

# REVISION OF THE WEST INDIAN GENUS *AMPHIACUSTA* SAUSSURE, 1874, WITH DESCRIPTIONS OF TWENTY NEW SPECIES (ORTHOPTERA : GRYLLOIDEA : PHALANGOPSIDAE)

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**Résumé.** – Révision du genre *Amphiacusta* Saussure, 1874 des Antilles et descriptions de vingt espèces nouvelles (Orthoptera : Grylloidea : Phalangopsidae). – Le genre *Amphiacusta* (Grylloidea, Phalangopsidae, Amphiacustae), tel qu'il a été défini en tant qu'entité monophylétique par DESUTTER-GRANDCOLAS (1993), est révisé. Les espèces *Amphiacusta annulipes*, *A. bahamensis* et *A. carai-bea* sont redéfinies. Deux autres sont transférées dans d'autres genres : *Amphiacusta dispar* dans *Aclodes* et *A. spectrum* dans *Nemoricantor*. *Amphiacusta aranea* est d'autre part mise en synonymie avec *A. annulipes*. Vingt espèces nouvelles sont décrites et sept groupes d'espèces définis. La répartition du genre et des groupes d'espèces est succinctement présentée.

**Abstract.** – The genus *Amphiacusta* (Grylloidea, Phalangopsidae, Amphiacustae), as defined as a monophyletic entity by DESUTTER-GRANDCOLAS (1993), is revised. *Amphiacusta annulipes*, *A. bahamensis* and *A. carai-bea* are redefined. Two species are transferred to other genera : *A. dispar* to *Aclodes*, and *A. spectrum* to *Nemoricantor*, while *Amphiacusta aranea* is synonymized with *A. annulipes*. Twenty new species are described and seven species groups defined. The distribution of the genus and of the species groups are briefly documented.

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The genus *Amphiacusta* has been created by SAUSSURE (1874) to include several species from the Neotropics. Since then, additional species has been described in or transferred to *Amphiacusta* (KIRBY, 1906; CHOPARD, 1968; OTTE, 1994). No clear definition of this genus was however available, which results in an heterogeneous assemblage of species with quite variable morphological characteristics (HUBBELL, 1938).

The phylogenetic revision of « *Amphiacusta* » has been initiated by DESUTTER-GRANDCOLAS (1993) : this analysis was dealing mostly with Central American species and was intended to study the evolution of cavernicolous species in the Chiapanecan region (Mexico) (DESUTTER-GRANDCOLAS, 1994b, 1995). Eight genera, in addition to *Amphiacusta s. str.*, were then defined as monophyletic entities and their phylogenetic relations were analyzed. The group of genera thus defined, the Amphiacustae def. n. (*contra* HUBBELL, 1938), proved to include two sister groups, one of which comprising [*Amphiacusta (Noctivox – Cantrellia)*] (DESUTTER-GRANDCOLAS, 1993, 1994a).

We present in this paper a revisionary work on *Amphiacusta s. str.* The taxonomic analysis at the species and species group levels was achieved by one of us (LDG) when the phylogenetic analysis of the Amphiacustae was worked out. Additional material was collected by the second author of this paper (DO) or is now studied in a complementary paper (RUIZ & OTTE, in prep.), especially for Cuban specimens.

*Amphiacusta* is distributed in the West Indies, while all the other genera of the Amphiacustae show limited distribution in Central America. A phylogenetic analysis of the distribution of the Amphiacustae is actually prepared by one of us (LDG, in prep.).

### Material and methods

The material examined has been collected in the West Indies by one of us (DO) or has been found in various institutions (see below). The absence of *Amphiacusta s. str.* in Central America was established by the observation of a large amount of neotropical material (DESUTTER-GRANDCOLAS, 1993, 1994a) and by direct observations in the field by both authors.

### Abbreviations :

*Female genitalia.* The figures represent the copulatory papilla and the base of the spermathecal duct in dorsal (A), lateral (B) or ventral (C) view.

*Male genitalia.* A : A-sclerite of epiphalle; C : C-sclerite of epiphalle; E : main epiphallic sclerite; E.I. : epi-ectophallic invagination; a. : ectophallic arc; en. a. : endophallic apodeme; en. s. : endophallic sclerite; ep. p. : epiphallic paramere; et. a. : ectophallic apodeme; f. : ectophallic fold; m. l. : median lophi; r. : rami. Definitions as in DESUTTER (1987) and DESUTTER-GRANDCOLAS (1993). Membranous areas are represented with dots.

*Measures* (in mm, mean number in parentheses). Lel : median length of male right tegmen; Wel : width of male right tegmen (at the level of the mirror anterior angle); LFIII : length of femur III; Lovip : length of female ovipositor; Lpron : median length of pronotum; Wpron : posterior width of pronotum; LTIII : length of tibia III.

### Institutions :

ANSP	Academy of Natural Sciences of Philadelphia.
MHNG	Muséum d'Histoire naturelle, Genève.
MNHN	Muséum National d'Histoire naturelle, Paris.
NHM	Natural History Museum, London.
NMW	Naturhistorisches Museum Wien.
SMT	Staatliches Museum für Tierkunde, Dresden.
UMMZ	University of Michigan Museum of Zoology, Ann Arbor.
ZMC	Zoologisk Museum, Copenhagen

### List of species included

1. *Amphiacusta annulipes* (Serville, 1831)
2. *Amphiacusta hispaniolae*, sp. n. Desutter-Grandcolas
3. *Amphiacusta haitiana*, sp. n. Desutter-Grandcolas
4. *Amphiacusta domingensis*, sp. n. Desutter-Grandcolas
5. *Amphiacusta dissimilis*, sp. n. Desutter-Grandcolas
6. *Amphiacusta haitianella*, sp. n. Desutter-Grandcolas
7. *Amphiacusta haitiensis*, sp. n. Desutter-Grandcolas
8. *Amphiacusta ultima*, sp. n. Desutter-Grandcolas
9. *Amphiacusta minima*, sp. n. Desutter-Grandcolas
10. *Amphiacusta mona*, sp. n. Desutter-Grandcolas
11. *Amphiacusta tijicohniae*, sp. n. Desutter-Grandcolas
12. *Amphiacusta nesiototes*, sp. n. Desutter-Grandcolas
13. *Amphiacusta pronauta*, sp. n. Desutter-Grandcolas

14. *Amphiacusta sanctaerucis*, sp. n. Desutter-Grandcolas
15. *Amphiacusta minor*, sp. n. Desutter-Grandcolas
16. *Amphiacusta nauta*, sp. n. Desutter-Grandcolas
17. *Amphiacusta bahamensis* (Morse, 1905)
18. *Amphiacusta robusta*, sp. n. Desutter-Grandcolas
19. *Amphiacusta doi*, sp. n. Desutter-Grandcolas
20. *Amphiacusta cubensis*, sp. n. Desutter-Grandcolas
21. *Amphiacusta grandis* (Saussure, 1874)
22. *Amphiacusta variegata*, sp. n. Desutter-Grandcolas
23. *Amphiacusta caraibea* Saussure, 1897
24. *Amphiacusta saba*, sp. n. Desutter-Grandcolas

### New synonymy :

*Amphiacusta aranea* (Saussure, 1878) is synonymized here with *Amphiacusta annulipes* (Serville, 1831). Type material : 1 male, from St. DOMINGO (NMW, coll. Brunner von Wattenvyl).

**Comments :** The male type of *A. aranea* resembles *A. annulipes* by its genitalia, coloration and stridulatory apparatus (except for the mirror crossed by only one transverse vein). It also shows a small transverse furrow at the base of the fastigium, as may exist in some specimens of *A. annulipes*.

### Species transferred to other genera :

Several species have been examined by one of us (LDG) in another paper and transferred to other genera (DESUTTER-GRANDCOLAS, 1993) :

1. *Amphiacusta maya* Hubbell, 1938, to *Nemoricantor* Desutter-Grandcolas & Hubbell, 1993.
2. *Amphiacusta azteca* (Saussure, 1897), to *Nemoricantor* Desutter-Grandcolas & Hubbell, 1993.
3. *Amphiacusta bolivari* Chopard, 1947, to *Noctivox* Desutter-Grandcolas & Hubbell, 1993.
4. *Amphiacusta yucatanana* Hubbell, 1938, to *Mayagrillus* Desutter-Grandcolas & Hubbell, 1993.
5. *Amphiacusta phalangium* (Saussure, 1874), to *Prolonguripes* Desutter-Grandcolas, 1993.

### Other species transferred here to other genera :

1. *Amphiacusta dispar* (Redtenbacher, 1892 in BRUNNER VON WATTENWYL & REDTENBACHER, 1892), to *Aclodes* Hebard, 1928. This species has been described in the genus *Endacustes* Saussure. It has been transferred to *Endacusta* Brunner von Wattenvyl by KIRBY (1906 : 69) and then to the genus *Amphiacusta* by CHOPARD (1968 : 282). HEBARD (1928 : 94) transferred this species to the genus *Aclodes*. The morphological characteristics of the typical specimen (apical and subapical spurs of tibiae III; size and venation of tegmina) shows that this species actually belongs to this genus; the female genitalia could not however be examined, the type being in bad condition (LDG obs.).

2. *Amphiacusta spectrum* (Walker, 1869). One of us (LDG) has examined the type material of this species (1 male, Tejuca, NHM). Owing to the characters of its male genitalia, this species could belong to the genus *Nemoricantor* (DESUTTER-GRANDCOLAS, submit.).

7. *Arachnomimus bahamensis* Bruner, 1916. HUBBELL (1938 : 208) recognized that this species had been described on two juveniles and synonymized it with *Amphiacusta annulipes* Serville. It is more sensible however to consider *Arachnomimus bahamensis* as *Amphiacusta* sp.

### Species with uncertain status :

1. *Amphiacusta fuscicornis* (Serville, 1839). One of us (LDG) has examined the type material of this species (1 male, Brazil, MNHN). This specimen differs only slightly from *A. haitiana* from Haïti (male genitalia very similar, size somewhat bigger). The brazilian origin of the specimen is however problematical.

2. *Amphiacusta arachnoides* (Westwood, 1840). This species has been synonymized by Chopard (1968) with *Amphiacusta annulipes*. The type specimen (one male from Jamaica) could not be examined for this paper.

3. Two species have not been examined : 1) *Amphiacusta mexicana* Saussure, 1874 (synonymized with *A. azteca* by CHOPARD (1968)); and 2) *Amphiacusta tolteca* (Saussure, 1897). According to their geographical origin, these two species may not belong to the genus *Amphiacusta*, even though they may belong to Amphiacustae (DESUTTER-GRANDCOLAS, 1993).

## SYSTEMATIC TREATMENT

### Genus *AMPHIACUSTA* Saussure, 1874

*Amphiacusta* Saussure, 1874 : 444.

*Amphiacustes* Saussure, 1878 : 569.

Type species : *Amphiacusta annulipes* (Serville, 1831).

**Diagnosis.** – Species of median to moderately large size. Face with distinctive yellow markings. Eyes not reduced. Fastigium narrow or large, at the same level or below the vertex, from which it may be separated by a basal furrow; lateral and median ocelli present. Scapes large, longer than wide. Pronotum larger than long. Tibiae I with 2 tympana and 2 apical spurs. Tibiae II with 3 apical spurs. Tibiae III serrulated, with 4 pairs of alternate, subapical spurs, and 3 pairs of apical spurs; median apical spur the longest on both sides; first inner apical spur not reduced. Metatarsomeres I serrulated. Unless specified, pronotum margins bordered with yellow, except near the anterior angle of the inferior margins of the lateral lobes; legs brown and yellowish, the femora I and II and the tibiae annulated.

**Male.** – Metanotum with a pair of elliptical glands, whose margins and pits are more or less raised above the metanotal surface. Tegmina well developed, but not reaching the tip of the abdomen (apical field reduced) and sometimes covering about half of the abdomen; their surface not corneous. Venation : A1 more or less strongly bisinuated; cell located between the chords and the mirror large and more or less rectangular; stridulatory apparatus complete and functional. Posterior angles of susanal plate often elongated. Subgenital plate large and rounded.

**Male genitalia.** Epiphallic sclerite with distinct C-sclerite, A-sclerite, base and epiphallic parameres. Median lophi not always present; when present, lophi having the shape of two lobes bearing large setae, and not of a median visor (contrary to *Noctivox* and *Cantrallia*). C-sclerites always present and well developed, without associated glandular structures (contrary to *Longuripes* and *Pro-longuripes*). Membrane separating A- and C-sclerites not inflated. Epiphallic parameres without protruding, highly sclerotized parts.

**Females.** – Apterous.

**Female genitalia.** Copulatory papilla variegated in shape, but never membranous and plicated. Spermathecal duct short.

**Note.** – In some species the tergite 2 and the membrane between tergites 2 and 3 are greatly enlarged in the males; this membrane remains under tergite 2 and forms a large glandular pouch, the dorsal side of which presents distinct parallel ridges. Dry secretions are often found inside this pouch.

