

# The new genus *Ancistrotilla* n. gen., with new species from Vanuatu and New Caledonia (Hymenoptera, Mutillidae)

**Denis J. BROTHERS**

School of Life Sciences,  
University of KwaZulu-Natal (Pietermaritzburg),  
Private Bag X01, Scottsville 3209 (South Africa)  
brothers@ukzn.ac.za

Brothers D. J. 2012. — The new genus *Ancistrotilla* n. gen., with new species from Vanuatu and New Caledonia (Hymenoptera, Mutillidae). *Zoosystema* 34 (2): 223-251. <http://dx.doi.org/10.5252/z2012n2a2>

## ABSTRACT

The first Mutillidae collected in Vanuatu, on Espiritu Santo, are described as a new genus and species: *Ancistrotilla azurea* n. gen., n. sp. This extends the known range of distribution of the family on the Pacific islands. Three further species of *Ancistrotilla* n. gen., *A. bleuensis* n. gen., n. sp., *A. aenigmatica* n. gen., n. sp. and *A. nigra* n. gen., n. sp., are described from New Caledonia; *A. calledonica* (André, 1896) n. comb. is redescribed and compared, and a lectotype is designated. Several other Australasian species are transferred to *Ancistrotilla* n. gen.: *A. albocaudata* (André, 1898) n. comb., *A. calcarina* (André, 1898) n. comb., *A. carbonaria* (Smith, 1855) n. comb., *A. fabricii* (André, 1898) n. comb., *A. senilis* (André, 1898) n. comb., *A. transiens* (André, 1898) n. comb., *A. transitoria* (André, 1903) n. comb. and *A. viridiceps* (André, 1895) n. comb. The existence of several additional undescribed species of *Ancistrotilla* n. gen. in Australia and New Guinea is noted. *Ancistrotilla* n. gen. is distinguished from other sphaerophthalmine genera particularly by: in the male, the antennal scrobe with transverse carina dorsally and separate lamellate projection dorsolaterally, clypeus with pair of large acute teeth medially on anterior/ventral margin, T1 with narrow pale integumental band posteriorly, parapenial lobe medially curved and hook-like apically, and penis valve with single strong apical tooth; in the female, the antennal scrobe with strong dorsal carina almost reaching eye, mentum convex and glossa short and blunt, T1 with narrow pale integumental band posteriorly, T2 without apical medially oriented pubescence, pygidial plate broad and delimited, and hypopygium strongly bidentate medioapically.

## KEY WORDS

Hymenoptera,  
Mutillidae,  
Vanuatu,  
New Caledonia,  
Australia,  
New Guinea,  
new genus,  
new species,  
new combination.

## RÉSUMÉ

*Le nouveau genre Ancistrotilla n. gen., avec de nouvelles espèces originaires du Vanuatu et de Nouvelle-Calédonie (Hymenoptera, Mutillidae).*

Les premiers Mutillidae recueillis au Vanuatu, sur l'île d'Espiritu Santo, appartiennent à un nouveau genre et une nouvelle espèce : *Ancistrotilla azurea* n. gen., n. sp. dont la description étend la distribution de la famille aux îles du Pacifique. Trois autres

**MOTS CLÉS**  
Hymenoptera,  
Mutillidae,  
Vanuatu,  
Nouvelle-Calédonie,  
Australie,  
Nouvelle-Guinée,  
genre nouveau,  
espèces nouvelles,  
combinaison nouvelle.

espèces d'*Ancistrotilla* n. gen., *A. bleuensis* n. gen., n. sp., *A. aenigmatica* n. gen., n. sp. et *A. nigra* n. gen., n. sp., sont décrites de Nouvelle-Calédonie; *A. caledonica* (André, 1896) n. comb. est redécrite et comparée, et son lectotype désigné. Plusieurs autres espèces d'Australasie sont transférées dans le genre *Ancistrotilla* n. gen. : *A. albocaudata* (André, 1898) n. comb., *A. calcarina* (André, 1898) n. comb., *A. carbonaria* (Smith, 1855) n. comb., *A. fabricii* (André, 1898) n. comb., *A. senilis* (André, 1898) n. comb., *A. transiens* (André, 1898) n. comb., *A. transitoria* (André, 1903) n. comb. et *A. viridiceps* (André, 1895) n. comb. L'existence de plusieurs autres espèces non décrites d'*Ancistrotilla* n. gen. est signalée en Australie et en Nouvelle-Guinée. *Ancistrotilla* n. gen. se distingue notamment des autres genres de Sphaerophthalminae par les caractères suivants : chez le mâle, scrobe antennaire à carène transversale dorsale et projection lamellaire dorsolatérale séparée, clypéus avec une paire médiane de grandes dents aiguës sur sa marge ventrale, T1 avec une étroite bande tégumentaire pâle apicale, lobe parapénial courbe et pointu à l'apex, valve du pénis avec une seule forte dent apicale; chez la femelle, scrobe antennaire avec une forte carène dorsale atteignant presque l'œil, mentum convexe et glosse courte et émoussée, T1 avec une étroite bande tégumentaire pâle apicale, apex de T2 sans pubescence orientée vers le milieu, plaque pygidiale large et délimitée, hypopygium fortement bidenté à l'apex.

