronotum with faint trace of microsculpture. Color yellow; head slightly darkened yellow; pronotum yellow; elytron with large dark brown macula extended from just anterior to humeral callus posteriorly to midpoint of elytron, macula narrow at base, widened to irregularly truncate apex (Fig. 55); venter with metasternum dark brown; basal abdominal ventrite brownish yellow medially. Head without punctures; pronotal punctures small, separated by a diameter or less; elytral punctures larger than on pronotum, separated by a diameter or less, becoming gradually larger toward lateral margin; prosternal punctures large, indistinct, separated by about a diameter; mesosternal punctures larger than on prosternum, separated by less than a diameter, contiguous, metasternal punctures large, separated by two or three times a diameter medially, entirely absent in lateral 1/3; basal abdominal ventrite with coarse punctures separated by about a diameter medially, lateral 1/3 of ventrite lacking punctuation, ventrites 2–4 finely punctured, punctures separated by about a diameter, ventrite 5 with dense, fine punctuation. Head with frons parallel-sided, medially depressed, three times as wide as eye, apex truncate medially, lateral 1/8 slightly retracted, angle acute (Fig. 56); eye canthus long, about 3/4 width of eye. Prosternum with lateral carina on each side extended from apex of intercoxal process 3/4 distance to apex of prosternum, strongly curved laterally. Epipleuron moderately descending externally. Postcoxal line on basal abdominal ventrite evenly curved, extended 3/4 distance to rear margin of ventrite. Genitalia short, penis guide about 3/4 as long as paramere, oval, with apical 1/8 narrowed to abruptly rounded apex; paramere long, slender, apex rounded (Fig. 58, 59); penis long, robust, apex shortly attenuate; penis capsule with inner arm long, tapered to abrupt apex, outer arm elongate, large (Fig. 60).

Female. Similar to male except head weakly depressed; genitalia with spermathecal capsule short, wide, tapered from wide ramus to abruptly rounded apex, portion of heavily sclerotized sperm duct present at base of ramus (Fig. 61).

Variation. Length 1.9 to 3.1 mm, width to 1.7 to 1.8 mm. Pale areas on elytron may be slightly larger or smaller than described above.


Remarks. Typical specimens of Cryptognatha karla are recognized by the dark humeral macula and dark brown metasternum, those specimens lacking a dark macula on elytron are difficult to recognize but they also have a darkened metasternum, which is distinct on an otherwise yellow venter.

11. Cryptognatha clarki Crotch

Cryptognatha clarki Crotch 1874: 207; Korschefsky 1931: 219; Blackwelder 1945: 449.

Description. Male. Length 2.0 mm, width 1.8 mm. Dorsal surface shiny except head densely alutaceous. Color dark blackish brown; head yellow; pronotum black with lateral 1/8 yellow; elytron with lateral 1/4 black, bordering large, obscurely defined blackish brown central macula (Fig. 62); venter brown except mouthparts, legs yellow; abdomen yellow except apex of median 1/3 of ventrite 1 dark brown. Head without punctures; pronotal punctures small, separated by a diameter or less; elytral punctures larger than on pronotum, separated by a less than a diameter to twice a diameter, becoming gradually
larger toward lateral margin; prosternal punctures large, indistinct, separated by about a diameter; mesosternal punctures larger than on prosternum, separated by less than a diameter, contiguous, metasternal punctures large, separated by 2 or 3 times a diameter medially, entirely absent in lateral 1/3; basal abdominal ventrite with coarse punctures separated by about a diameter medially, lateral 1/3 of ventrite lacking punctuation, ventrites 2–4 finely punctured, punctures separated by about a diameter, ventrite 5 with dense, fine punctuation. Head with frons parallel-sided, medially depressed, 2.5 times as wide as eye, clypeal apex arcuate medially, lateral 1/8 slightly retracted, angle acute (Fig. 63); eye canthus long, about 3/4 width of eye. Prosternum with lateral carina on each side extended from apex of intercoxal process 3/4 distance to apex of prosternum, strongly curved laterally. Epipleuron descending externally. Postcoxal line on basal abdominal ventrite evenly curved, extended 7/8 distance to rear margin of ventrite. Genitalia with penis guide about as long as paramere, basal 2/3 parallel-sided, apical 1/3 abruptly narrowed to small, rounded apex; paramere slender, apex rounded (Fig. 64, 65); penis long, sinuate in apical 1/3, apex shortly attenuate; penis capsule large, wide, inner arm short, apex medially emarginate, outer arm short, large, apex abruptly curved (Fig. 66).