**Distribution.** – West Indies.

**Biology.** – *Amphiacusta* species are cavicolous and straminicolous : they hide in cavities during the day and forage in the leaf litter during the night (PECK, 1974; WOLCOTT, 1948; DE ZAYAS, 1976). They often occur in caves but are not troglobitic (DESUTTER-GRANDCOLAS, 1993, 1994b).

ALEXANDER & OTTE (1967) studied the reproductive behavior of *Amphiacusta* sp. from Puerto Rico. This species proved to have a calling and a courting songs but no aggressive song.

Several species groups have been recognized mainly by the characters of male genitalia, but also by female genitalia, male tegmina and male metanotal glands. Each species group is clearly characterized, especially the *A. carai-bea* group, and could be considered a separate taxonomic unit. Knowledge of the phylogenetic structure of *Amphiacusta* is however necessary to avoid paraphyletic splitting. The different species groups can be identified by the following key.

### Key of *Amphiacusta* group

1. Male genitalia : epiphallallic sclerites as a whole more or less rounded. Species from the Greater Antilles ..... 2
  - Male genitalia distinctively flat and long. Species from the Lesser Antilles ..... *A. carai-bea* group
2. Male genitalia : C-sclerites with a lateroventral spine (fig. 3, 6-8, 10); median lophi well developed and visible ..... *A. annulipes* group . 3
  - Male genitalia : C-sclerites without a lateroventral spine; median lophi regressed ..... 4
3. Size large. Face : yellow median line straight from the median ocellus to the epistomal suture. Female copulatory papilla high and narrow ..... *A. annulipes* subgroup
  - Size smaller. Face : yellow median line having the shape of a reverse Y. Female copulatory papilla flat and large ..... *A. haitiana* subgroup
4. Male genitalia : C-sclerites with a dorsolateral spine in addition to the main part of the sclerite (fig. 27, 37) ..... 5
  - Male genitalia : C-sclerites without a dorsolateral spine (fig. 22, 43, 51) ..... 6
5. Male genitalia : dorsolateral spine of C-sclerites large and flat (fig. 27). Female copulatory papilla long and slender, abruptly curved at midlength (fig. 28) ..... *A. nesiotis* group
  - Male genitalia : dorsolateral spine of C-sclerites small and thin, only partly sclerotized (fig. 37). Female copulatory papilla flat and large, inflated at midlength but narrowed before the apex; apex flat and bilobate, curved ventrally (fig. 32) ..... *A. pronauta* group
6. Male genitalia : C-sclerites slender and more or less U-shaped (fig. 51) ..... *A. variegata* group
  - Male genitalia : C-sclerites spine or hook-like ..... 7
7. Male genitalia : C-sclerites very slender and elongated (fig. 43); A-sclerites short. Female copulatory papilla elongated, narrower and bisinuated toward the apex (fig. 45-47) ..... *A. bahamensis* group
  - Male genitalia : C-sclerites hooklike (fig. 22); A-sclerites Y-shaped. Female copulatory papilla long and slender, the apex larger than the base (at least in *A. mona*, fig. 24) ..... *A. mona* group

### AMPHIACUSTA ANNULIPES group

**Diagnosis.** – *Male genitalia.* C-sclerites with a lateroventral «spine». Median lophi distinct and individualized, even when regressed, except in *A. minima*, sp. n. A pair of elongated sclerites originating from the ectophallic arc, and located above the base of the ectophallic fold. A-sclerites having more or less the form of a reverse T.

**Distribution.** – Greater West Indies (mostly Hispaniola).

**List of species included.** – *Amphiacusta annulipes* (Serville, 1831), *Amphiacusta dissimilis*, sp. n., *Amphiacusta domingensis*, sp. n., *Amphiacusta haitiana*, sp. n., *Amphiacusta*

*haitianella*, sp. n., *Amphiacusta hispaniolae*, sp. n., *Amphiacusta minima*, sp. n., *Amphiacusta ultima*, sp. n.

The material at hand belongs to 2 species subgroups :

1. The first subgroup is characterized by its large size, the median longitudinal clear line on its face (from the median ocellus to the epistomal suture), and the copulatory papilla of the females high and narrow, and surrounded by a thick but short membranous casing. It includes *A. annulipes* and *A. hispaniolae*.

2. The second group is characterized by its smaller size and the reverse Y yellow line on its face: in the females, the copulatory papilla is flat and large (narrower in *A. haitianella*), and covered dorsally by some thickened and wrinkled membrane. It includes *A. haitiana*, *A. domingensis*, *A. dissimilis*, *A. haitianella*, *A. ultima* and *A. minima*.

### 1. *Amphiacusta annulipes* (Serville, 1831) (fig. 1-4)

*Phalangopsis annulipes* Serville, 1831 : 167.

*Amphiacusta annulipes* : SAUSSURE, 1874 : 445.

*Amphiacustes annulipes* : SAUSSURE, 1878 : 431.

TYPE LOCALITY. – Haiti, Port au Prince.

**Diagnosis.** – Size large. Face brownish with 3 yellow longitudinal bands (1 under the median ocellus, short, and 1 under each antennal pit). Under each eye, a clear spot, more or less clearly extended toward the subgenal suture without reaching it. Lateral ocelli as large as the median one, and separate by a distance greater than their own width. Fastigium almost at the level of the vertex, from which it is separated by a poorly distinct basal furrow; fastigium brown at the apex and on the sides, and yellow on its basal half.

**Male.** – Metanotal glands flat, without any prominent margin (DESUTTER-GRANDCOLAS, 1993 : fig.1). Apical extensions of susanal plate short. Elytra (fig. 1) not enlarged; mirror larger than long, crossed by 2 transverse veins; file of the stridulatory apparatus : 78 – 86 teeth (mean value 82, n = 3).

**Male genitalia.** C-sclerites typically asymmetrical, the left one deeply indented with a long lateroventral « spine », the right one larger with a short lateroventral « spine » (fig. 2-3). A-sclerites elongated, large on their whole length, and not clearly of a reverse T shape. Median lophi short and conical.

**Female.** – Ovipositor longer than the hindfemora.

**Female genitalia.** Copulatory papilla long and narrow, distinctively concave dorsally, the membranous apex incurved ventrally (fig. 4). Spermathecal duct short.

**Measures.** Males (n=2) : *Lpron* : 2.6-2.9; *wpron* : 3.9-4.3; *LFIII* : 15.6-20.3; *LTIII* : 23.3 (n=1); *Lel* : 7.4 (n=1); *wel* : 4.7 (n=1). Females (n=2) : *Lpron* : 3.2-3.7; *wpron* : 4.9-5.2; *LFIII* : 18.6-23.3; *LTIII* : 24.7 (n=1); *Lovip* : 20.3-23.5.

**Material examined.** – HAITI : Port au Prince, 1 female type (MNHN); Coffee Exp. Sta., Fond des Nègres, 1 male (MNHN), 3 males and 3 females, III-IV 1930, C. H. Arndt (ANSP); Ouest Haïti, Kenakoff, 4300', 1 male, 17-IV-1937, C. Roys (UMMZ), in alcohol; Grand Anse, 1 male (file : 61 teeth; all legs missing), Uhler, ANSP. – JAMAICA : Montego Bay, 1 male, 29-X-1913, M. Hebard (ANSP).

**Observations.** – Other specimens from Jamaica (Montego Bay) and from the Bahama Islands have been examined. They present male genitalia similar to those of *A. annulipes*, with only very slight differences in the form of the A-sclerite. The stridulatory files of the males have fewer teeth (55 – 57, n = 2). The copulatory papilla of the females is also somewhat different, being smaller and less curved; the ovipositor is smaller or as long as the femur III.

2. *Amphiacusta hispaniolae*, sp. n. (fig. 5)

**Type material.** – **Female Holotype** : HAITI, Dept. de l'ouest, Furcy, 16-V-1959, *M. W. Sanderson* (UMMZ).

**Observations.** – Species very close to *A. annulipes*, but smaller, with a distinctive copulatory papilla, smaller ovipositor, different color pattern on the face and larger fastigium. Male unknown.

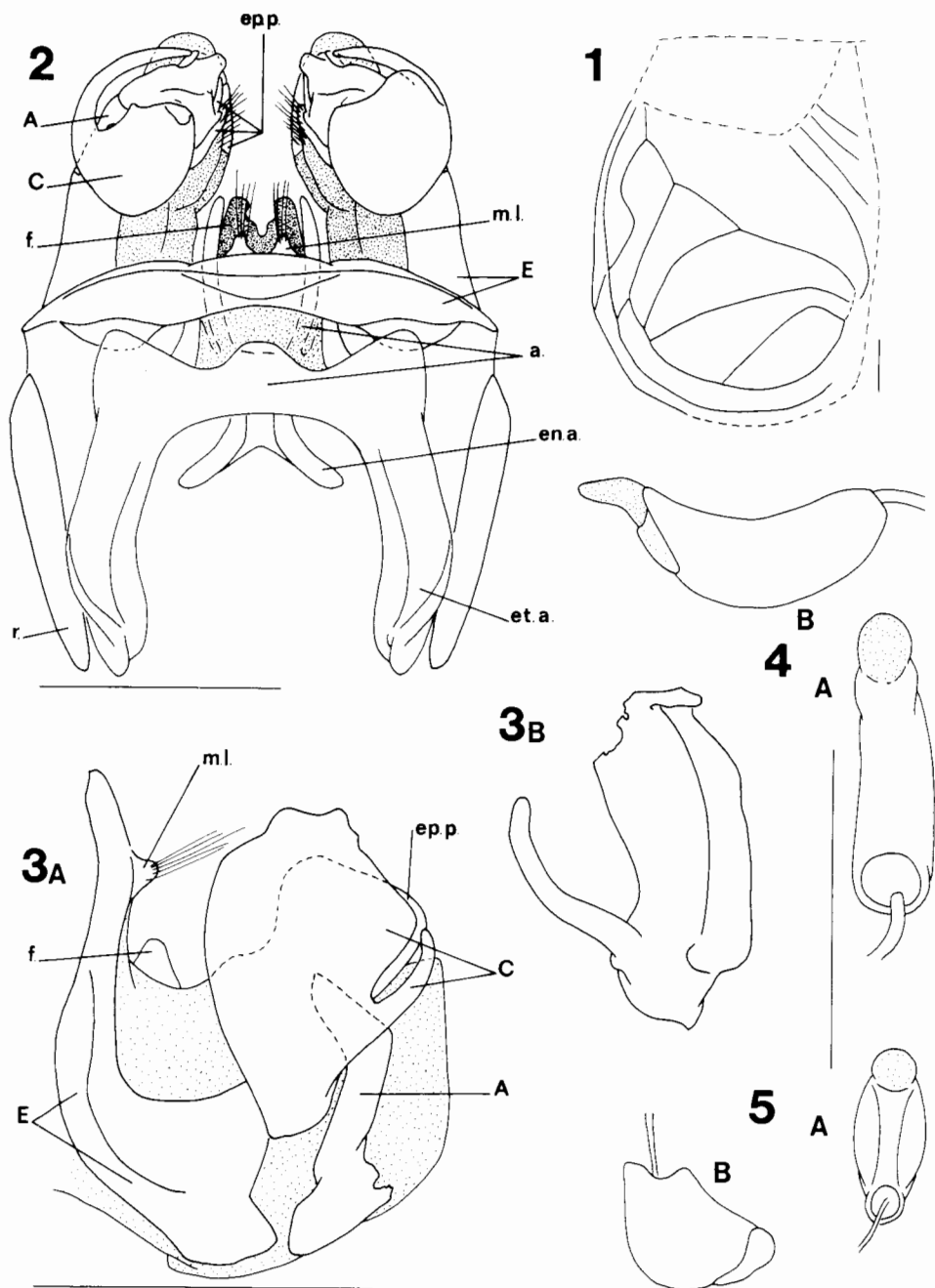


Fig. 1 to 5. *Amphiacusta annulipes* group. Fig. 1 to 4, *A. annulipes* : 1, male right tegmen. – 2 - 3, male genitalia in dorsal (2) and right lateral view (3A), with lateral view of left C-sclerite (3B). – 4, female copulatory papilla. Fig. 5, *A. hispaniolae*, sp. n. female copulatory papilla. Scales 1 mm. Abbreviations : see page 102.

**Description.** – Face brown, with 3 longitudinal yellow lines : a median one joining the median ocellus to the epistomal suture, extending and widening on the clypeus and labrum; 1 under each antennal pit, not reaching the epistomal suture; under the eye, a yellow line, narrowed at midlength but reaching the subgenal suture. Fastigium large, with a small transverse furrow at its base. Lateral ocelli more or less as large as the median one, and separate from each other by a distance more or less equal to twice their own width.

**Female genitalia.** Copulatory papilla very short and thick, and rounded (fig. 5).

*Measures.* Female (n=1) : *Lpron* : 2.7; *wpron* : 3.6; LFIII : 16.4; LTIII : 17.6; *Lovip* : 16.