## INTRODUCTION

Wasps of the family Mutillidae Latreille, 1802 develop as parasitoids of the enclosed immature stages of other endopterygote insects, mainly other Hymenoptera (Brothers 1989). They are unusual in that the females are all apterous, which severely reduces their vagility, although the males (except for a relatively few species) are fully winged. This, and their dependence on finding suitable hosts, means that very few species have been recorded from islands. Mickel (1935) treated the mutillids of the islands of the Pacific Ocean in detail, and stated that no mutillids were known from any oceanic islands, worldwide, but were found on all of the Pacific continental islands except for New Zealand. He recorded two species from the Solomon Islands and one from New Caledonia, these being the easternmost and most remote records. Since then, there has been almost nothing published expanding the information on Pacific-island mutillids. Yasumatsu (1936) recorded a Japanese species from the Bonin Islands, Esaki (1938) recorded one species from Palau, Krombein (1971) added a further species from the Solomon

Islands, and Valentine & Walker (1983) recorded an Australian species from New Zealand. Much more recently, Kuhlmann (2006) surveyed the bees and wasps of Polynesia and neighbouring islands, and, although missing some earlier references, indicated no Mutillidae on any other islands.

The collection of several specimens of Mutillidae during the SANTO 2006 expedition to Vanuatu (Villemant 2011) is thus of considerable interest, extending the known distribution of the family. Although the species was reported as a member of the genus *Ephutomorpha* André, 1902, that genus, even at its establishment, was recognised as an artificial assemblage comprising the Sphaerophthalmini from the Australian and neighbouring regions (André 1902; Mickel 1935; Krombein 1971). I thus take the opportunity to describe a new genus and species based on the Santo material. Coincidentally, some time previously I had been sent 75 specimens of Mutillidae, of about 18 species, collected on New Caledonia, and have recently examined a few more from there.

The male mutillids collected on Santo are clearly all conspecific; a single female was collected in the same trap and over the same period as the largest



batch of males. I feel that this is sufficient to justify associating the sexes, specially since no other mutillid species has been collected there. I was able to identify the commonest species of male mutillid from New Caledonia (comprising about  $\frac{2}{3}$  of the specimens seen from there) as another species of the same genus, very similar to that from Santo. I initially concluded that a single congeneric female collected at essentially the same time and place on New Caledonia as several of the males almost certainly represents the same species, but detailed examination of several male specimens putatively associated and collected with *Mutilla caledonica* André, 1896 females by Williams (1945) revealed no real differences amongst all these males. Comparison of the female with type specimens of *M. caledonica* showed sufficient differences for me to conclude that they are not conspecific, although similar and congeneric. Since the males therefore cannot be unequivocally associated with either female, I describe the males and the single female as separate new species, and redescribe *M. caledonica* to enable direct comparison. As a further complication, I have seen three male specimens of yet another congeneric but less similar species from New Caledonia, and describe that as a further new species.

I have been able to survey many other specimens from Australia and New Guinea, and, using these species as a basis, discovered several further species of the genus. These were all used to refine the generic description. When the relevant females were compared with specimens of the type species of *Ephutomorpha*, *Mutilla aurata* Fabricius, 1775 (known only from females, and for which there is no extant type material), and with specimens of the other sphaerophthalmine genera described from Australia and surrounds (*Ascetotilla* Brothers, 1971, *Australotilla* Lelej, 1983, *Bothriomutilla* Ashmead, 1899, *Eurymutilla* Ashmead, 1899, *Odontomyrme* Lelej, 1983 and *Ponerotilla* Brothers, 1994), it became evident that the Santo and related species should be placed in a new genus.

## MATERIAL AND METHODS

Terminology is generally standard. Metasomal terga and sterna are referred to by T and S respectively;

proportions refer to their normally exposed parts. Body lengths are given as adjusted to compensate for telescoping of the metasomal segments. Setae are referred to as brachyplumose if they have barbs shorter than the width of the shaft, and plumose if the barbs are longer. The head length was measured from above with the head oriented such that the posterodorsal margin appeared approximately straight; for males the length was measured along the midline (excluding the antennal tubercles) but for females (where the antennal tubercles are less protuberant) the length was taken between the anterior and posterior extremities, including the antennal tubercles. The length of T1 for the male was taken laterally between the basal auricle and the posterior dorsal apex, and for the female from the basal auricle to the posterior extremity along the lateral margin. For the holotypes, the labels are transcribed exactly, with line breaks indicated by a forward slash (/) and missing characters placed between square brackets; different labels are separated by semicolons. Where geographic coordinates were not provided on labels, they were obtained using Google Earth and/or the GeoNames Search facility of the National Geospatial-Intelligence Agency of the USA (<http://geonames.nga.mil/ggmagaz/>). Mapping was done using SimpleMappr (<http://www.simplemappr.net/>) and CorelDRAW X4.

Some specimens, particularly ones collected in Malaise traps and which had become encrusted with lepidopteran scales, were cleaned by relaxing them in a moist chamber above a phenol solution, then ultra-sonicating them for a few seconds in each of a series of liquids: water with a trace of detergent, about 50% EtOH, about 95% EtOH and, finally, acetone. The specimens were then dried by rotating them rapidly in the warm air stream from a microscope lamp. The male genitalia were cleared using hot buffered Proteinase-k, washed in water and placed in glycerol.

Photographs were taken with a Canon Powershot G10 digital camera adapted to Wild M7 and Wild M400 microscopes using a Clearshot 600 adapter kit (Alexis Scientific) and stacked using CombineZP software (Hadley 2010). Further image processing was done using CorelDRAW X4 and Corel PHOTO-PAINT X4.