Female. Similar to male except head brown (Fig. 63), weakly depressed medially, pronotum entirely black; spermathecal capsule lost.

Variation. Length 2.0 to 2.4mm, width 1.8 to 2.2 mm.

Type locality. Rio de Janeiro (Brazil).

Type material. The BMNH holotype is labeled “Type/clarkii/37580/clarkii/Fry RioJan/TYPE.”

Geographical distribution. Brazil.

Specimens examined. 7. Brazil. Entre Rios; Rio de Janeiro. (BMNH) (CMNH).

Remarks. The elytral color pattern of this species is obscure and poorly defined. The male genitalia, however, are distinctive enough to confirm identification.

12. Cryptognatha celia González and Hanley, new species

Description. Male holotype. Length 2.3 mm, width 2.1 mm. Dorsal surface shiny with faint trace of microsculpture. Color black; head yellow; pronotum with anterior margin narrowly yellowish brown, lateral 1/4 yellow (Fig. 67); venter dark brown except legs reddish yellow; basal abdominal ventrite brown, ventrites 2–5 brownish yellow. Head without punctures; pronotal punctures large, separated by a diameter or less; elytral punctures larger than on pronotum, separated by a diameter or less, becoming gradually larger toward lateral margin; prosternal punctures large, indistinct, separated by two to three times a diameter; mesosternal punctures larger than on pronotum, separated by less than a diameter, metasternal punctures large, separated by two or three times a diameter medially, entirely absent in lateral 1/3; basal abdominal ventrite with coarse punctures separated by about a diameter medially, lateral 1/3 of ventrite lacking punctuation, ventrites 2–4 finely punctured, punctures separated by about a diameter, ventrite 5 with dense, fine punctuation. Head with frons parallel-sided, medially depressed, 3 times as wide as eye, apex truncate medially, lateral 1/8 slightly retracted, angle acute (Fig. 68); eye canthus long, about 3/4 width of eye. Prosternum with lateral carina on each side extended from apex of intercoxal process more than 1/2 distance to apex of prosternum. Epipleuron moderately descending externally. Postcoxal line on basal abdominal ventrite evenly curved, extended 5/8 distance to rear margin of ventrite. Genitalia short, penis guide about as long as paramere, oval, slightly widened in apical 1/2, then narrowed to weakly emarginate apex; paramere long, slender, widened in apical 1/2 to rounded apex (Fig. 70, 71); penis long, robust, apical 1/3 attenuate; penis capsule slender, elongate, inner arm short, narrow, apex somewhat truncate, outer arm long, slender, sinuate (Fig. 72).

Female. Unknown.

Variation. Unknown.

Remarks. This mostly black species is identified by its male genitalia, which distinguish it from other black species of *Cryptognatha*.

13. *Cryptognatha flaviceps* Crotch

*Cryptognatha flaviceps* Crotch 1874: 207; Korschefsky 1931: 219; Blackwelder 1945: 449.