### 3. *Amphiacusta haitiana*, sp. n. (fig. 6, 11, 15)

**Type material.** – **Male Holotype** : HAITI, Port au Prince, 1911, *G. Lion* (MNHN). **Female allotype** : same locality, same collector, same date as the holotype (MNHN). **Paratypes** : same locality, same collector, same date as the holotype, 1 male, legs III missing (MNHN); same locality as the holotype, 1 male, 24-IX-1930, *H. L. Dozier* (ANSP); Coffee Exp. Stat., Fond des Negres, 1 male, legs III missing, III-IV-1930, *C. H. Arndt* (ANSP).

**Description.** – Size small compared to *A. annulipes* and *A. hispaniolae*. Face brownish with a median line having the form of a reverse Y; under each antennal pit, a yellow line joining the subgenal suture; between the inferior angle of the eye and the antennal pit, a distinctive yellow oblong small spot; under the eye and joining the subgenal suture, a large, yellow longitudinal line extending on the mandible. Median parts of the clypeus and of the labrum yellow. Fastigium large, without a basal furrow. Ocelli small; the lateral ones separate by a distance twice their own width (slightly more in the female allotype).

**Male.** – Metanotal glands with very prominent margins, the posterior ones advancing toward the anterior ones, thus almost closing the glands. Posterior angles of susanal plate long, more than half the length of susanal plate. Elytra (fig. 11) not enlarged; mirror larger than long, with one or two transverse veins; A1 deeply bisinuated. File : 187-199 teeth (mean number 194, n = 3).

**Male genitalia.** C-sclerites symmetrical, longer than large, the lateroventral « spine » close and parallel to the main part of the sclerite (fig. 6). Median lophi large and flat, much more developed than in *A. annulipes*. A-sclerites of a reverse T shape, with a long and slender dorsal part.

**Female genitalia.** Copulatory papilla long, large and flat, slightly and regularly narrowed toward the apex; apex large and rounded (fig. 15). Spermathecal duct very narrow.

*Measures.* Males (n=2) : *Lpron* : 1.9-2.2; *wpron* : 3.3-3.5; LFIII : 11.8-13.2; LTIII : 13.1 (n=1); *Lel* : 5.3-6.1; *wel* : 3.9-4.3. Females (n=2) : *Lpron* : 2.5-2.8; *wpron* : 4.2-4.3; LFIII : 14.3-16.1; LTIII : 15.5-16.6; *Lovip* : 16.3-16.5.

**Other material examined.** – HAITI : same locality, same collector, same date as the holotype, 2 juveniles (MNHN); Fond parisien, about 60 ft. alt., 2 males and 2 females, 11-18-II-1922 (ANSP). DOMINICAN REPUBLIC, Azua, Las Yayitas, 1 male, 3 females and 1 larva, 22-V-1993, *Perez* (ANSP); Los Pinos, near La Descubierta, prov. Independencia, 1 male and 1 female, 26-V-1993, *Perez* (ANSP).

**Observations.** – The specimens from the Dominican Republic present slight differences compared with the typical specimens of *A. haitiana* : in particular, their male genitalia have bigger epiphallallic apical lophi, and the main parts of C-sclerites are somewhat bigger and oriented toward the median plan of the genitalia. Also the female copulatory papilla has a narrower apex. Other characters are similar to those of *A. haitiana* (male tegminal venation, susanal plate and metanotal glands; color patterns; ovipositor length), some specimens originating from Azua being however larger. Files of males present 213 (Los Pinos) and 227 teeth (Azua).

### 4. *Amphiacusta domingensis*, sp. n. (fig. 7, 12, 16)

**Type material.** – **Male Holotype** : St. DOMINGO, San Francisco Mts., IX-05, *Aug.*



*Busck* (ANSP). **Female allotype** : same locality, same date, same collector as the holotype (ANSP). **Paratype** : same locality, same date, same collector as the holotype, 1 female (ANSP) and 1 male (MNHN).

**Description.** – Species close to *A. haitiana*. Size and face similar to that of *A. haitiana*. Lateral ocelli small and more largely separate from each other than in *A. haitiana*.

**Male.** – Susanal plate, form and size of elytra as in *A. haitiana*. Metanotal glands similar to that of *A. haitiana*, but the posterior margins not so prominent and not curved. Elytra (fig. 12) : mirror slightly larger than long (but less so than in *A. haitiana*). A1 less bisinuated than in *A. haitiana*. File : 147 dents (n = 1).

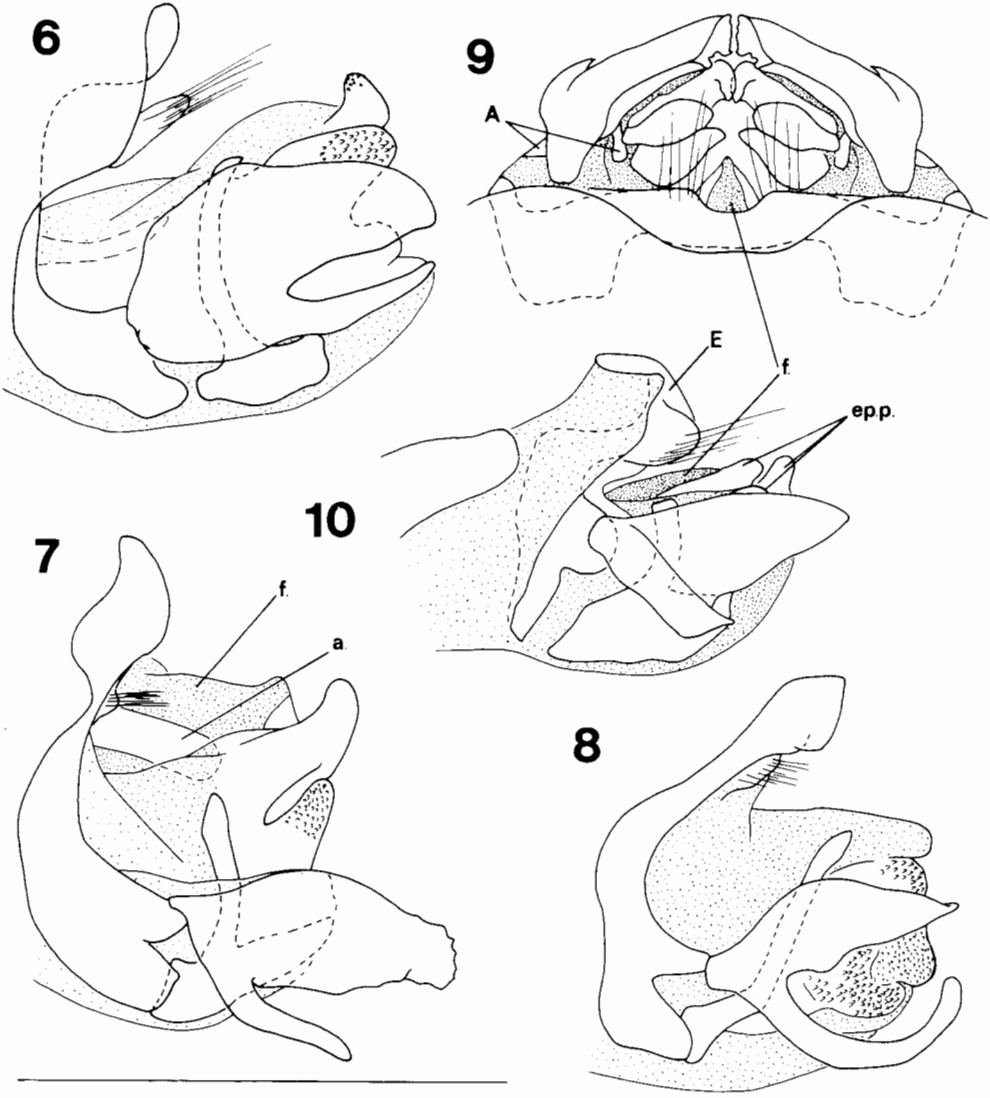


Fig. 6 to 10. *Amphiacusta annulipes* group. Male genitalia of : 6, *A. haitiana*, sp. n. (lateral view). – 7, *A. dominicensis*, sp. n. (lateral view). – 8, *A. dissimilis*, sp. n. (lateral view). – 9-10, *A. minima*, sp.n., dorsal (9) and lateral (10) view. Scale 1 mm. Abbreviations : see page 102.

**Male genitalia.** C-sclerites not very large and located near the apex of the epiphallic arms, the epiphallic parameres thus almost completely visible laterally; lateroventral « spine » divergent (fig. 7). Median lophi regressed, reduced to 2 ripples bearing 2-3 long and thin setae. Sclerites formed by the extension of the ectophallic arc large on their whole length.

**Female genitalia.** Copulatory papilla long and flat, its base large, but regularly narrowed toward the apex; apex narrow and slightly bent (fig. 16).

*Measures.* Male (n=1) : *Lpron* : 1.9; *wpron* : 3.3; LFIII : 11.9; LTIII : 12.1; *Lel* : 4.7; *wel* : 3.7. Female (n=1) : *Lpron* : 2; *wpron* : 3.4; LFIII : 13; LTIII : 13.1; *Lovip* : 12.

### 5. *Amphiacusta dissimilis*, sp. n. (fig. 8, 13)

**Type material.** – **Male Holotype** : St. DOMINGO, San Francisco Mts., IX-05, Aug. Busck (ANSP).

**Description.** – Species close to *A. haitiana* and *A. domingensis*. Face similar to that of *A. domingensis*, but the Y line shorter (epistomal suture bordered with brown) and the yellow band under the antennal pit narrower (angle between the antennal pit and the inner margin of the eye brown). Fastigium large; lateral ocelli as large as the median one and separate by a distance more or less equal to twice their own width. Pronotum similar to that of the other species of the group, but darker (pyriform inscriptions slightly yellowish; yellow band bordering the margins of the pronotum narrow and discontinuous on the anterior margin, and separate from the posterior margin by a brown stripe).

**Male.** – Elytra (fig. 13) : mirror longer than large and with a unique transverse vein broken at right angle. File : 95 teeth (n=1). Metanotal glands resembling those of *A. haitiana* and *A. domingensis*, but the whole surface flat and equally prominent.

**Male genitalia.** C-sclerites with a slender basal plate and a very long and largely divergent lateroventral « spine » (fig. 8). Median lophi regressed, reduced to a little ripple bearing a row of long setae. Sclerites extending the ectophallic arc large at their base, and regularly narrowed toward their sharp apex. Ectophallic apodemes short, narrowed toward their apex, and not locally enlarged near the epiphalle. Endophallic apodeme very short and not subdivided.

Female unknown.

*Measures.* Male (n=1) : *Lpron* : 2.5; *wpron* : 4; *Lel* : 5.2; *wel* : 4.

### 6. *Amphiacusta haitianella*, sp. n. (fig. 17)

**Type material.** – **Female Holotype** : HAITI, Petion, Mann (ASNP).

**Description.** – Face resembling that of *A. domingensis*, but the yellow line under the antennal pit larger and including a distinct round yellow spot just under the antennal pit. Fastigium large; lateral ocelli nearly as large as the median one, and separate by a distance slightly longer than twice their own width. Fastigium yellow dorsally, its sides and a spot behind the median ocellus brown. Yellow band bordering the pronotum almost continuous (even on the lateral lobes). Femora I and II black brown (the outer side of femur II spotted with yellow), with a yellow ring near their apex.

**Female genitalia.** Copulatory papilla long, slender and almost straight, membranous dorsally and at the apex; the apex bent ventrally (fig. 17).

Male unknown.

*Measures.* Female (n=1) : *Lpron* : 2.4; *wpron* : 4; LFIII : 13.3; LTIII : 14.1; *Lovip* : 14.7.

### 7. *Amphiacusta haitiensis*, sp. n. (fig. 18)

**Type material.** – **Female Holotype** : HAITI, Coffee exp. Sta., fond des Negres, C.H. Arndt (ANSP). **Paratype** : same locality, same date, same collector than the holotype, 1 female (ANSP). Both in poor condition and without TIII.

**Description.** – Species resembling *A. haitianella*. Yellow line under the antennal pit almost continuous (not clearly broken into two spots as in *A. haitianella*). Anterior margin of the dorsal disc

of the pronotum bordered by a very thin yellow line; anterior angle of the lateral lobe with an additional curved, yellow line. Femora I and II as in *A. haitianella*, but with an additional yellow line along the margin of their outer face. Femora III yellow, striped with brown, the apex brown.

**Female genitalia.** Copulatory papilla similar to that of *A. haitianella*, but the apex much longer (fig. 18).

Male unknown.