## ABBREVIATIONS

Specimens are deposited in the following collections:

ANIC	Australian National Insect collection, CSIRO, Canberra, ACT;
BMNH	The Natural History Museum, London;
BPBM	Bernice P. Bishop Museum, Honolulu, Hawaii;
DJBC	collection of Denis J. Brothers (to be deposited in SAMC, Iziko South African Museum, Cape Town)
INHS	Illinois Natural History Survey, Champaign, Illinois;
MCZ	Museum of Comparative Zoology, Harvard University, Cambridge, Massachusetts;
MNHN	Muséum national d'Histoire naturelle, Paris;
QM	Queensland Museum, Brisbane, Queensland;
SAM	South Australia Museum, Adelaide, South Australia.

## SYSTEMATICS

Subfamily SPHAEROPHTHALMINAE Ashmead, 1903

Tribe SPHAEROPHTHALMINI Ashmead, 1903

Genus *Ancistrotilla* n. gen.

TYPE SPECIES. — *Ancistrotilla azurea* n. sp.

ETYMOLOGY. — Latinised from Greek “ankistron”, hook, with reference to the shape of the parapenial lobes; the suffix *-tilla* is a common one in Mutillidae, derived from *Mutilla*.

DIAGNOSIS. — **Male.** Erect brachyplumose and plumose setae present; antennal scrobe with transverse carina dorsally and separate lamellate projection dorsolaterally; clypeus with pair of large acute forward-facing teeth medially on anterior/ventral margin; mandible apically bidentate; mentum convex, glossa short and blunt; notaulus absent; axilla with distinct flattened dorsal surface; marginal cell obtuse apically with spur-like vein or angle at posterolateral extremity; T1 with narrow pale integumental band posteriorly; both T2 and S2 with lateral felt line; hypopygium strongly bidentate medioapically; parapenial lobe well developed, medially curved and hook-like apically; penis valve with single strong apical tooth.

**Female.** Erect brachyplumose setae present; antennal scrobe with strong dorsal carina almost reaching eye; mandible apically bidentate; mentum convex, glossa short and blunt; metapleural-propodeal suture obliterated; T1 with narrow pale integumental band posteriorly; T2 apically without medially oriented pubescence, with short lateral felt line; pygidial plate delimited; hypopygium strongly bidentate medioapically.

## DESCRIPTION

*Male*

Integument usually dark, sometimes with metallic reflections; T1 with narrow pale integumental band posteriorly. Erect setae brachyplumose, plumose behind eye at least.

**Head.** Broadly transverse, about as wide as mesosoma. Occipital carina distinct dorsally. Vertex convex. Eye transversely broadly ovate, strongly protruding, surface shining, ommatidia scarcely discernible. Ocelli small to moderate, closely spaced. Antennal tubercles slightly separated basally. Antennal scrobe deep, not reaching eye margin but defined laterally by a vertical ridge, with a short transverse flange or tooth dorsomesally (sometimes scarcely developed) and separate prominent lamella lateroventral to this. Clypeus deeply depressed dorsolateral to projecting flattened punctate median area, ventral margin convex with large acute projection on each side of midline. Malar space less than basal height of mandible. Genal carina absent. Hypostomal carina strong, lamellate, extending almost straight to posterior mandibular condyle. Proboscis and mandibular fossae separated by depressed anteriorly unfused bridge, proboscis slightly longer than smooth postgenal bridge. Scape strongly bicarinate anteroventrally. Pedicel slightly wider than long, shorter than first flagellomere, which subequal to second flagellomere. Mandible in dorsal/anterior view evenly curved, weakly tapering, with strong longitudinal carina dorsally, bidentate apically, subapical tooth well developed, ventrally with strong basal tooth (sometimes scarcely developed). Maxillary palp 6-segmented; labial palp 4-segmented; intermediate palpomeres strongly flattened and broadened, densely covered with short apically bent erect setae on functionally ventral surface. Mentum smooth, longitudinally convex, posteromesally slightly swollen; glossa short and blunt.

**Mesosoma.** Surface densely punctate except smooth on metapleuron, and reticulate on propodeum. Pronotal dorsal face (excluding anterior collar) with anterior margin slightly convex, rounded, epaulet merely a tuft of fine erect setae, humeral angle rounded; posterodorsal margin broadly V-shaped.

Tegula broadly ovate, not reaching median level of scuto-scutellar suture, convex but very weakly recurved posteriorly, almost entirely smooth and glabrous. Mesoscutum without notaulus, parapsis almost indistinguishable; posterolateral corner forming a slight flattish lobe discontinuous with axilla. Scutellum flattish; axilla posterolaterally concave, dorsal horizontal surface distinct. Metanotum simple, transverse. Propodeum evenly convex, disk and declivity merging in lateral view. Metasternal process broadly tridentate, apex blunt to strongly emarginate, shorter than metacoxal height.

**Wings.** Forewing with moderate ovate sclerotised pterostigma; marginal cell fairly short, broadly obtuse apically, often with distinct spurlike vein posteroapically; three closed submarginal cells.

**Legs.** Tibial spur formula 1-2-2. Mid- and hind tibiae without dorsal spines, apical spines not inserted on any process; apical spurs longitudinally concave dorsally, margins microserrate, densely clothed with microsetae. Metacoxa with distinct even longitudinal carina on inner margin; metatibia subapically with secretory pore near base of inner spur.