**Description. Male.** Length 2.1 mm, width 1.9 mm. Dorsal surface shiny with faint trace of microsculpture on pronotum. Color black; head yellow; pronotum with lateral 1/4 yellow (Fig. 73); venter with prothorax, epipleuron brownish red, legs reddish yellow; abdomen brownish yellow. Head without punctures; pronotal punctures small, separated by a diameter or less; elytral punctures as large as on pronotum, separated by less than a diameter to 3 times a diameter, becoming gradually larger toward lateral margin; prosternal punctures not visible, mesosternal punctures large, separated by less than a diameter, nearly contiguous, metasternal punctures large, separated by two or three times a diameter medially, fine, sparse in lateral 1/3; basal abdominal ventrite with coarse punctures separated by about a diameter medially, lateral 1/3 of ventrite lacking punctuation, ventrites 2–4 finely punctured, punctures separated by about a diameter, ventrite 5 with dense, fine punctuation. Head with frons parallel-sided, medially depressed, twice as wide as eye, apex truncate medially, lateral 1/8 slightly retracted, angle acute (Fig. 74); eye canthus long, about 3/4 width of eye. Prosternum with lateral carina on each side extended from apex of intercoxal process 2/3 distance to apex of prosternum, curved laterally. Epipleuron moderately descending externally. Postcoxal line on basal abdominal ventrite evenly curved, extended 2/3 distance to rear margin of ventrite. Genitalia short, penis guide 2/3 as long as paramere, oval, anterior 1/3 abruptly narrowed to sharply rounded apex; paramere long, slender, parallel-sided to rounded apex (Fig. 75, 76); penis lost.

**Female.** Unknown.

**Variation.** Unknown.

**Type locality.** São Paulo (Brazil).

**Type material.** Lectotype designated by Gordon (1987). UMZC.

**Geographical distribution.** Brazil.

**Specimens examined.** 2. Brazil. São Paulo (lectotype); Rio de Janeiro. (BMNH).

Remarks. This mostly black species is distinguished from similar appearing *Cryptognatha* taxa only by examination of male genitalia.

14. *Cryptognatha weisei* Brèthes

*Cryptognatha weisei* Brèthes 1925a: 8; Korschefsky 1931: 220; Blackwelder 1945: 450.

**Description. Male.** Length 1.6 mm, width 1.5 mm. Dorsal surface shiny with distinct pronotal microsculpture, elytron with faint microsculpture. Color black; head yellow; pronotum with lateral 1/8 yellow (Fig. 77); apex of elytron narrowly yellow; venter with prothorax, epipleuron yellowish brown, meso- and metasternal brown, remainder of ventral surface and legs yellow; abdomen brownish yellow. Head without punctures; pronotal punctures small, separated by a diameter or less; elytral punctures smaller than on pronotum, separated by less than a diameter to 3 times a diameter, becoming gradually larger toward lateral margin; prosternal punctures coarse, sparse, mesosternal punctures large, separated by less than a diameter, nearly contiguous, metasternal punctures large, separated by two or three times a diameter medially, fine and sparse in lateral 1/3; basal abdominal ventrite with fine, indistinct punctures, ventrites 2–4 finely punctured, punctures separated by about a diameter, ventrite
5 with dense, fine punctation. Head with frons slightly narrowed between eyes, medially depressed, 1.5 times width of eye, apex faintly curved medially, lateral 1/8 slightly retracted, angle acute (Fig. 78); eye canthus long, about 3/4 width of eye. Prosternum with lateral carina on each side extended from apex of intercoxal process 2/3 distance to apex of prosternum, curved laterally. Epipleuron moderately descending externally. Postcoxal line on basal abdominal ventrite evenly curved, extended 2/3 distance to rear margin of ventrite. Genitalia short, penis guide nearly as long as paramere, oval, anterior 1/3 abruptly narrowed to sharply rounded apex; paramere long, slender, weakly widened in middle, apex rounded (Fig. 79, 80); penis long, slender, apical 1/4 attenuate; penis capsule with inner arm long, slender, apically tapered to abruptly rounded apex, outer arm elongate, wide, apex broadly rounded (Fig. 81).

Female. Unknown.

Variation. Length 1.6 to 2.2 mm. width 1.5 to 2.0 mm.

Type locality. Brazil, Amazonas, lectotype here designated.

Type material. Lectotype here designated. The BMNH lectotype is labeled “Type/Amazons. 75.8/ Cryptognatha Weise Brèthes”. Brèthes (1925a) stated that he had two type specimens.

Geographical distribution. Brazil.

Specimens examined. 3. Brazil. Amazonas (lectotype), Minas Gerais, Aguas Vermelhas; MG (Minas Gerais), Ingal, Tangue R.L. (BMNH) (CMNH) (CPGG).