**Measures.** Females (n=2) : *Lpron* : 2.7-2.8; *wpron* : 4.1-4.4; *LFIII* : 17.6-18.5; *Lovip* : 16.2-16.5.

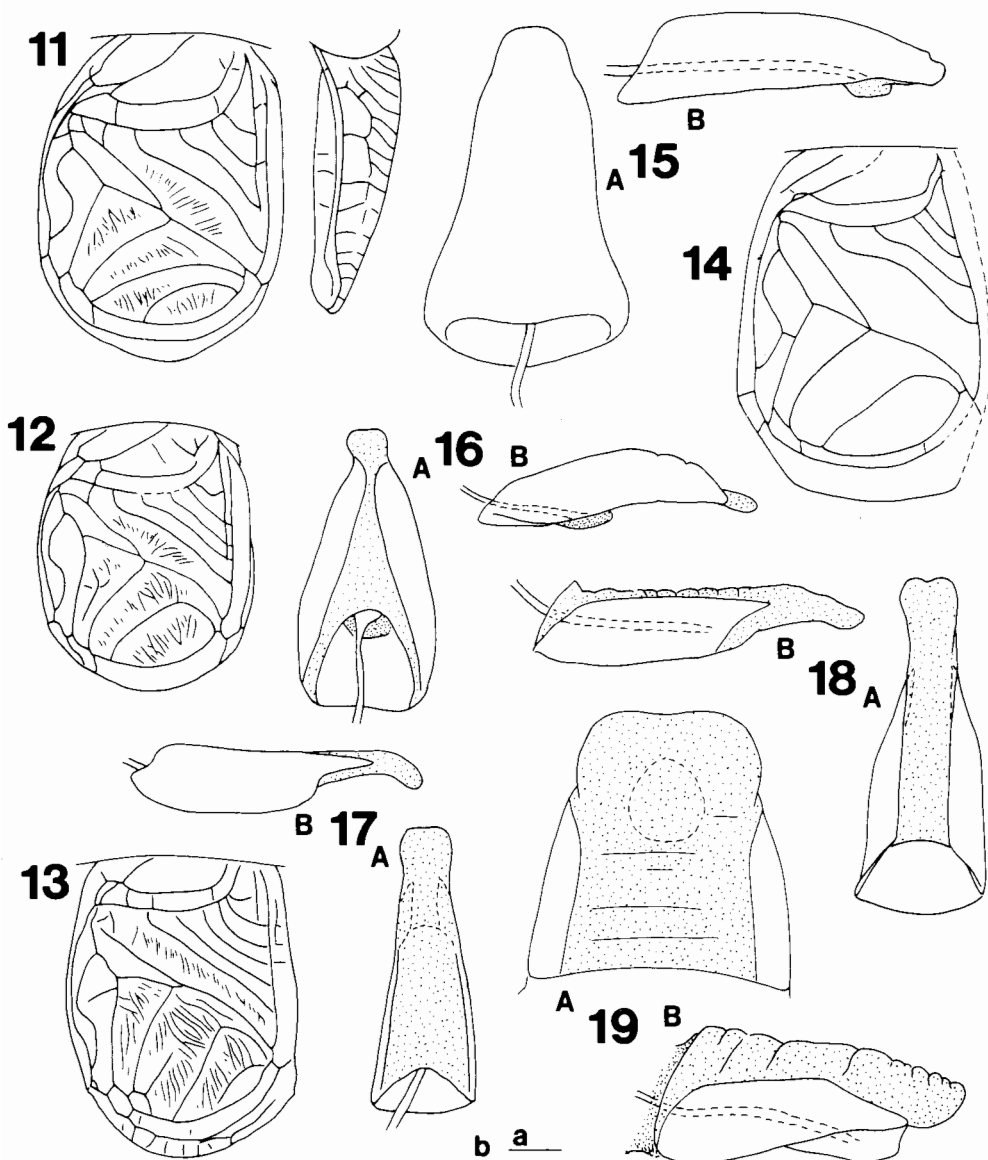


Fig. 11 to 19, *Amphiacusta annulipes* group. Fig. 11 – 14, male right tegmen (scale a) of : 11, *A. haitiana*, sp. n. – 12, *A. domingensis*, sp. n. – 13, *A. dissimilis*, sp. n. – 14, *A. minima*, sp. n. Fig. 15 – 19, female copulatory papilla (scale b) of : 15, *Amphiacusta haitiana*. – 16, *A. domingensis*. – 17, *A. haitianella*, sp. n. – 18, *A. haitiensis*, sp. n. – 19, *A. ultima*, sp. n. Scales 1 mm.

8. *Amphiacusta ultima*, sp. n. (fig. 19)

**Type material.** – **Female Holotype** : St. DOMINGO, prov. Monte Cristi, 5 km. N. Villa Elisa, in cave, 14-XII-1982, R. E. Woodruff (UMMZ). **Paratype** : same locality, same date, same collector than the holotype, 1 female (UMMZ). Both in alcohol.

**Description.** – Species larger than the other species of the *haitiana* subgroup. Face brown, with several yellow longitudinal stripes : one under the median ocellus (in the form of a reversed Y) and a large one under each antennal pit (bordering the eye at its base). Cheek yellow, except for its brown posterior margin. Fastigium narrow, without a basal furrow. Lateral ocelli large, separate by a distance equal to 1.5 time their own width. Ovipositor very long (see measures).

**Female genitalia.** Copulatory papilla very short, membranous dorsally and large on its whole length (fig. 19).

Male unknown.

*Measures.* Females (n=2) : *Lpron* : 2.9-3.2; *LFIII* : 17.8-20.5; *LTIII* : 18.5-21.8; *Lovip* : 21.2-22.6.

9. *Amphiacusta minima*, sp. n. (fig. 9-10, 14)

**Type material.** – **Male Holotype** : St. DOMINGO, 1 mi. W. Ciudad Trujillo, VIII-1944, J. J. Friauf (UMMZ). Not in very good condition.

**Description.** – Size very small for the genus. Face almost as in *A. haitiana*, but the yellow line under each antennal pit and the spot between the antennal pit and the eye fused. Cheeks yellowish, their posterior margins brown. Scapes almost entirely yellow, except for two tiny brown spots on their inner and upper faces. Fastigium large; lateral ocelli smaller than the median one, and separate by a distance more or less equal to twice their own width. Fastigium black brown on its sides and between the median and the lateral ocelli; that coloration extending between the superior margin of the antennal *pit* and the inner margin of the eyes. Behind each lateral ocellus, a dark transverse spot.

**Male.** – Posterior angles of susanal plate long and flat. Metanotal glands small, their margins equally raised, and their surface somewhat concave. Tegmina : mirror larger than long and crossed by a unique vein; A1 strongly bisinuated; cells between the mirror and the chords as on figure 14.

*Male genitalia.* C-sclerites thick and relatively slender; lateroventral « spine » large and very small. A-sclerites short, with a large basal plate. Median lophi not really individualized, but included in a « border ». Endophallic apodemes long and divergent (fig. 9-10).

Female unknown.

*Measures.* Male (n=1) : *Lpron* : 1.9; *wpron* : 3.4; *LFIII* : 11.8; *LTIII* : 12.3; *Lel* : 6.4; *wel* : 4.2.

## AMPHIACUSTA MONA group

**Diagnosis.** – Fastigium narrow, below the level of the vertex, and with a basal furrow.

**Male.** – Metanotum without any distinct glands. Elytra greatly enlarged.

*Male genitalia.* C-sclerites without a lateral spine and hooklike. A-sclerites more or less Y-shaped, with a straight part. Median lophi lacking. Ectophallic arc not extended by a pair of sclerites above the ectophallic fold.

Female genitalia (at least in *A. mona*). Copulatory papilla long and slender, the apex larger than the base. Membrane above the papilla thickened and wrinkled.

**Distribution.** – Puerto Rico, Jamaica and Mona island.

**List of species included.** – *Amphiacusta mona*, sp. n., *Amphiacusta tijicohniae*, sp. n.

10. *Amphiacusta mona*, sp. n. (fig. 20, 22, 24)

**Type material.** – **Male Holotype** : MONA Isl., 21-26-II-1914 (ANSP). **Female allotype** : same locality, same date as the holotype (ANSP). **Paratypes** : same locality, same date as the holotype, 2 males and 7 females (ANSP), 1 male and 1 female (MNHN).

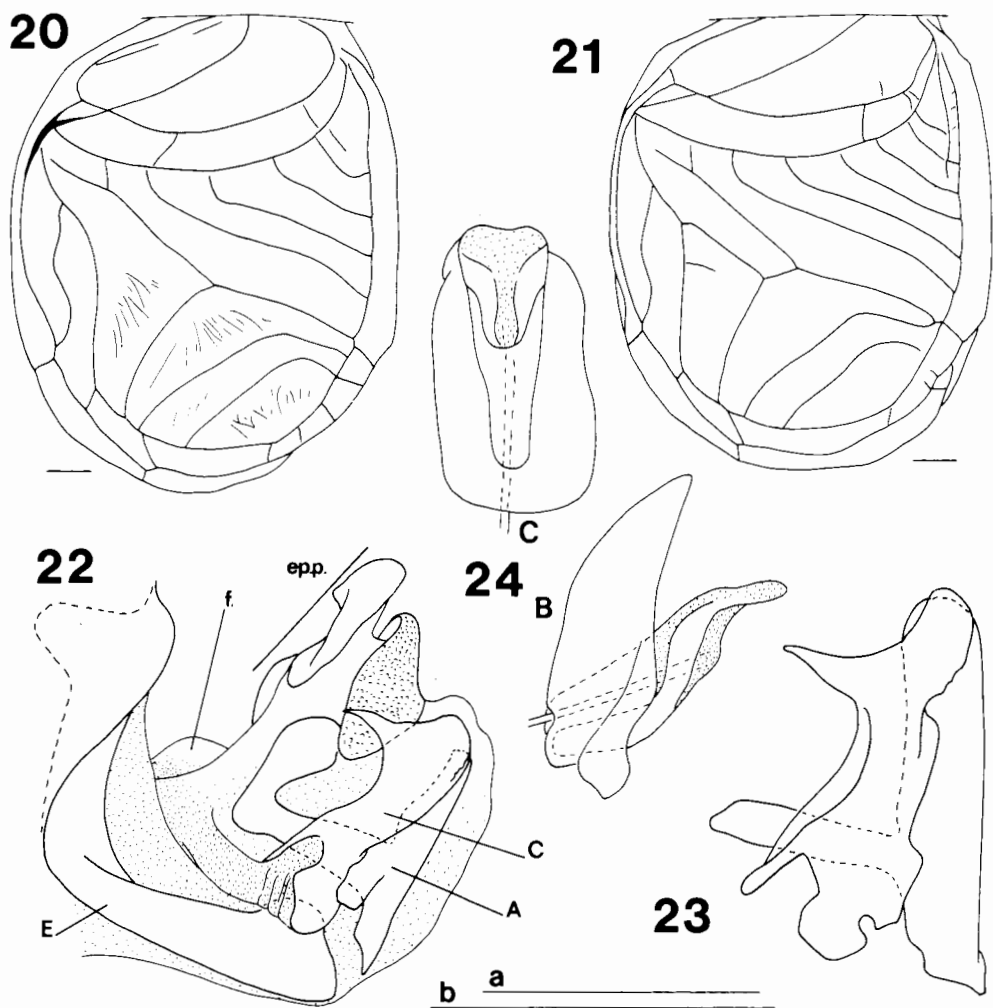


Fig. 20 to 24. *Amphiacusta mona* group. Fig. 20 – 21. male right tegmen of : 20, *A. mona*, sp. n. – 21. *A. tijicohniae*, sp. n. Fig. 22. male genitalia of *A. mona* (lateral view). Fig. 23. C- and A-sclerites of male genitalia of *A. tijicohniae* (lateral view) (scale b). Fig. 24. copulatory papilla of *A. mona* (scale a). Scales 1 mm. Abbreviations see page 102.

**Description.** – Face ivory yellowish with a black band joining the inferior angles of the eye and of the antennal pit with the epistomal suture. Another brownish band seems to exist on each side of the median line of the face (specimens preserved in alcohol). Fastigium brownish in the males, lighter in the females; a distinct transverse black line between the superior margin of the antennal pit and the inner margin of the eye. Pronotum with a large yellow band along its margin, thinner only above the anterior angle of the lateral lobe, and with the pyriform inscriptions yellow, connected laterally to the yellow anterior margin of the dorsal disc.

**Male.** – Elytra (fig. 20) : mirror larger than long, and crossed by 2 veins; harp with 4 veins; file with 281 – 304 teeth (mean number 290, n= 4). Posterior angles of susanal plate small.

*Male and female genitalia* as on the figures 22 and 24 respectively.

*Measures.* Males (n=4) : *Lpron* : 2.3-3 (2.7); *wpron* : 4.3-5.4 (4.9); LFIII : 13.5-16.8 (15.2); LTIII : 14.6-18.1 (16.5); *Lel* : 7.8-9.1 (8.5); *wel* : 6.6-7.7 (7.2, n=3). Females (n=4) : *Lpron* : 2.5-2.9 (2.8); *wpron* : 4-4.6 (4.4); LFIII : 12.9-15.5 (14.1); LTIII : 13.8-16.7 (14.9); *Lovip* : 15.3-18.4 (16.9).

**Other material examined.** – PUERTO RICO, La Parguera, 1 male (file with 251 teeth), I-1964 (UMMZ). – JAMAICA, Montego Bay, 2 males (276 teeth), 4-III-1911, and 2 females, 17-III-1911 (ANSP).