**Metasoma.** T1 slightly longer than wide,  $< 0.5 \times$  width of T2, evenly expanded from base, convex, not constricted (but sometimes parallel-sided) apically; anterior auricle prominent, vertically lamellate. T2 densely punctate; lateral felt line narrow and long. T3-6 more finely punctate. T7 mostly punctate, apical pygidial area weakly sculptured (sometimes smooth). Sterna finely punctate. S1 with weak longitudinal carina. S2 in lateral view strongly convex anteriorly; lateral felt line short. S7 partially exposed but apparently very short. Hypopygium about as long as wide, sparsely punctate, posterior margin with prominent acute tooth on each side near midline.

**Genitalia.** Paramere elongate, slender, laterally obliquely flattened and weakly twisted, acute apex weakly curved dorsad. Parapenial lobe well developed, apically bluntly hook-like and strongly curved mesad. Cusps divided near base, paracuspis a short lobe, ventral lobe cylindrical; digitus elongated and

laterally flattened, shorter than cusps. Penis valve almost asetose, apically truncate with a strong long vertical hook-like tooth.

#### *Female*

Integument usually dark, sometimes with metallic reflections; T1 with narrow pale integumental band posteriorly. Erect setae inconspicuously brachyplumose.

**Head.** Broadly transverse, posterolateral angle rounded. Occipital carina present dorsally (sometimes inconspicuous). Eye broadly horizontally ovate, strongly protruding, surface shining, ommatidia scarcely discernible. Antennal scrobe broad, almost horizontal, with very strong flangelike transverse dorsal carina almost reaching eye. Clypeus with raised triangular punctate region above complete strong transverse carina, itself above depressed transverse smooth area. Malar space greater than basal height of mandible. Hypostomal carina strong, lamellate, extending almost straight to posterior mandibular condyle. Proboscis and mandibular fossae separated by depressed anteriorly unfused bridge, proboscis fossa scarcely longer than smooth postgenal bridge. Scape simple. Pedicel slightly longer than wide, shorter than first flagellomere; first flagellomere longer than wide, longer than second. Mandible slender, tapering, bidentate apically, with ventral basal tooth (sometimes scarcely evident). Maxillary palp 6-segmented; labial palp 4-segmented. Mentum smooth, evenly convex; glossa short and blunt.

**Mesosoma.** Longer than wide, broadened to point posterior to prothoracic spiracle, then narrowed to projecting propodeal spiracle, dorsum convex; propodeum rounded posteriorly, disk and declivity merging. Pronotal dorsal face (excluding anterior collar) with anterior margin slightly convex, rounded, epaulet tuberculate; posterodorsal margin indicated by crenulate broadly concave ridge (sometimes inconspicuous). Scutellar scale absent. Pronotal-mesopleural suture entirely distinct. Mesopleuron almost smooth anteriorly and posteroventrally; vertical mesopleural ridge well developed, rounded and broad dorsally. Metapleuron mainly smooth

and shining. Metapleural-propodeal suture entirely obliterated; endophragmal pit large and deep. Lateral face of propodeum mainly smooth and shining. Mesosternum with strong even median transverse carina anterior to mesocoxae. Metasternal process triangular, about as long as metacoxal height.

**Legs.** Tibial spur formula 1-2-2. Foreleg with tarsal comb. Mid- and hind tibiae each with two rows of prominent spines, few spines in each row, apical spines not inserted on any distinct process; each subapically with secretory pore near base of inner apical spur; apical spurs narrow, finely serrate laterally. Metacoxa with strong even longitudinal carina on inner margin.

**Metasoma.** T1 much wider than long, about half width of T2, evenly expanded from base, weakly convex, not constricted apically; anterior auricle prominent, vertically lamellate. T2 lateral felt line broad, less than  $\frac{1}{4}$  as long as T2 laterally. T6 with pygidial area sculptured and well defined by lateral carina ending posteriorly in a blunt angle (sometimes smooth and laterally undefined), posterior margin weakly concave laterally, convex medially. S2 strongly convex anteromedially, without felt line. S6 with apex deeply emarginate.

#### REMARKS

The males of this genus are particularly characteristic and easy to recognise, specially from the form of the antennal scrobe, the clypeus, the tegula, the axilla, T1 and the genitalia. The females, however, are less easily distinguished from other genera, and are most similar to *Ephutomorpha* sensu stricto (for which males are unknown and which, in addition to *E. aurata*, also includes *E. chrysochlora* (André, 1895), *E. interjecta* (André, 1901), *E. pulchella* (Smith, 1855) and *E. rubromaculata* (André, 1895), at least); *Ancistrotilla* n. gen. females differ in having apparently larger eyes (relatively smaller and more distant from the posterior margin of the longer head in *Ephutomorpha*), no trace of the metapleural-propodeal suture (forming a distinct ridge in *Ephutomorpha*), strongly spinose meso- and metatibiae (dorsal spines far fewer and very small in *Ephutomorpha*), the postero-medial pubescence

on T2 posteriorly or weakly diagonally oriented (transverse in *Ephutomorpha*), S2 simply convex (with a transverse groove at about  $\frac{2}{3}$  its length in *Ephutomorpha*) and the pygidial plate broad and distinct (at most represented by a narrow smooth line almost concealed by pubescence in *Ephutomorpha*). Unfortunately, we have no information on the biology of any of the species of *Ancistrotilla* n. gen., but the well-developed foretibial comb, strong dorsal spines on the meso- and metatibiae and distinct flattened pygidial plate of most females suggest that the hosts are usually ground-nesters.