Remarks. This mostly black species is similar to C. latoya in external appearance and male genitalia. It differs from that species by a reduced yellow pronotal area, the apex of each elytron narrowly yellow, and the penis guide about as long as the paramere.

15. Cryptognatha shelia González and Hanley, new species

Description. Male holotype. Length 2.6 mm, width 1.5 mm. Dorsal surface slightly dull, with distinct microsculpture. Color dark brown; head yellow; pronotum with narrow anterior border, lateral 1/4 yellow (Fig. 82); venter entirely yellow. Head without punctures; pronotal punctures small, separated by a diameter or less; elytral punctures slightly larger than on pronotum, separated by a diameter or less, becoming gradually larger toward lateral margin; prosternal punctures large, indistinct, mesosternal punctures large, separated by less than a diameter, nearly contiguous, metasternal punctures large, separated by two or three times a diameter medially, absent in lateral 1/3; basal abdominal ventrites with coarse punctures separated by about a diameter medially, lateral 1/3 of ventrite lacking punctuation, ventrites 2–4 finely punctured, punctures separated by about a diameter, ventrite 5 with dense, fine punctuation. Head with frons parallel-sided, medially depressed, three times as wide as eye, apex truncate medially, lateral 1/8 slightly retracted, angle acute (Fig. 83); eye canthus long, about 3/4 width of eye. Prosternum with lateral carina on each side extended from apex of intercoxal process 1/2 distance to apex of prosternum, curved laterally. Epipleuron strongly descending externally. Postcoxal line on basal abdominal ventrite evenly curved, extended 3/4 distance to rear margin of ventrite. Genitalia elongate, penis guide about as long as paramere, oval, sides parallel in basal 3/4, curved to rounded apex in anterior 1/4; paramere long, slender, narrow in basal 1/3, widened to rounded apex in apical 2/3 (Fig. 84, 85); penis lost.

Female. Similar to male except head brown, pronotum brown with anterior 1/4 yellowish brown; genitalia lost.

Variation. Length 2.6 to 2.7 mm, meso- and metasternum vary from yellow to dark brown.

Type material. Holotype male; Bahia Brazil. (USNM). Paratypes, 2, same data as holotype except 1 paratype with additional label “Cryptognatha pudibunda Muls.” Ch’28. (USNM).

Remarks. Cryptognatha shelia differs from similar black or dark brown species by a slightly larger size, the male pronotum with a yellow anterior border, and distinctive male genitalia.
16. Cryptognatha yolandi Crotch


**Description.** Male. Length 2.3 mm, width 2.0 mm. Dorsal surface weakly alutaceous with head densely alutaceous, pronotum and elytron with slight trace of microsculpture. Color black; head yellow; pronotum with lateral 1/3 yellow (Fig. 86); venter yellow with prosternum brown in lateral 1/3, mesosternum, metasternum and epipleuron brown; abdomen brownish yellow except median portion of basal abdominal ventrite brown. Head with punctures hidden in microsculpture; pronotal punctures small, separated by a diameter or less; elytral punctures slightly larger than on pronotum, separated by less than a diameter to three times a diameter, becoming gradually larger toward lateral margin; prosternal punctures small, separated by a diameter or less; mesosternal punctures larger than on prosternum, separated by less than a diameter, metasternal punctures larger than on mesosternum, separated by a diameter or less, entirely absent in lateral 1/4; basal abdominal ventrite with coarse punctures separated by about a diameter medially, lateral 1/3 of ventrite lacking punctuation, ventrites 2–4 finely punctured, punctures separated by about a diameter, ventrite 5 with dense, fine punctuation. Head with frons slightly widened toward apex, medially depressed, 1.5 times as wide as eye, clypeal apex arcuate, lateral 1/8 slightly retracted, angle acute (Fig. 87); eye canthus long, about 3/4 width of eye. Prosternum with lateral carina on each side angled laterally, extended from apex of intercoxal process about 1/3 distance to apex of prosternum. Epipleuron moderately descending externally. Postcoxal line on basal abdominal ventrite evenly curved, extended 3/4 distance to rear margin of ventrite. Genitalia with phallobase long, penis guide slightly longer than paramere, slender, evenly narrowed from base to abruptly rounded apex; paramere long, slender, apical 1/8 slightly widened, curved to rounded apex (Fig. 88, 89); penis long, slender, apex acute; penis capsule slender, inner arm short, apex rounded, outer arm short, tapered to rounded apex (Fig. 90).