**Observations.** – Several specimens have been found at Philadelphia (USA) in a schooner unloading logwood from Jamaica. They are very close to *A. mona*, but present some distinctive characters : hook of A-sclerite of male genitalia smaller than in the specimens from Mona Island; mirror of male stridulatory apparatus often with only one transverse vein, plus a very small one near the inferior margin of the mirror; file with 262 – 275 teeth (mean number 268, n = 3). The female copulatory papilla is regularly enlarged to the apex and has the apical margin straight (and not bisinuated). These characters are very slight, but appear constant.

### 11. *Amphiacusta tijicohniae*, sp. n. (fig. 21, 23)

**Type material.** – **Male Holotype** : PUERTO RICO, Guanica State forest, 9 mi. E. Guanica (Forest sta.), 22-VI-1969, 450 ft., *T. J. Cohn* (UMMZ).

**Description.** – Species very close to *A. mona*, but of much bigger size.

**Male.** Elytra (fig. 21) with the anterior angle of the mirror larger, and the cell located between the chords and the mirror smaller than in *A. mona*. File with 298 teeth (n = 1).

*Male genitalia.* Much larger than those of *A. mona* and with C-sclerites slightly different in form (fig. 23).

Female unknown.

*Measures.* Male (n=1) : *Lpron* : 3.4; *wpron* : 5.9; LFIII : 19.5; LTIII : 20.4; *Lel* : 10; *wel* : 8.3.

### AMPHIACUSTA NESIOTES group

**Diagnosis.** – Fastigium large, below the level of the vertex and with a distinct basal furrow.

*Male genitalia.* C-sclerites with a long dorsolateral « spine », flat and large. A-sclerites skirting around the base of C-sclerites. Epiphallallic parameres small, located between the epiphallallic arms and not visible laterally as in the other species of the genus. Median lophi very small, conical. Ectophallic arc not extended by two sclerites above the ectophallic fold.

*Female genitalia.* Copulatory papilla long and slender, abruptly curved at midlength. Membrane surrounding the base of the papilla thickened and with definite forms.

**Distribution.** – Puerto Rico.

**List of species included.** – *Amphiacusta nesiotes*, sp. n.

### 12. *Amphiacusta nesiotes*, sp. n. (fig. 25-28)

**Type material.** – **Male Holotype** : PUERTO RICO, Corozal, cueva de Corozal, 4-I-1967, *S. Peck*, genitalia number 1002 (UMMZ). **Female allotype** : PUERTO RICO, San Jose, 2.5 mi. NE. Carolina, 24-XII-1966, *S. Peck* (UMMZ). **Paratypes** : same locality, same date,

same collector as the allotype, 1 male, genitalia number 1001 (UMMZ); Aguas Buenas, Aguas Buenas cave, 1 male (MNHN), 1 male, genitalia number 946, and 1 female, 13-II-1968, *M. B. Fenton* (UMMZ); same locality, 1 female, 30-XII-1966, *S. Peck* (UMMZ); Corozal, 1 female, 25-I-1914 (MNHN); Tres Pueblos, Bahaney, 1 male, genitalia number 1000, and 1 female, 14-II-1964, *Brother G. Nicholas, F.S.C.* (UMMZ).

**Description.** – Size large. Face brown, with several yellow longitudinal stripes : one under the median ocellus, large and widened toward the epistomal suture; one under each antennal pit, extending along the antennal pit up to the eye; and one under the inferior angle of each eye. A large yellow

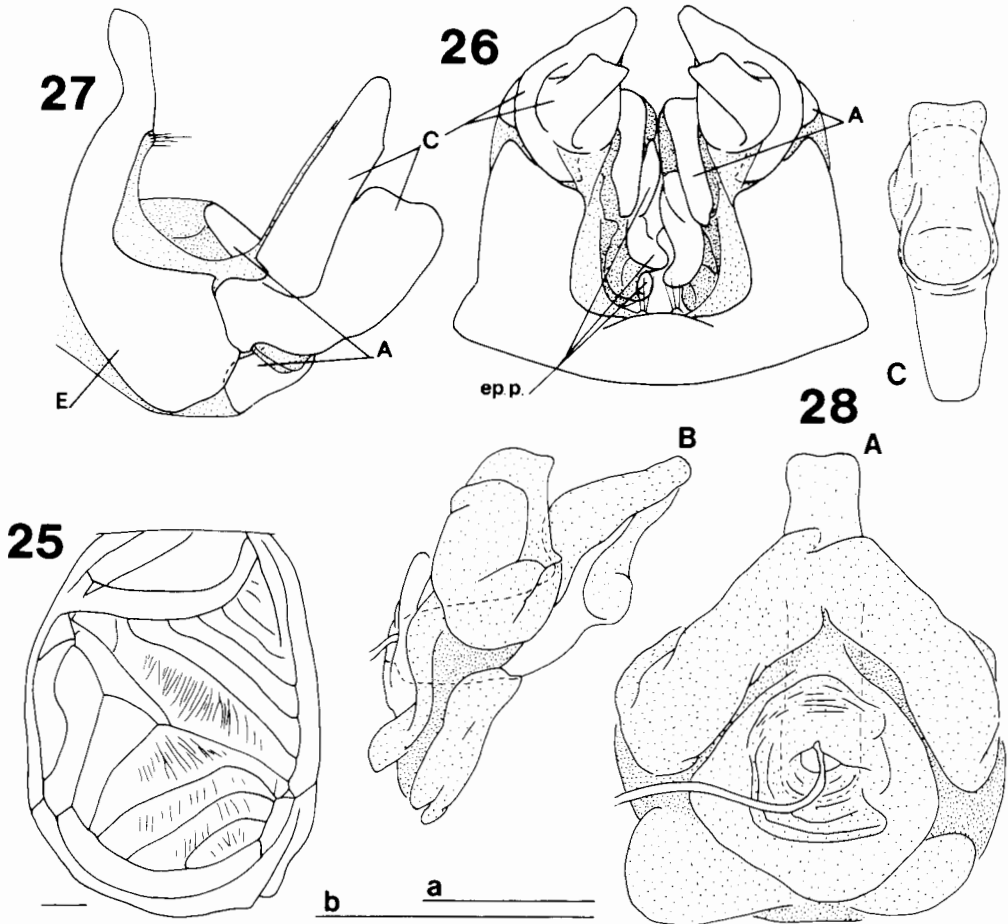


Fig. 25 to 28. *Amphiacusta nesiotes* group. *A. nesiotes*, sp.n. : 25, right male tegmen. – 26 – 27, male genitalia in dorsal (26) and lateral (27) view (scale a). – 28, female copulatory papilla (scale b). Scales 1 mm. Abbreviations see page 102.

low band crossing the vertex and extending on the cheeks. Lateral ocelli smaller than the median one, and separate by a distance more or less equal to three times their own width. Dorsal part of the fastigium yellow; its lateral parts and the space between the superior margin of the antennal pits and the inner margin of the eyes brown. Femora III with a filiform part almost as long as half the length of the femora.

**Male.** – Elytra (fig. 25) small and narrow. File with 106 – 162 teeth (mean number 132, n=4). Susanal plate with numerous long setae; posterior angles large, not particularly protruding, but distinct. Metanotal glands with margins not particularly developed.

**Male genitalia.** In addition to the characters already indicated (fig. 26-27) : ectophallic fold

small, non visible laterally between the epiphallic arms. Endophallic apodeme almost undivided in the median plan. Ectophallic apodemes enlarged locally near the epiphalle, which is also reinforced.

**Female genitalia.** Copulatory papilla long, larger and thicker before the apex (fig. 28).

*Measures.* Male (n=1) : *Lpron* : 3.2; *wpron* : 5.1; *LFIII* : 22.3; *LTIII* : 27; *Lel* : 8.7; *wel* : 5.4. Female (n=1) : *Lpron* : 4.4; *wpron* : 5.6; *LFIII* : 25.2; *LTIII* : 28.3; *Lovip* : 21.5.

### AMPHIACUSTA PRONAUTA group

**Diagnosis.** – Fastigium not very large, almost at the same level than the vertex, with a basal furrow not always distinct.

**Male.** – Metanotal glands similar to those of the other species of the genus, but the margins highly raised above the metanotal surface.

*Male genitalia.* C-sclerites large, with a dorsolateral « spine » only partially sclerotized and at nearly right angle from the main part of the sclerite. A-sclerites short and large, more or less of a reverse T shape. Median lophi small, conical. Ectophallic arc not extended above the ectophallic fold by a pair of individualized sclerites.

**Female genitalia.** Copulatory papilla short and large, inflated at midlength but narrowed before the apex, which is flat and bilobate, and more or less bent ventrally. Membrane surrounding the papilla base thickened and with distinctive forms.

**Distribution.** – Puerto Rico, Ste Croix.

**List of species included.** – *Amphiacusta pronauta*, sp. n., *Amphiacusta sanctaecrucis*, sp. n., *Amphiacusta minor*, sp. n., *Amphiacusta nauta*, sp. n.

#### 13. *Amphiacusta pronauta*, sp. n. (fig. 29, 32, 36-37)

**Type material.** – **Male Holotype** : PUERTO RICO, Aguas Buenas, forest of Aguas Buenas caves, 11-13-V-1973, 250 m., malt trap, *S. Peck et al.* (UMMZ). **Female allotype** : same locality, same collector, same date as the holotype (UMMZ). Both in alcohol.

**Description.** – Face brown with several longitudinal yellow stripes : one under the median ocellus (down to the epistomal suture), one under each antennal pit, slightly enlarged toward the eye, and one under each eye. Fastigium with a distinct basal furrow. Lateral ocelli smaller than the median one, and separate from each other by a distance greater than twice their own width. Fastigium yellowish at its base, dark brown at its apex and on its sides (up to the eyes).

**Male.** – Metanotal glands well developed and delimited by high crests on all sides. Susanal plate with long posterior angles, channeled only at their base. Last tergites with numerous long setae. Elytra (fig. 29) small and not enlarged. Mirror more or less as long as large, crossed by 2 veins; its anterior angle narrow. Cell delimited by the mirror and the chords long and slender. File with 132 teeth (n=1).

*Male genitalia.* Dorsolateral « spine » of the C-sclerite long, exceeding the main part of the sclerite by more than a third of its own length. Epiphallic parameres as in the figures 36-37. Endophallic apodeme almost undivided. Ectophallic arc having a free margin above the ectophallic fold.

**Female genitalia.** Copulatory papilla long and relatively slender compared to that of the other species of the group; the apex abruptly enlarged and subdivided into two flat lobes (fig. 32).

*Measures.* Male (n=1) : *Lpron* : 3.4; *LFIII* : 16.9; *LTIII* : 17.6; *Lel* : 8.6; *wel* : 6.9. Female (n=1) : *Lpron* : 3.5; *LFIII* : 17.4; *LTIII* : 17.8; *Lovip* : 16.

**Other specimens examined.** – PUERTO RICO, El Yunque National Forest, Big Tree Trail, rainforest, 3-I-1992, 9 males and 10 females, *D. Otte & S. Peck* (ANSP), 1 male and 1 female (MNHN). File of males : 133 – 135 teeth (mean number 134, n=3).