Based on specimens authoritatively identified by comparison with the relevant types, I also include the following species in *Ancistrotilla* n. gen.: *A. albocaudata* (André, 1898) n. comb. from *Mutilla* (♂; type locality Australia, Queensland, Mackay), *A. calcarina* (André, 1898) n. comb., n. stat. from “var.” of *Mutilla senilis* André, 1898 (♂; type locality Australia, Queensland, Mackay), *A. caledonica* (André, 1896) n. comb. from *Mutilla* (*Sphaerophthalma* [sic]) (♀; type locality New Caledonia, Noumea), *A. carbonaria* (Smith, 1855) n. comb. from *Mutilla* (♂; type locality Australia, Tasmania), *A. fabricii* (André, 1898) n. comb. from *Mutilla* (♀; type locality Australia, Queensland, Mackay), *A. senilis* (André, 1898) n. comb. from *Mutilla* (♂; type locality Australia, Queensland, Mackay), *A. transiens* (André, 1898) n. comb., n. stat. from “var.” of *Mutilla senilis* (♂; type locality Australia, Queensland, Mackay), *A. transitoria* (André, 1903) n. comb., n. stat. from “var.” of *Ephutomorpha senilis* (♂; type locality Australia, Queensland, Cairns, Kuranda) and *A. viridiceps* (André, 1895) n. comb. from *Mutilla* (*Sphaerophthalma* [sic]) (♂; type locality Australia, Queensland, Mackay). In addition, I have seen specimens of several undescribed species from Australia and one from New Guinea. It is premature to attempt to provide a key to the species at this stage, since the necessary revisionary work has not been done, and the generic limits, specially for the females, are still somewhat unclear. Both new species with blue males described below are very similar to *A. transitoria*, a widespread blue eastern Australian species, but differ strikingly in their penis valves (with the apical tooth longer and entirely separated from the ventral lamellae in



*A. transitoria*). The third new species has penis valves similar to *A. transitoria* but is essentially black and with much less white pubescence on the metasoma.

*Ancistrotilia azurea* n. sp.

(Figs 1-3; 10A)

*Ephutomorpha* sp. – Villemant 2011: 136.

TYPE MATERIAL. — Holotype ♂: VANUATU, Espiritu Santo, / Penaoru area, 14°57'≈52"S / 166°38'≈26"E, c. 600 m, / moist lowland forest / ground Malaise MG 06 C1 / 6-18.XI.2006 C. Villemant; specimen / measured & / photographed / D. J. Brothers (MNHN EY6645).

Paratypes (1 ♀, 51 ♂♂): **Vanuatu**. Espiritu Santo, Penaoru area, 14°57'43.2"S, 166°38'5.89"E, 152 m, mixed deciduous lowland forest, ground Malaise MG 01 A2, 15-29.XI.2006 (C. Villemant) (2 ♂♂ MNHN EY6646, EY6647, 1 ♂ DJBC); same area and collector but 14°57'50.8"S, 166°38'52.3"E, c. 600 m, moist lowland forest, ground Malaise MG 06 A1, 6-18.XI.2006 (5 ♂♂ MNHN EY6648-EY6652, 1 ♂ DJBC); same data but MG 06 A2, 18-30.XI.2006 (1 ♂ MNHN EY6653); same data but yellow-pan trap YEP600A, 9.XI.2006 (1 ♂ MNHN EY6654); same data as holotype (8 ♂♂ MNHN EY6655-6662, 1 ♂ BMNH, 1 ♂ BPBM, 1 ♂ [measured] DJBC); same area and collector but 14°57'≈52"S, 166°38'≈26"E, c. 600 m, moist lowland forest, ground Malaise MG 06 C2, 18-30.XI.2006 (4 ♂♂ MNHN EY6663-6666); same area and collector but 14°57'≈52"S, 166°38'≈40"E, c. 600 m, moist lowland forest, ground Malaise MG 06 B1, 6-18.XI.2006 (1 ♂ MNHN EY6667); same data but MG 06 B2, 18-30.XI.2006 (1 ♂ MNHN EY6668); same area and collector but 14°57'52.5"S, 166°38'11.69"E, c. 600 m, moist lowland forest, ground Malaise MG 06 D2, 18-30.XI.2006 (1 ♀ [photographed & measured] EY6669, 15 ♂♂ MNHN EY6670-6684, 2 ♂♂ [1 measured] DJBC); same area and collector but 14°58'0.17"S, 166°39'21.69"E, c. 900 m, moist lowland forest, ground Malaise MG 09 A2, 18-30.XI.2006 (2 ♂♂ MNHN EY6685, 6686, 1 ♂ DJBC); same data but MG 09 B1, 6-18.XI.2006 (2 ♂♂ MNHN EY6687, 6688). — **Nokowoula** 15°21'S, 166°44'E, 1132 m, 15.IX.1971 (G. F. Gross, Roy. Soc. Percy Sladen Exp.) (1 ♂ [measured] SAM).

DISTRIBUTION. — Vanuatu: Espiritu Santo.

ETYMOLOGY. — The specific name is a Latin adjective meaning "blue", with reference to the predominant colour of the integument.