**Female.** Unknown.

**Variation.** Unknown.

**Type locality.** Ega (Brazil).

**Type material.** UMCZ (holotype, Gordon 1987).

**Geographical distribution.** Brazil.

**Specimens examined.** Holotype.

**Remarks.** As with most other dorsally black species of this genus, male genitalia must be examined to permit identification. The long, slender penis guide is a character not shared with other known species and is most similar to that of *C. pudibunda*.

The holotype was not in good condition when dissected and is less so now. Both elytra became detached and are now glued on the point next to rest of the specimen.

17. Cryptognatha pudibunda Mulsant


**Description.** Male. Length 2.3 mm, width 2.0 mm. Dorsal surface shiny with faint trace of microsculpture on pronotum. Color black; head yellow; pronotum with lateral 1/4 yellow (Fig. 91); venter with mouthparts and legs yellow; median portion of basal abdominal ventrite, ventrites 2–4 brown, ventrites 2–5 brownish yellow. Head without punctures; pronotal punctures small, separated by a diameter or less; elytral punctures larger than on pronotum, separated by less than a diameter to twice a diameter, becoming gradually larger toward lateral margin; prosternal punctures small, indistinct; mesosternal punctures larger than on prosternum, separated by less than a diameter, metasternal punctures large, separated by two or three times a diameter medially, entirely absent in lateral 1/3; basal abdominal ventrite with coarse punctures separated by about a diameter medially, lateral 1/3 of ventrite lacking
punctation, ventrites 2–4 finely punctured, punctures separated by about a diameter, ventrite 5 with dense, fine punctation. Head with frons parallel-sided, medially depressed, 2.5 times as wide as eye, apex feebly arcuate medially, lateral 1/8 slightly retracted, angle acute (Fig. 92); eye canthus long, about 3/4 width of eye. Prosternum with lateral carina on each side extended from apex of intercoxal process more than 2/3 distance to apex of prosternum. Epipleuron moderately descending externally. Postcoxal line on basal abdominal ventrite evenly curved, extended slightly more than 1/2 distance to rear margin of ventrite. Genitalia short, penis guide nearly as long as paramere, slender, evenly narrowed from base to abruptly rounded apex; paramere long, slender, curved to rounded apex (Fig. 95, 96); penis long, apex slightly attenuate; penis capsule slender, elongate, with inner arm long, sinuate, apex somewhat truncate, outer arm long, apex slightly convex (Fig. 97).

**Female.** Similar to male except head black with dark brown clypeus, often with clypeus entirely black, pronotum entirely black, head feebly impressed medially; spermathecal capsule short, ramus widened, cornu widened from base to abruptly rounded apex, with long, sclerotized portion of sperm duct (Fig. 98).

**Variation.** Length 2.2 to 2.5 mm, width 1.8 to 2.1 mm. Penis guide of male genitalia slightly variable, apex nearly smoothly rounded or with indication of “shoulders” before apex.

**Type locality.** Of *C. pudibunda*, “Brésil”; of *C. fryii*, Rio de Janeiro (Brazil); of *C. bryanti*, Santo Amara, Santos (Brazil).

**Type material.** Of *C. pudibunda*, Dejean collection, Musée des confluences, Lyon, France; lectotype here designated; of *C. fryii*, BMNH, lectotype here designated; of *C. bryanti*, BMNH. The lectotype of *C. pudibunda* is labeled “Type/15139/TYPE/Fry RioJan/Type/Fry Coll. 1905-100.” The lectotype of *C. fryii* the is labeled “Type/Illa Santo Amaro,nr. Santos, Brazil, G. E. Bryant iv.1912/G. Bryant Coll. 1919-147/Oeneis bryanti Brethes.”