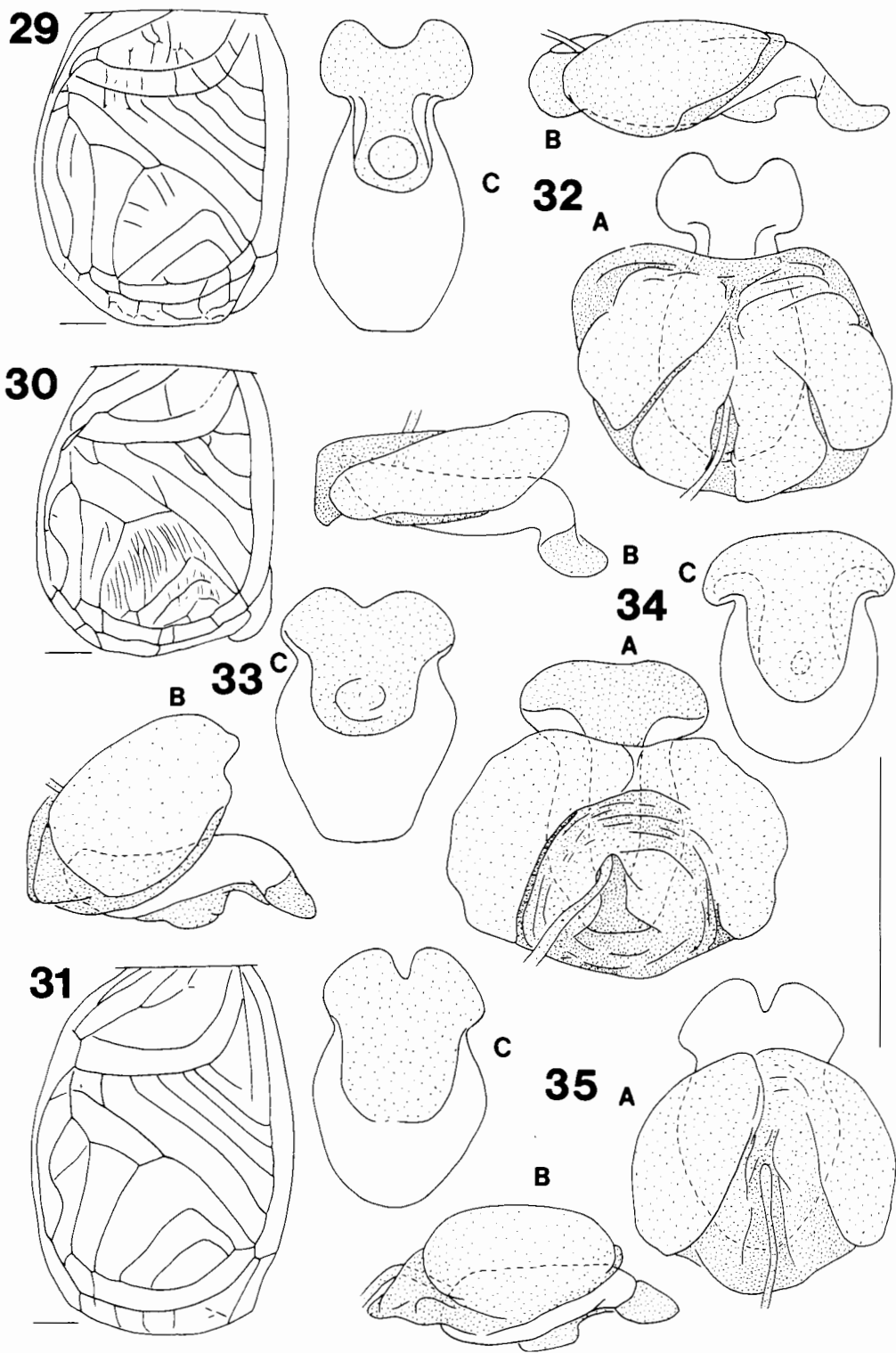


Fig. 29 to 35, *Amphiacusta pronauta* group. Fig. 29 – 31, male right tegmen of: 29, *A. pronauta*, sp. n. – 30, *A. sanctaetrucis*, sp. n. – 31, *A. nauta*, sp. n. Fig. 32 – 35, female copulatory papilla of: 32, *A. pronauta*. – 33, *A. sanctaetrucis*. – 34, *A. minor*, sp. n. – 35, *A. nauta*. Scales 1 mm.

14. *Amphiacusta sanctaecrucis*, sp. n. (fig. 30, 33, 38)

**Type material.** – **Male Holotype** : ST. CROIX, Christiansted, 1940, *H. A. Beatty* (UMMZ). **Female allotype** : same locality, same collector as the holotype, XII-1940, under vegetation (UMMZ). **Paratypes** : same locality, same collector as the holotype, 1 male, I-1941, « on bush » (MNHN); same locality, same date, same collector as the holotype, 1 female (UMMZ); same locality, same date, same collector as the allotype, 1 female (MNHN); same locality, same collector as the allotype, 1 female, X-1940 (UMMZ); same locality, same collector as the holotype, 1 male, genitalia number 1006, II-1941, « under rubbish » (UMMZ); same locality as the holotype, 1 male, *Lischley* (ZMC).

**Description.** – Species very similar to *A. pronauta*, but of smaller size.

**Male.** – Male metanotum as in *A. pronauta*. Membrane between tergites 2 and 3 glandular. Elytra (fig. 30) : anterior angle of the mirror broader. Cell between the mirror and the chords smaller and larger. File with 108 – 112 teeth (mean number : 110, n=3).

*Male genitalia.* Similar to those of *A. pronauta*, but the dorsolateral « spine » of C-sclerites shorter, and the epiphallic parameres broader (compare the figures 37 and 38). Endophallic apodeme more bilobate.

**Female.** Ovipositor slightly longer than the hindfemur.

*Female genitalia.* Copulatory papilla shorter and broader than that of *A. pronauta*; its apex hardly bisinuated (fig. 33).

*Measures.* Males (n=2) : *Lpron* : 2.6-2.8; *wpron* : 4.1-4.3; LFIII : 13.5-13.8; LTIII : 13.9; *Lel* : 5.7-6.7; *wel* : 4.5-5.1. Females (n=4) : *Lpron* 2.9-3.3 (3.1); *wpron* : 4.3-5.1 (4.7); LFIII : 13.3-15.6 (14.5); LTIII : 13.6-16 (14.9); *Lovip* : 14.5-17.2 (15.8).

**Other material examined.** – LESSER ANTILLES : MARTINIQUE, Fond Boucher, 1 female, 17-18-III-1975, *L. Matile* (MNHN). – ST. JOHN, Cinnamon Bay trail, near top of crest, rainforest, 17 males and 24 females, I-1992, *D. Otte & S. Peck* (ANSP), in alcohol. The identification of these specimens is not ascertained. Male and female genitalia and male stridulatory apparatus (file : 112-113 teeth, n=2) are similar to those of *A. sanctaecrucis*. The venation of male tegmina is however somewhat different (A1 less bisinuated, venation often irregular, with several additional veinlets) and the size (especially in females, ovipositor length about 20 mm) somewhat bigger. – STE. LUCIA, Barre de l'Isle Ridge, trail on south side of Castries to Dennery road, rainforest, 4 males and 3 females, 10-I-1992, *D. Otte & S. Peck* (ANSP), in alcohol. These specimens differ from *A. sanctaecrucis* by the file of male stridulum (91-94 teeth, n=2).

15. *Amphiacusta minor*, sp. n. (fig. 34)

**Type material.** – **Female Holotype** : PUERTO RICO, Isabela, 11-10-53 (UMMZ). **Paratype** : Cueva de los Alferos, Barrio Moro near Isabella (sic), 1 female, 29-XII-1966, in bat guano, *S. Peck* (UMMZ).

**Description.** – Species characterized by its female genitalia (male unknown) : copulatory papilla resembling that of *A. pronauta*, but shorter, broader and with a straight apex (fig. 34). Other characters : fastigium large, with a thin basal furrow. Lateral ocelli large, separate by a distance twice their own width. Ovipositor more or less equal in length to the hindfemur. Face coloration undistinguishable on the specimens at hand.

*Measures.* Females (n=2) : *Lpron* : 3.5-3.7; *wpron* : 4.8 (n=1); LFIII : 17.1-17.9; LTIII : 17.8-18.5; *Lovip* : 17-18.1.

16. *Amphiacusta nauta*, n. sp. (fig. 31, 35, 39)

**Type material.** – **Male Holotype** : From a schooner stopped at Philadelphia (Penn-

sylvania) with logwood from Pt. Negril, Jamaica (ANSP). **Female allotype** : same locality as the holotype (ANSP). **Paratype** : same locality as the holotype, 1 male (MNHN).

The type locality of this species remains uncertain.

**Description.** – Face resembling that of the other species of the group, but a short Y yellow line under the median ocellus. Fastigium large; lateral ocelli smaller than the median one, and separate by a distance equal to, or somewhat greater than, twice their own width.

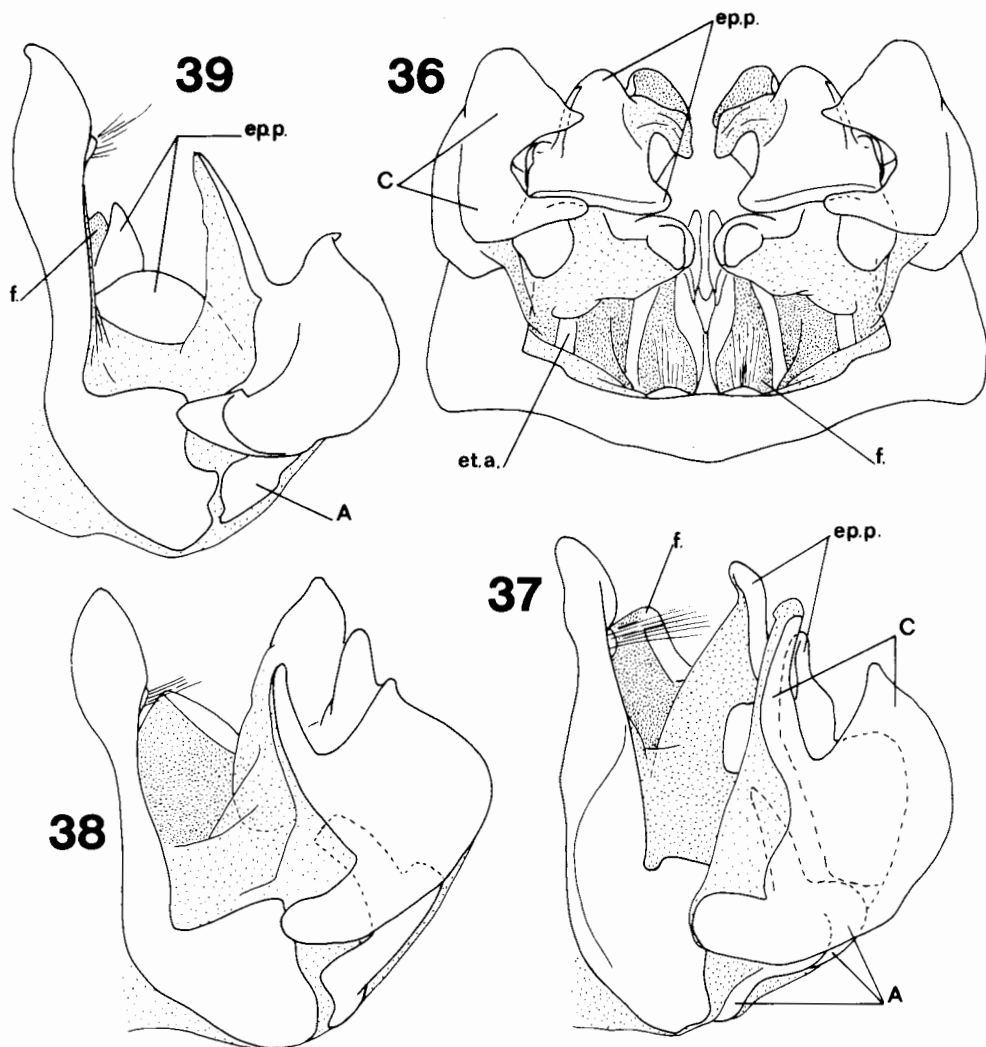


Fig. 36 to 39, *Amphiacusta pronauta* group, male genitalia of : 36 – 37, *A. pronauta* in dorsal (36) and lateral (37) view. – 38, *A. sanctaecrucis*. – 39, *A. nauta*. Scale 1 mm. Abbreviations see page 102.

**Male.** – Elytra (fig. 31) small and not enlarged; mirror longer than large, with two crossing veins, its anterior angle intermediate in width between that of *A. pronauta* and *A. sanctaecrucis*. File with 105 – 119 teeth ( $n=2$ ). Susanal plate with long, large and deeply channeled posterior angles. Last tergites with very long setae.

**Male genitalia.** Very distinctive. C-sclerites with a basal plate smaller than that of *A. pronauta* and *A. sanctaecrucis*, the dorsolateral « spine » comparatively longer and broader at its base (fig. 39). Epiphallic parameres located more on the inner side of the epiphallic arms than on their

apex, in the place usually occupied by the ectophallic fold. Median lophi small, conical. Endophallic apodeme undivided.

**Female genitalia.** Copulatory papilla short and large, the apex deeply indented (fig. 35).

*Measures.* Males (n=2) : *Lpron* : 3.1-3.2; *wpron* : 4.5-4.9; *LFIII* : 14.4-16.1; *LTIII* : 15.8-16.9; *Lel* : 6.8-7.1; *wel* : 5.2-5.3. Female (n=1) : *Lpron* : 2.8; *wpron* : 4.2; *LFIII* : 13; *LTIII* : 13.8; *Lovip* : 14.3.

### AMPHIACUSTA BAHAMENSIS group

**Diagnosis.** – Male. Metanotal glands as in the other species of *Amphiacusta*, but the posterior margins raised and curved.

*Male genitalia.* C-sclerites without a distinct basal plate, but very slender, long and acute. A-sclerites short, their dorsal parts separate from the membrane and spine-like. Median lophi visible by two tufts of setae on a single border. Ectophallic arc not extended above the ectophallic fold by a pair of sclerites.

*Female genitalia.* Copulatory papilla elongated, more or less narrower at the apex than at the base, and the apex distinctly curved. Membrane surrounding dorsally the copulatory papilla thickened and with distinctive shapes.

**Distribution.** – Bahamas and Cuba.

**List of species included.** – *Amphiacusta bahamensis* (Morse, 1905); *Amphiacusta robusta*, sp. n., *Amphiacusta doi*, sp. n., *Amphiacusta cubensis*, sp. n.

#### 17. *Amphiacusta bahamensis* (Morse, 1905) (fig. 40, 41, 45)

*Amphiacustes bahamensis* Morse, 1905 : 23.

*Amphiacusta bahamensis* : HUBBELL, 1938 : 214; CHOPARD, 1968 : 282; OTTE, 1994 : 54.