DIAGNOSIS. — **Male**. Integument predominantly metallic blue; T6 entirely with white setae; S6 with white apical

fringe; postgenal carina present; clypeal tooth with lateral margin sinuate and strongly concave apically; 3<sup>rd</sup> submarginal cell longer than high, distance between third submarginal cell and wing apex about 2× length of third submarginal cell; tibial spurs black; pygidium apically recurved with evenly convex apical margin; penis valve with straightish dorsal margin, lateroventral lamella extending well below level of inner lamella, both lamellae attaching to apical tooth within ventral third, apicodorsal setae only on dorsal quarter of apical margin. **Female**. Integument black with distinct metallic blue reflections; T2 mostly black pubescent except for white apical fringe; head wider than mesosoma; postgenal carina present; mesosoma almost 1.5× as long as wide; inner metatibial spur about 1.3× length of outer spur; T2 about as wide as long in dorsal view; felt line about 0.2× lateral length of T2; pygidial area broadly ovate, finely longitudinally rugose basally becoming very finely and densely punctate/granulate apically, posterolateral carina straightish; hypopygium apically with straight flange-like blunt tooth on each side.

DESCRIPTION

*Male*

Measurements are for holotype, and range for all four specimens indicated above.

Length 12.0 (8.8-12.0) mm. Integument mostly metallic medium blue; T1 with narrow pale integumental band posteriorly; T2 with slight purplish tinge; hypopygium bronzy purple; antenna, mouthparts, tegula, tibial spurs, tarsi and pygidium black to very dark brown. Pubescence mainly whitish but with a few interspersed dark setae on dorsum of head, dark on scutum, tegula, T2 except anterolaterally, T4-5, S2 except anteriorly, S4-6 and hypopygium; decumbent white setae forming dense apical fringes on T2-3 and T6, covering T7 except for pygidial plate, and forming sparser apical fringes on S2-3 and S6.

**Head**. Broadly transverse, 1.92× (1.77-1.92) as wide as long, 0.90× (0.89-1.00) as wide as mesosoma, densely and finely punctate-reticulate, with semi-decumbent simple and erect brachyplumose setae, erect plumose setae behind eye. Eye strongly protruding, frons width 0.61× (0.57-0.61) head width. Sides behind head converging and rounded, merging with posterior margin; head length behind eye 0.56× (0.50-0.56) eye length. Vertex convex, ocellar triangle scarcely elevated. Ocelli moderate,

median ocellus  $0.10\times (0.09-0.10)$  width of head, closely spaced, interocellar distance  $1.00\times (1.00-1.00)$  width of median ocellus; interocellar distance  $0.40\times (0.33-0.40)$  ocell-ocular distance. Occipital carina distinct dorsally, extended into postgenal carina diverging on to ventral surface of head and ending well short of proboscoidal fossa. Genal carina absent. Antennal tubercles finely punctate and shagreened, slightly separated basally. Antennal scrobe deep, well delimited laterally, not reaching eye margin, with short transverse carina dorsomesally (sometimes tooth-like) and separate short prominent tooth-like lamella lateroventral to this at dorsal extremity of lateral marginal ridge. Clypeus deeply depressed dorsolateral to median abruptly margined projecting flattened almost triangular punctate area, ventral margin convex with large obliquely horizontal acute tooth on each side of midline, tooth basally very broad with lateral margin strongly sinuate and concave apically. Malar space  $0.48\times (0.45-0.50)$  basal height of mandible. Proboscoidal fossa slightly longer than smooth postgenal bridge. Scape strongly bicarinate anteroventrally, dorsal carina restricted to apical  $\frac{2}{3}$ . Pedicel  $1.00\times (1.00-1.00)$  as long as wide,  $0.75\times (0.75-0.83)$  as long as first flagellomere; first flagellomere  $1.20\times (1.00-1.20)$  as long as wide,  $0.92\times (0.92-1.09)$  as long as second flagellomere. Mandible in dorsal/anterior view evenly curved, weakly tapering, with strong longitudinal carina dorsally, bidentate apically, subapical tooth well developed, with strong projecting rounded basal tooth ventrally; height across basal tooth  $0.76\times (0.71-0.76)$  mandibular basal height, height immediately beyond basal tooth  $0.56\times (0.56-0.60)$  height across tooth, basal tooth length  $1.24\times (1.09-1.24)$ , mean  $1.17$  mandibular basal height.

**Mesosoma.**  $1.45\times (1.45-1.51)$  as long as wide; densely and finely punctate except micropunctate and longitudinally rugose on metepimeron above endophragmal pit, smooth on dorsal  $\frac{2}{3}$  of metepisternum, and reticulate on propodeum; with semi-decumbent simple and erect simple and brachyplumose setae. Pronotal dorsal face (excluding anterior collar) with anterior margin slightly convex, rounded, epaulet a prominent ovate tuft of fine erect setae; humeral angle narrowly rounded; lateral margin weakly

sinuate, anteriorly concave; posterodorsal margin broadly V-shaped. Tegula  $0.53\times (0.48-0.53)$ , mean  $0.50$  as long as scutum, broadly ovate, not reaching median level of scuto-scutellar suture, convex but very weakly recurved posteriorly, smooth and glabrous except finely punctate and setose along anterior and mesal margins. Mesoscutum without notaulus, parapsis an almost indistinguishable very short line; posterolateral corner forming a slight flattish lobe discontinuous with axilla. Scutellum flattish; axilla produced as a flattened horizontal flange, forming a blunt tooth posteriorly. Metanotum simple, transverse. Propodeum evenly convex, disk and declivity merging in lateral view but margin between dorsal/posterior and lateral faces abrupt. Metasternal process broadly tridentate but apex strongly emarginate, shorter than metacoxal height.