**Geographical distribution.** Brazil, Paraguay, Peru, Venezuela.

**Specimens examined.** 42. Widely distributed in Brazil with specimens examined from other countries listed above.

**Remarks.** Of the dorsally black species *C. pudibunda* is most widely distributed, particularly in Brazil. Male genitailia must be examined to identify this and all other taxa with entirely black elytra. Mulsant (1850) stated his type material was in the Dejean collection, now housed in Musée des confluences, Lyon. Harold Labrique provided us with images of the type specimen and that specimen labeled “Bresil” is here designated as the lectotype, because Mulsant (1850) specified it as the type.

Specimens identified as *C. pudibunda* may actually represent more than one species, however, no convincing evidence of this was forthcoming. Both *C. fryii* (lectotype) and *C. bryanti* are considered synonyms of *C. pudibunda*.

18. **Cryptognatha batesi** Crotch


**Description.** Male holotype. Length 3.8 mm, width 3.4 mm. Dorsal surface shiny. Color black; head, pronotum pale yellow, pronotum with faint, brown basomedian macula (Fig. 99); venter dark brown except mouthparts, legs yellow; abdomen brown except mediobasal portion of basal ventrite dark brown. Head finely punctured, punctures separated by less than a diameter; pronotal punctures small, separated by a diameter or less; elytral punctures larger than on pronotum, separated by less than a diameter to twice a diameter, becoming gradually larger toward lateral margin; prosternal punctures large, indistinct; mesosternal punctures larger than on prosternum, contiguous, metasternal punctures large, separated by a diameter or less medially, absent in lateral 1/3; basal abdominal ventrite with coarse punctures separated by about a diameter medially, lateral 1/3 of ventrite lacking punctation, ventrites 2–4 finely punctured, punctures separated by about a diameter, ventrite 5 with dense, fine punctation. Head with frons slightly narrowed from base to clypeus, medially depressed, three times as wide as eye, apex emarginate medially, strong lateral carina present on frons near apex of eye (Fig. 100); eye canthus
short, about 1/2 width of eye. Prosternum with lateral carina on each side long, curved, extended from apex of intercoxal process about 2/3 distance to apex of prosternum. Epipleuron moderately descending externally. Postcoxal line on basal abdominal ventrite evenly curved, extended about 3/4 distance to rear margin of ventrite. Genitalia long, penis guide 3/4 as long as paramere, slender, evenly narrowed from base to abruptly rounded apex; paramere long, slender, curved to rounded apex (Fig. 101); penis long, apex acute; penis capsule slender, elongate, inner arm slightly curved, apex rounded, outer arm slender, apex truncate. Penis not examined.

**Female.** Unknown.

**Variation.** Unknown.

**Type locality.** Ega (Brazil).

**Type material.** UMZC. Holotype, Gordon (1987).

**Geographical distribution.** Brazil.

**Specimens examined.** 1, holotype.

**Remarks.** This is an unusual species because of large size, striking contrast between black elytra and pale-yellow head, pronotum, emarginate clypeal apex, and the pronounced frontal carinae. Known only from the holotype.

**Species not assignable to a group**

19. *Cryptognatha gayle* González and Hanley, new species

**Description.** Male holotype. Length 2.9 mm, width 2.8 mm. Dorsal surface shiny with little trace of microsculpture. Color dark brown; head, epipleuron yellow; pronotum with lateral 1/5 yellow; elytron with elongate macula next to scutellar shield, macula narrowly extended posteriorly parallel to suture ending in triangular macula at apex of apical declivity, lateral 1/3 reddish brown from base to apex (Fig. 103); venter reddish yellow; abdomen mostly yellow. Head without punctures; pronotal punctures small, separated by less than a diameter to twice a diameter; elytral punctures smaller than on pronotum, separated by less than to 3 times a diameter, becoming gradually larger toward lateral margin; prosternal punctures small, nearly absent, mesosternal punctures small, nearly invisible, metasternal punctures small, widely separated medially, absent in lateral 1/3; basal abdominal ventrite with fine, indistinct punctures in median 1/3, lateral 1/3, ventrites 2–4 with punctures apparently absent, ventrite 5 with dense, fine punctuation. Head with frons parallel-sided, medially depressed, nearly twice width of eye, apex truncate, lateral 1/8 slightly retracted, angle acute (Fig. 104); eye canthus long, about 3/4 width of eye. Prosternum with lateral carina on each side extended from apex of intercoxal process slightly more than 1/2 distance to apex of prosternum, slightly curved laterally. Epipleuron strongly descending externally. Postcoxal line on basal abdominal ventrite evenly curved, extended 3/4 distance to rear margin of ventrite. Genitalia with phallobase lost; penis short, robust, apical 1/4 wide; penis capsule with inner arm long, slender, apically tapered to abruptly rounded apex, outer arm short, wide, apex truncate (Fig. 105).