**Type material.** – MORSE (1905) mentions 1 male and 3 female types, from the Bahamas, Andros, Mangrove Cay, 4-VIII-1904, *O. Bryant* (ANSP). An additional male exists in the ANSP collections originating from the Bahamas islands (New Providence, 1949, *Ms. Higgs*) and with a type label of the same species.

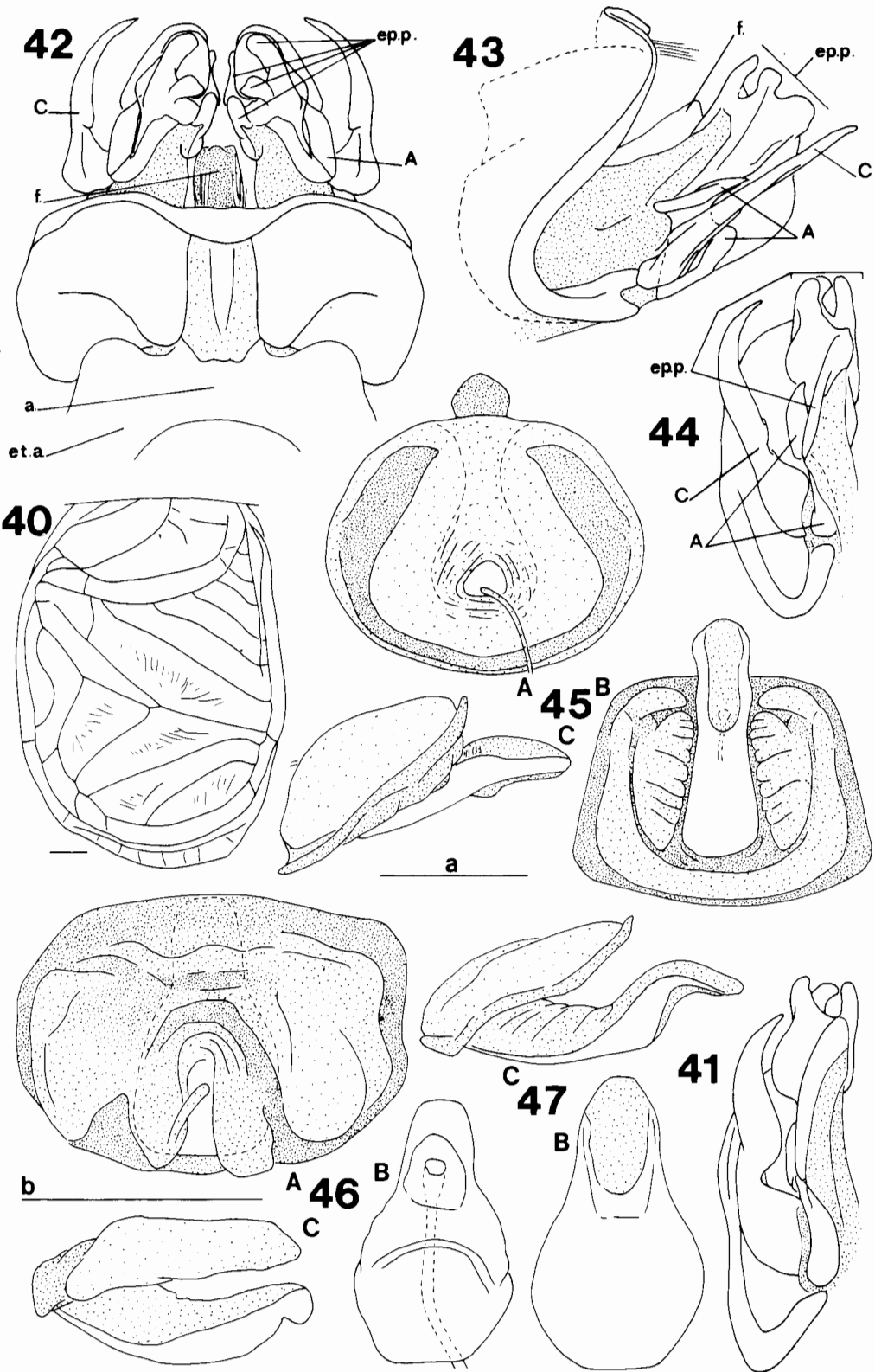
**Description.** – Size very large. Fastigium not very large; lateral ocelli small, separate by a distance more than three times their own width. Pronotum bordered with yellow only on the anterior and the posterior margins, the inferior margins of the lateral lobes brown (except on the anterior and posterior angles). Femora I and II yellowish, not annulated; base and apex of femora and tibiae I and II spotted with brown. Legs III yellow brown, the outer sides of femora III somewhat striated with brown.

**Male.** – Posterior angles of susanal plate elongated, but apparently not channeled. Elytra (fig. 40) : mirror much larger than long, and crossed by two transverse veins; its anterior angle small. Cell delimited by the chords and the mirror short and almost as large as long. File with 167 – 187 teeth (mean number : 177, n=3).

*Male genitalia.* Spines formed by C-sclerites thick, with a large ventral notch near their base (fig. 41). Median lophi regressed, represented by two tufts of setae on a single border. Dorsal side of ectophallic fold sclerotized. Ectophallic apodemes relatively short and strong, locally enlarged near the epiphallic sclerite. Endophallic apodemes largely divergent.

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Fig. 40 to 47, *Amphiacusta bahamensis* group. Fig. 40 – 41, *A. bahamensis* : 40, male right tegmen. – 41, male genitalia (ventral view, right apical sclerites). Fig. 42 – 44, *A. robusta*, sp.n. : male genitalia in dorsal (42), lateral (43) and ventral view (44, apical sclerites). Fig. 45 – 47, female copulatory papilla of : 45, *A. bahamensis*. – 46, *A. doi*, sp. n. – 47, *A. cubensis*, sp.n. Scales 1 mm (b : fig. 46, 47; a : other figures). Abbreviations see page 102.



**Female.** – Subgenital plate deeply indented at the apex. Ovipositor smaller than the hindfemora.

*Female genitalia.* As on the figure 45.

*Measures.* Males (n=3) : *Lpron* : 3.8-4.3 (4); *wpron* : 5.7 (n=1); LFIII : 23.3-27.4 (25.4); LTIII : 25.8-29.9 (27.6); *Lel* : 8.9-9.5 (9.3); *wel* : 6.7-7 (6.8). Females (n=4) : *Lpron* : 4.2-4.3 (4.3); LFIII : 22.4-22.5 (22.5); LTIII : 22.7-22.9 (22.8); *Lovip* : 16.3-18.8 (17.6).

**Material examined.** – BAHAMAS, North Andros isl. : Caves at Morgans Bluff, 5 males (UMMZ) and 2 males (MNHN), 28-VI-1977, *D. J. Harvey*; Nichol's town, 2 females (UMMZ) and 1 female (MNHN), 13-VIII-1977, *D. J. Harvey*. All in alcohol. BAHAMAS, New Providence, 1 male (labeled type), 1949, *Ms. Higgs* (ANSP).

**Observations.** – Several specimens originating from Cuba resemble *A. bahamensis*, except for their smaller size. The file of their stridulum has fewer teeth than that of this species (132-177, n=2). Specimens examined : CUBA, 1 male, identified *A. annulipes*; Guantanamo, 1 female, XII-1912, *C.T. Ramsden*; near Casa Harvard Soledad, Cienfuegos, 3 males, VII-1933, *A. Weber* (ANSP); Loma San Juan, Ongalo Songo Oriente, 1 male, VII-1924, *C.T. Ramsden* (MNHN). They may belong to two different species.

### 18. *Amphiacusta robusta*, sp. n. (fig. 42 – 44)

**Type material.** – **Male Holotype** : CUBA, Camaguey Prov., Monte Imias near California, 7-VI-1959, at light, *M.W. Sanderson* (UMMZ), in alcohol, male genitalia n° 1004 (elytra damaged).

**Description.** – Very similar to *A. bahamensis*, except for the following : femora I and II brown on their dorsal sides, yellow with 2 brown rings laterally.

*Male genitalia.* Spines formed by C-sclerites more slender than in *A. bahamensis*, and with a small notch near the base (fig. 42-44).

Female unknown.

*Measures.* Male (n=1) : *Lpron* : 3.7; LFIII : 24; LTIII : 25.8.

### 19. *Amphiacusta doi*, sp. n. (fig. 46)

**Type material.** – **Female Holotype** : CUBA, Guantanamo (MNHN).

**Description.** – Species of moderately great size, with a distinctive leg color pattern : femora I dark brown; femora II dark brown on their sides, their dorsal face yellowish; tibiae I and II brownish on their sides, ivory on their dorsal face. Face (color unclear on the only specimen at hand) light brown with some yellow markings : a small line under the median ocellus, a big spot (or stripe ?) under each antennal pit (touching the inner border of the eyes), a small rounded spot under the inferior angles of the eyes. Cheeks and vertex dark brown, the dorso-posterior margin of the eyes bordered with yellow. Fastigium large, dark brown; lateral ocelli large, separate by a distance almost 3 times their own width. Fastigium and vertex almost at the same level but separate by an undistinct basal furrow. Pronotum bordered with yellowish on the anterior and posterior margins only, the inferior margins of the lateral lobes (except for the angles) brown.

**Female.** Ovipositor smaller than the hindfemora.

*Female genitalia.* Papilla slightly concave dorsally. Apex short, its margins straight. Aperture of the spermathecal duct located in a sclerotized (and not membranous) part of the papilla (fig. 46). Membrane above the papilla not particularly strengthened.

Male unknown.

*Measures.* Female (n=1) : *Lpron* : 4; *wpron* : 6.2; LFIII : 23.4; LTIII : 25.4; *Lovip* : 17.8.

20. *Amphiacusta cubensis*, sp. n. (fig. 47)

**Type material.** – **Female Holotype** : CUBA, Guantanamo (MNHN).

**Description.** – Species very close to the preceding, but of smaller size. Femora I and II of lighter color, their sides annulated.

**Female.** Ovipositor smaller than hindfemora.

*Female genitalia.* Apex of copulatory papilla longer than in *A. doi*, its lateral margins convergent (fig. 47).

Male unknown.

*Measures.* Female (n=1) : *Lpron* : 3.3; *LFIII* : 17.3; *LTIII* : 17.5; *Lovip* : 13.8.

*AMPHIACUSTA VARIEGATA* group

**Diagnosis.** – Male genitalia. C-sclerites without a distinct basal plate, but very slender, long and curved (more or less U shaped). A-sclerites also long and slender, J shaped. Median lophi regressed, represented by a large undivided tuft of setae on a single border.

**Distribution.** – Cuba.

**List of species included.** – *Amphiacusta variegata*, sp. n., *Amphiacusta grandis* Saussure, 1874 (?).

21. *Amphiacusta grandis* Saussure, 1874 (fig. 48, 50-51)

*Amphiacusta grandis* Saussure, 1874 : 447; KIRBY, 1906 : 68; HUBBELL, 1938 : 214; CHOPARD, 1968 : 282; OTTE, 1994 : 55.

*Amphiacustes grandis* : SAUSSURE, 1878 : 431.

**Type material.** – CUBA, 1 female type (MHNG). – The female type of *A. grandis* has not been examined. The male sex is then only tentatively described, as no series with both sexes was available.

**Diagnosis.** – Species of very large size, the hindfemora filiform on almost half their length. Fastigium large, with a distinct basal furrow. Lateral ocelli large, separate by a distance twice their own width.

**Male.** – Metanotal glands not examined. Posterior angles of susanal plate not much elongated. Elytra (fig. 48) not enlarged. Mirror larger than long, crossed by only one complete vein (and a small incomplete one).

*Male genitalia.* Dorsal side of ectophallic fold sclerotized. Ectophallic apodemes relatively short and strong. Endophallic apodemes largely divergent. Apical epiphallic sclerites as on figures 50-51.

*Measures.* Male (n=1) : *Lpron* : 3.1; *wpron* : 5.2; *LFIII* : 26; *LTIII* : 29; *Lel* : 8.3; *wel* : 6.4.

**Material examined.** – CUBA, 1 male (SMT).

22. *Amphiacusta variegata*, sp. n. (fig. 49, 52)

**Type material.** – **Male Holotype** : CUBA, Pico Turquino, S. Side, 3000-5000 ft., VI-1936, *Darlington* (ANSP).

**Description.** – Size small for the genus, the legs comparatively long and thin. Face brown

with the following yellow lines : 1 median one, in the shape of a reverse Y, a large one under each antennal pit and one under each eye. Fastigium not very large, with no distinct basal furrow; lateral ocelli nearly as large as the median one and separate by a distance more than twice their own width. Pronotum brown, the posterior margin only bordered with yellow; anterior third of the lateral lobe yellow with a small brown spot near the anterior margin. Femora I and II annulated. Femora III undistinctly annulated. Tibiae III brownish, undistinctly annulated.

**Male.** – Metanotum without distinct glandular structures. Susanal plate without elongated angles. Tegmina not particularly enlarged (fig. 49); mirror slightly larger than long and divided by two veins; harp with 5 veins; file with 142 teeth ( $n = 1$ ).