**Wings.** Infuscated, darkest apical to cells, becoming paler basally. Forewing with moderate ovate sclerotised pterostigma; marginal cell fairly short,  $2.29\times (2.29-2.36)$  as long as high, truncate apically with distinct spurlike vein posteriorly; three closed submarginal cells, third submarginal cell  $1.05\times (1.05-1.11)$  as long as high; distance between third submarginal cell and wing apex  $2.09\times (2.00-2.19)$  length of third submarginal cell.

**Legs.** Mid- and hind tibiae without dorsal spines; each subapically with distinct secretory pore near base of inner apical spur; apical spurs longitudinally concave dorsally, margins microserate, densely clothed with microsetae. Metacoxa with distinct but irregular longitudinal carina on inner margin not quite reaching small apical lamellate tooth; inner metatibial spur  $1.63\times (1.59-1.67)$  as long as outer spur,  $0.76\times (0.76-0.79)$  as long as metabasitarsus.

**Metasoma.**  $0.95\times (0.95-0.98)$  as wide as mesosoma. T1 finely and densely punctate but sparsely so anteromedially,  $1.19\times (1.19-1.33)$  as long as wide,  $0.48\times (0.44-0.48)$  width of T2, evenly expanded from base, weakly convex, not constricted apically, with erect slender brachyplumose setae and sparse posterior fringe of decumbent slender simple setae; anterior auricle prominent, vertically lamellate. T2  $0.95\times (0.93-0.97)$  as long as wide in dorsal view,





FIG. 1. — *Ancistrotilla azurea* n. gen., n. sp., holotype ♂ (MNHN EY6645): **A**, habitus, dorsal view; **B**, habitus, lateral view; **C**, head, dorsal view; **D**, head, anterior view; **E**, metasoma, dorsal view; **F**, T6 and pygidium, dorsal view. Scale bars: 1 mm.

finely and moderately punctate, interspaces distinct, with erect and semi-decumbent simple setae, a few erect brachyplumose setae near posterior margin; felt line narrow and long,  $0.42 \times (0.41-0.45)$  lateral length of T2. T3-6 very finely and densely punctate, surface indistinctly shagreened, with erect and semi-decumbent simple setae. T7 mostly finely and

densely punctate with semi-decumbent simple setae, apical pygidial area irregularly roughened, weakly recurved apically, with strong convex lateral and apical marginal carina. Sterna fairly sparsely punctate with semi-decumbent simple setae and fewer erect simple to brachyplumose or even sparsely plumose setae. S1 with distinct simple longitudinal carina.

S2 in lateral view strongly convex anteriorly, weakly concave posteriorly; with well-developed but short felt line,  $0.33\times$  ( $0.33\text{--}0.34$ ) as long as felt line on T2. S7 partially exposed, apparently about  $0.3\times$  as long as S6, almost entirely smooth. Hypopygium about as long as wide, sparsely punctate, weakly concave, posterior margin with prominent acute tooth on each side near midline.

**Genitalia.** Paramere elongate, slender, laterally obliquely flattened, acute, apex weakly curved dorsad, basilateral setae moderate and reaching scarcely beyond about half length of paramere. Parapenial lobe well developed, apically hooklike and strongly curved mesad, apex narrowed. Cuspis divided near base, paracuspis a short lobe, ventral lobe cylindrical; digitus elongated and laterally flattened, much shorter than cuspis. Penis valve in lateral view with dorsal margin very weakly sinuate, almost straight anteriorly; anteroventral arm parallel-sided, anterior apex rounded; lateroventral lamella broadly truncate apically, almost reaching apex of tooth, extending ventrally well below inner lamella; only a few small setae apically along dorsal quarter of apical margin; in dorsal view anteroventral arm apically parallel-sided.

### *Female*

Length 8.1 mm. Integument mainly black with weak metallic reflections; head and mesosoma dorsally dark purplish with blue tinge, laterally bluish; metasoma distinctly darkish blue, T1 with narrow yellowish integumental band posteriorly; pygidium and appendages, including tibial spurs, dark reddish brown. Pubescence mainly dark but forming sparse transverse broadly U-shaped white band on meso-metanotal area, sparse whitish setae on apex of pygidium and on T1, fairly dense complete white band apically on T1, sparse whitish setae laterally on T2, sparse narrow band of pale golden setae immediately anterior to dense complete white apical fringe on T2, sparse erect whitish setae anteriorly on T3, dense white tuft on each side of pygidial plate, sparse white setae on S1-4 and sparse whitish apical fringes on S2-3.

**Head.** Broadly transverse,  $1.64\times$  as wide as long,  $1.09\times$  as wide as mesosoma, densely punctate-

reticulate, with semi-decumbent fine slender setae and erect sparsely brachyplumose setae. Occipital carina weak, present only dorsally. Sides behind head short, slightly converging, distinct from posterior margin, posterolateral angle rounded; head length behind eye  $0.50\times$  eye length. Eye very strongly protruding, frons width  $0.59\times$  head width. Antennal tubercles simple, smooth, slightly separated basally. Clypeus with raised broadly triangular punctate and setose region above complete almost-straight strong transverse flange-like carina, itself above depressed transverse smooth area, ventral margin slightly convex. Malar space  $1.26\times$  basal height of mandible. Genal carina apparently absent, perhaps represented by ventral irregular carinate elevation near proboscis fossa. Sharp irregular postgenal carina extending from edge of occipital depression about half distance to proboscis fossa. Proboscis fossa slightly longer than smooth postgenal bridge. Scape simple, fairly sparsely punctate above. Pedicel  $1.11\times$  as long as wide,  $0.57\times$  as long as first flagellomere; first flagellomere  $1.37\times$  as long as wide,  $1.43\times$  as long as second. Mandible slender, tapering, arcuate, apparently bidentate apically (subapical tooth obliterated through wear in only available specimen), with basal lamellate tooth ventrally; height across basal tooth  $0.81\times$  mandibular basal height, height immediately beyond basal tooth  $0.65\times$  height across tooth, basal tooth length  $0.90\times$  mandibular basal height.