**Female.** Similar to male in all external characteristics, genitalia not examined.

**Variation.** None observed.


**Remarks.** A distinctive dorsal color pattern distinguishes this species from other taxa of *Cryptognatha*. It is relatively large in size and most likely a member of the auriculata group, but without male genitalia this cannot be conclusively stated.
20. Cryptognatha della González and Hanley, new species

Description. Female holotype. Length 2.3 mm, width 2.1 mm. Dorsal surface with head dull, strongly alutaceous, pronotum shiny with trace of microsculpture, elytron lacking microsculpture. Color reddish brown; head, epipleuron yellow; pronotum entirely reddish brown; elytron with large, black, median macula extended from base to apical declivity, laterally 1/2 distance to lateral margin (Fig. 106, 107); venter brown; legs yellow. Head without punctures; pronotal punctures small, separated by less than a diameter to twice a diameter; elytral punctures slightly larger than on pronotum, separated by less than a diameter to three times a diameter, becoming gradually larger toward lateral margin; prosternal punctures small, indistinct, mesosternal punctures large, separated by less than a diameter, nearly contiguous, metasternal punctures large, separated by 2 or 3 times a diameter medially, absent in lateral 1/3; basal abdominal ventrite with coarse punctures separated by about a diameter medially, lateral 1/3 of ventrite lacking punctuation, ventrites 2–4 finely punctured, punctures separated by about a diameter, ventrite 5 with dense, fine punctuation. Head with frons parallel-sided, not medially depressed, three times as wide as eye, apex truncate medially, lateral 1/8 slightly retracted, angle acute (Fig. 108); eye canthus long, about 3/4 times width of eye. Prosternum with lateral carina on each side extended from apex of intercoxal process 1/4 distance to apex of prosternum, straight. Epipleuron moderately descending externally. Postcoxal line on basal abdominal ventrite evenly curved, extended 2/3 distance to rear margin of ventrite. Genitalia with spermathecal capsule short, gradually widened from base of ramus to abruptly rounded apex of cornu (Fig. 109).

Male. Unknown.

Variation. Length 2.3 to 2.4 mm., a single paratype has the black, median, elytral macula brown, not strongly distinctive from color of remainder of elytra.


Other specimens. 2. A specimen (USNM) labeled “Peru, Satipo, V-VI-1942, Paprzycki” has a similar color pattern to that of C. della except for the following differences: length 3.0 mm., pronotum bright yellow with small black macula at base anterior to scutellar shield, lateral 1/2 of elytron with reddish brown more pronounced than that in C. della (USNM). Another specimen (CPGG) labeled “Peru, Loreto, Padre Cocha, 150 m., 17-III-2006, Leg. R. Westerduijn. Under Heliconia leaves.”

Remarks. Cryptognatha della is recognized by elytra with a large, black, median macula, a character not shared with any presently known species of the genus. The USNM specimen listed as “other specimen” is tentatively regarded as the same species. It is larger with a yellow pronotum, but identical in most other respects including female spermathecal capsule. Another specimen with much different dorsal coloration is also considered this species because of a similar collection locality and identical female spermatheca. This specimen has a black pronotum with lateral 1/8 yellow, elytron entirely black except narrowly reddish brown along lateral margin.