*Male genitalia.* C-sclerites having the shape of a very large spine, large at its base, thinner and hook-like at its apex; latero-ventral « spine » greatly reduced (fig. 52). A-sclerites L shaped. Ectophallic parameres greatly reduced. Ectophallic arc not extended above the ectophallic fold. Median lophi very small, with a few large setae.

Female unknown.

*Measures.* Male ( $n=1$ ). *Lpron* : 1.7; *wpron* : 4.2; *LFIII* : 17.8; *LTIII* : 20; *Lel* : 7.5; *wel* : 4.2.

**Observations.** – An additional species close to *A. grandis* exists in Cuba. It is characterized by the very large number of teeth on the file of the stridulum (574 teeth,  $n=1$ ) and the shape of the C-sclerites (J-shaped, large on its whole length and with two apical teeth). It is a large species, with a distinctly wide pronotum, a generally light colour (femora I and II annulated, veins of tegmina thick and yellow; anterior and posterior margins of the pronotum largely bordered with yellow, but the ventral margin of the lateral lobe brown). Material examined : CUBA, « Mal Paso », cera del Palman, Guantanamo, 1 male, 3-V-1913, *C.T. Ramsden*; San Carlos, Est Guantanamo, II-1914, *C.T. Ramsden* (ANSP). This material would be studied by RUIZ & OTTE (in prep.).

### AMPHIACUSTA CARAIBEA group

**Diagnosis.** – Fastigium at a lower level than the vertex, and with a distinct basal furrow.

*Male genitalia.* Long and flat. C-sclerites forming a long subhorizontal plate, without lateral « spine ». A-sclerites narrow and straight. Ectophallic apodemes very short and thick, with a kind of big abutment near the epiphallic sclerite (this abutment directly in contact with the epiphalle). Ectophallic fold long, sclerotinized dorsally. Endophallic sclerite also elongated, with two very short endophallic apodemes. Median lophi absent. Ectophallic arc not extended above the ectophallic fold by a pair of sclerites.

*Female genitalia.* Copulatory papilla very short, with a short and curved dorsal sclerotinized margin.

**Distribution.** – Lesser West Indies.

**List of species included.** – *Amphiacusta caraibea* (Saussure, 1897); *Amphiacusta saba*, sp. n.

### 23. *Amphiacusta caraibea* (Saussure, 1897) (fig. 53 – 56, 58)

*Amphiacustes caraibea* Saussure, 1897 : 248.

*Amphiacusta caraibea* : REHN, 1903 : 135; KIRBY, 1906 : 68; CHOPARD, 1968 : 281; OTTE, 1994 : 55.

**Type material.** – **Male** : GUADELOUPE (MHNG).

**Diagnosis.** – Fastigium large; lateral ocelli somewhat smaller than the median one, and separate by a distance more than 3 times their own width. Fastigium dark brown. Face brown with longi-



tudinal yellow lines : one under the median ocellus (enlarged toward the epistomal suture), one under each antennal pit and one under each eye. Femora III short and large. Base of tarsi whitish.

**Male.** – Elytra (fig. 53) : mirror larger than long, and crossed by only one transverse vein. Cell located between the chords and the mirror long. File with 48-53 teeth (mean number : 51, n=2). Subgenital plate long. Posterior angles of susanal plate longer than half the length of the plate and dorsally channeled. Tergites 1 and 2 with a pair of small nodosities (glandular ?).

*Male genitalia.* See figures 54 – 56.

**Female.** – Subgenital plate « concave » at the apex.

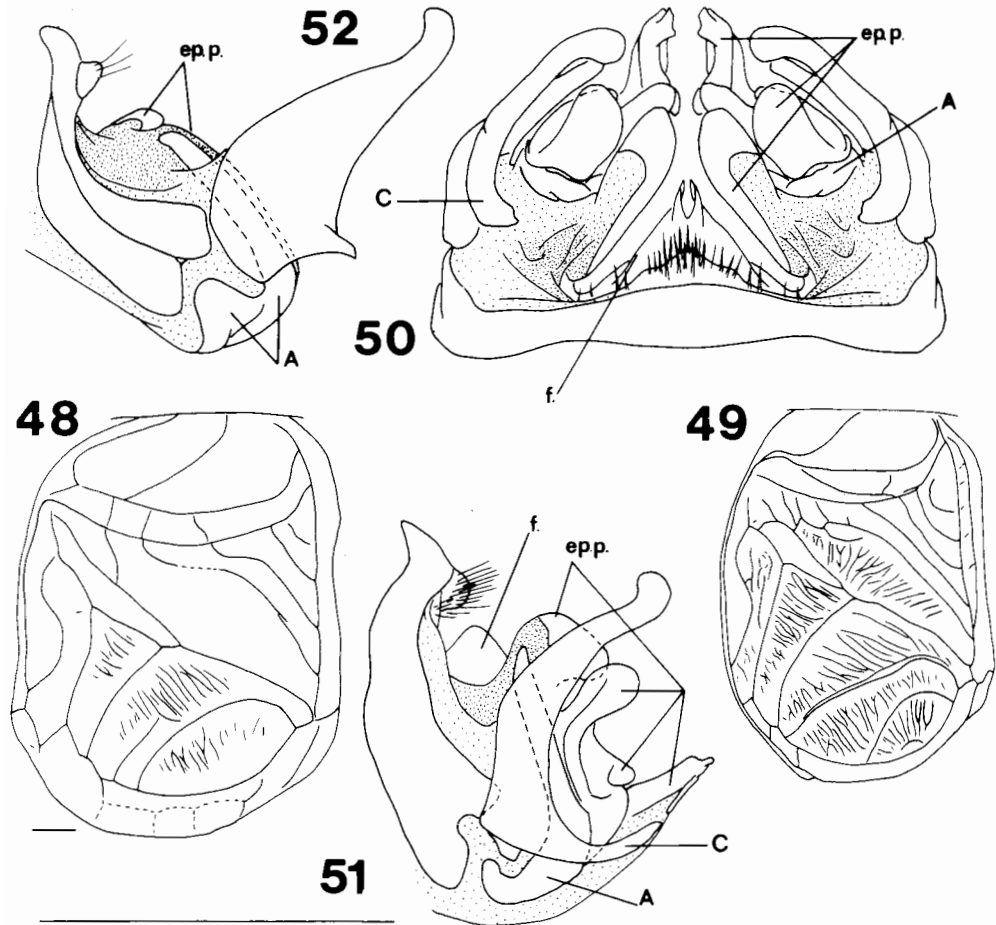
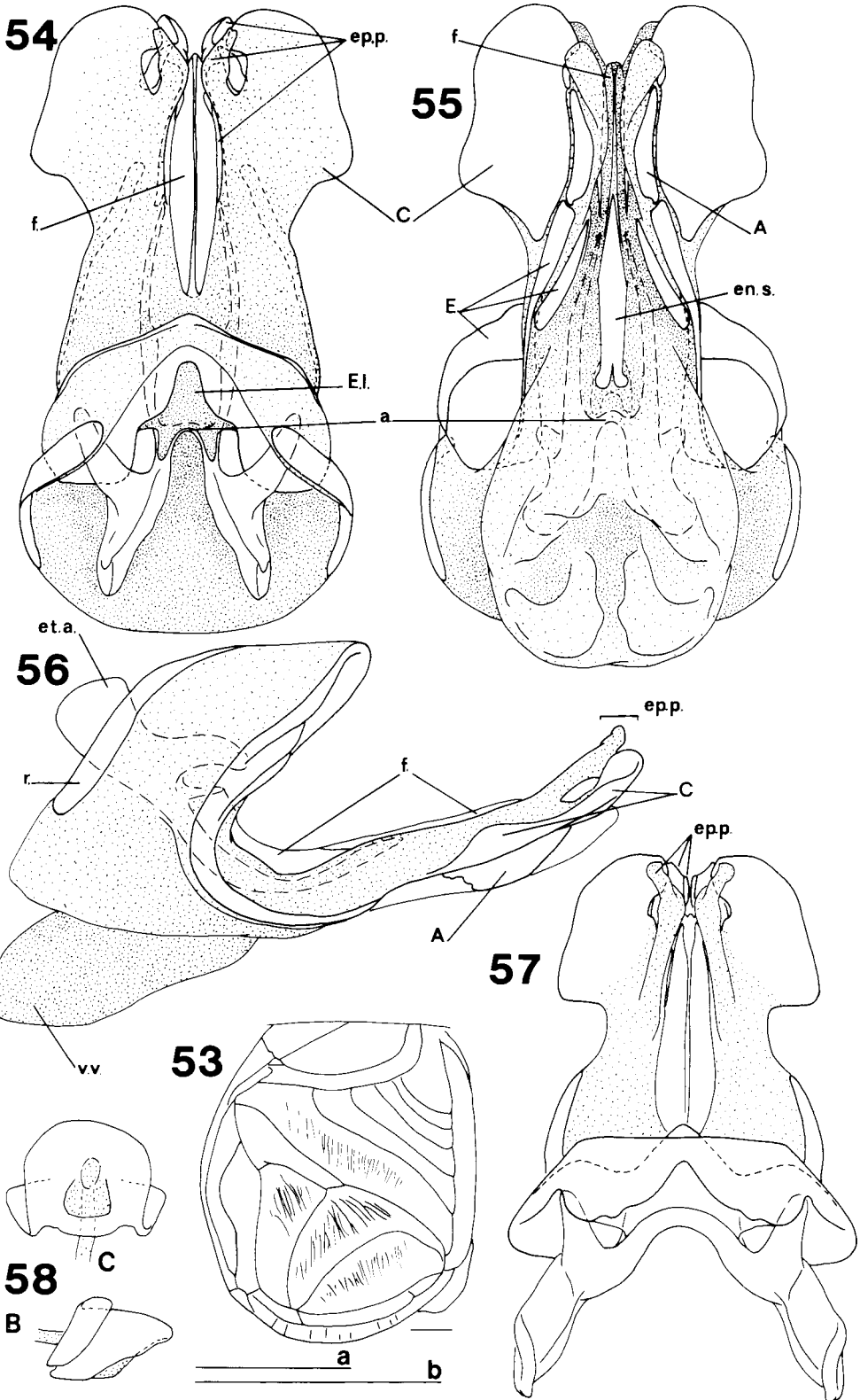


Fig. 48 to 52. *Amphiacusta variegata* group. Fig. 48 – 49, male right tegmen of : 48. *A. grandis*. – 49. *A. variegata*, sp. n. Fig. 50 – 52, male genitalia of : 50 – 51. *A. grandis* in dorsal (50) and lateral (51) view. – 52. *A. variegata*, in lateral view. Scales 1 mm. Abbreviations see page 102.

*Female genitalia.* As on figure 58.

*Measures.* Males (n=3) : *Lpron* : 3-3.4 (3.3); *wpron* : 4.8-5.3 (5.1); *LFIII* : 17.3-18.2 (17.8); *LTIII* : 17.2-19.5 (18.6); *Lel* : 6.5-8 (7.5); *wel* : 5.7-6.4 (6.1). Females (n=2) : *Lpron* : 3.4-3.9; *wpron* : 5.5-5.6; *LFIII* : 17.8-18.4; *LTIII* : 17.9-18.2; *Lovip* : 17.3-17.8.

**Material examined.** – GUADELOUPE : Trois-Rivières, 1 male, VI-1893, *D. Vitrac*, identified *Amphiacusta annulipes* Serville; id., 1 male, 1 female and 5 larvae, *D. Vitrac*, iden-



tified *Amphiacusta annulipes* Serville; Duclos, Basse Terre, 1 male, 1-15-VI-1977; *id.*, 1 male, 15-30-VI-1977, A. Villiers; 1 juvenile, D. Leprieur; 3 females (MNHN); Basse Terre, Rt D23, Maison de la forêt, Bras David river, 1 male (file : 59 teeth) and 4 females, 16-I-1991, D. Otte & S. Peck (ANSP); Basse Terre, 3,4 km W of Moustique, near Goyavie, Lumber road, 2 males (63 teeth) and 1 female, 17-I-1991, D. Otte & S. Peck (ANSP).

**Observations.** – The specimens from Bras David river and Moustique show two veins across the male mirror; the ovipositor of the females is about 20 mm long.

#### 24. *Amphiacusta saba*, sp. n. (fig. 57)

**Type material.** – **Male Holotype** : SABA ISLAND (near Virgin islands), I-1974, Harry A. Beatty (UMMZ), in alcohol.

**Description.** – Species very similar to *A. caraibea*, but median yellow line of the face not enlarged toward the epistomal suture. Tibiae I and II dark brown, with a distal yellow ring.

**Male.** – No nodosities on the tergites 1 and 2. Subgenital plate, and posterior angles of susanal plate smaller than in *A. caraibea*.

**Male genitalia.** Smaller than those of *A. caraibea*, and with divergent dorsal lobes of epiphallic parameres (compare fig. 55 and 57).

**Measures.** Male (n=1) : *Lpron* : 3.3; *LFIII* : 17.4; *LTIII* : 18.5; *Lel* : 6.8; *wel* : 5.7.

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