Description. Female holotype. Length 2.6 mm, width 2.4 mm. Dorsal surface shiny except head less shiny, weakly alutaceous. Color yellow; head, epipleuron yellow; pronotum with seven dark maculae, a single pale brown macula on basal border at lateral 1/8, five dark brown, median maculae arranged in arc on median 1/2 of pronotum; elytron with four dark maculae, a single pale brown macula on sutural border in apical 1/2 narrowly extended along suture to apex, one large, dark brown macula medially in basal 1/2 of elytron, two pale brown maculae medially on apical declivity (Fig. 110); pro- and mesosternum brownish yellow; metasternum dark brown; legs pale brownish yellow; abdomen yellow. Head without punctures; pronotal punctures small, separated by a diameter or less; elytral punctures larger
than on pronotum, separated by less than a diameter to twice a diameter, becoming gradually larger toward lateral margin; prosternal punctures small, indistinct, mesosternal punctures large, separated by less than a diameter, metasternal punctures large, separated by two or three times a diameter medially, absent in lateral 1/3; basal abdominal ventrite with coarse punctures separated by about a diameter medially, lateral 1/3 of ventrite lacking punctuation, ventrites 2–4 finely punctured, punctures separated by about a diameter, ventrite 5 with dense, fine punctuation. Head with frons parallel-sided, medially depressed, 1.5 times as wide as eye, apex truncate medially, lateral 1/8 slightly retracted, angle acute (Fig. 111); eye canthus long, about 3/4 width of eye. Prosternum with lateral carina on each side extended from apex of intercoxal process 1/3 distance to apex of prosternum, straight. Epipleuron strongly descending externally. Postcoxal line on basal abdominal ventrite evenly curved, extended 2/3 distance to rear margin of ventrite. Genitalia with spermathecal capsule short, gradually widened from base of ramus to abruptly rounded apex of cornu (Fig. 112).

Male. Unknown.


Remarks. This species has one of the most striking dorsal color patterns of any species of Cryptognatha, and is somewhat similar to C. gemellata but with a much different arrangement of dorsal maculae.

22. Cryptognatha aethiops Crotch


Description. Female holotype. Length 3.4 mm, width 3.2 mm. Dorsal surface shiny except head dull, alutaceous. Color black; head with vertex black, apex of black vertex irregular; pronotum with anterolateral angle broadly yellow (Fig. 113); median projection of basal abdominal sternum black, legs and abdomen reddish yellow (Fig. 114). Head without punctures; pronotal punctures small, separated by a diameter or less; elytral punctures larger than on pronotum, separated by less than a diameter to twice a diameter, becoming gradually larger toward lateral margin; prosternal punctures small, indistinct, mesosternal punctures large, separated by less than a diameter, metasternal punctures small, separated by two or three times a diameter medially, absent in lateral 1/3; basal abdominal ventrite with coarse punctures separated by about a diameter medially, lateral 1/3 of ventrite lacking punctuation, ventrites 2–4 finely punctured, punctures separated by about a diameter, ventrite 5 with dense, fine punctuation. Head with frons parallel-sided, medially depressed, 1.5 times as wide as eye, apex weakly arcuate, lateral 1/8 slightly retracted, angle acute; eye canthus long, about 3/4 width of eye. Prosternum with lateral carina on each side extended from apex of intercoxal process 1/3 distance to apex of prosternum, straight. Epipleuron strongly descending externally. Postcoxal line on basal abdominal ventrite evenly curved, extended 2/3 distance to rear margin of ventrite.

Male. Unknown.

Variation. Unknown.

Type locality. Colombia.

Type material. Holotype, UMZC.

Geographical distribution. Colombia.

Specimens examined. 1, holotype.

Remarks. This species is known only from the female holotype, making it difficult to distinguish from other entirely black species except by its Colombian origin. Similar appearing species are known from Brazil. In addition, C. aethiops is at least slightly larger than other entirely black species. The holotype of C. aethiops in the Crotch collection is labeled “Columbia/Hoffm./aethiops Boh.”
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Literature Cited


Guerreiro, J. C., A. C. Busoli, and E. Berti Filho. 2003. Oviposition and predation of Pentilia egena


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