**Mesosoma.**  $1.46\times$  as long as wide, broadened to point near metathoracic spiracle, then strongly narrowed to projecting propodeal spiracle, maximum width  $1.24\times$  width at base of propodeal spiracle; propodeum weakly narrowed then rounded posteriorly, disk and declivity merging. Dorsum convex, densely punctate-reticulate, more coarsely so posteriorly, clothed with decumbent slender laterally flattened setae and erect brachyplumose setae. Pronotal dorsal face (excluding anterior collar) with anterior margin slightly convex, rounded, epaulet tuberculate, humeral angle blunt; posterodorsal margin clearly indicated by crenulate broadly V-shaped ridge. Meso- and metanotum delimited laterally by strong longitudinal ridge. Lateral face of pronotum punctate and rugose; pronotal-mesopleural suture entirely

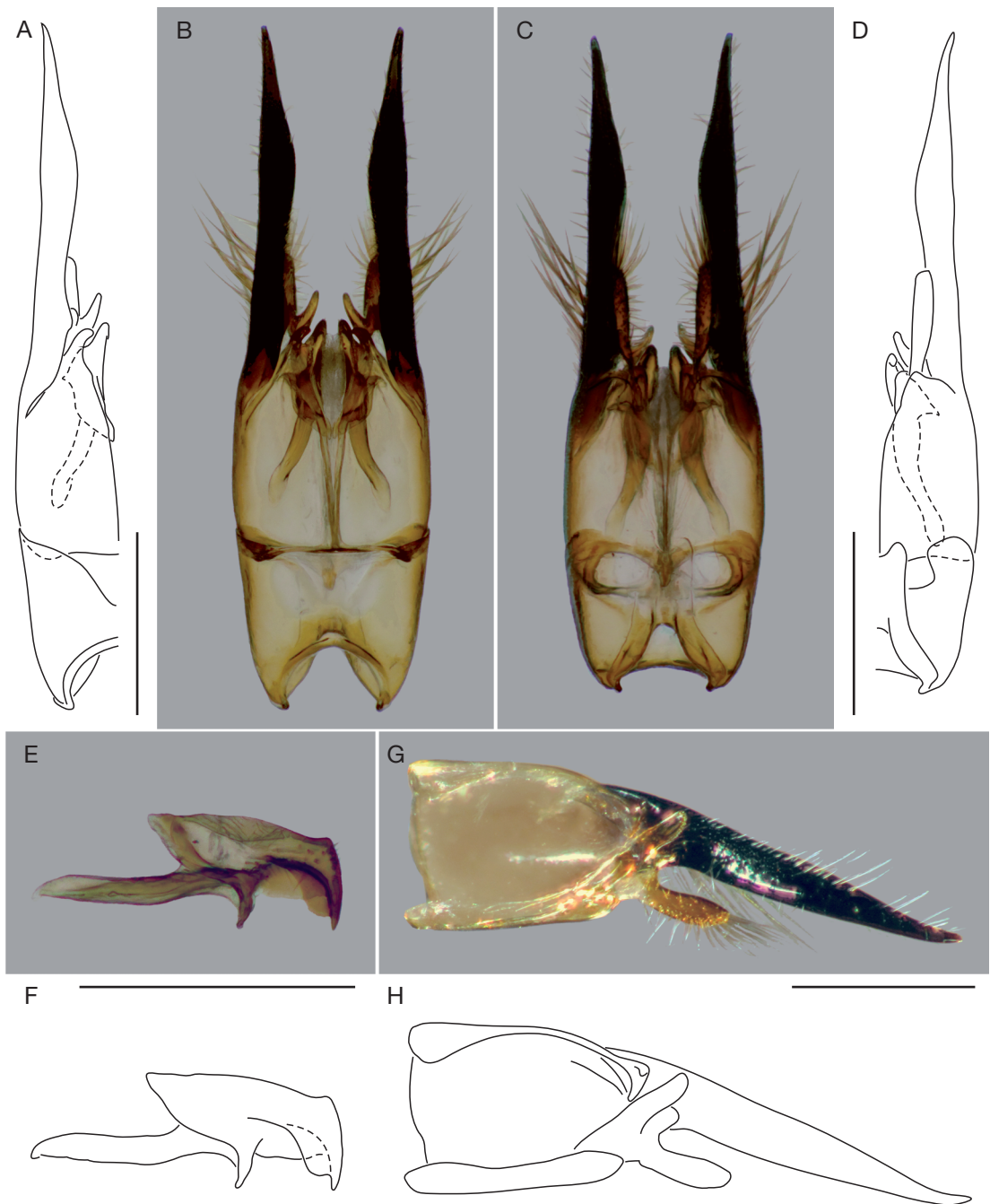


FIG. 2. — *Ancistrotilia azurea* n. gen., n. sp. ♂ genitalia: **A, B**, dorsal view; **C, D**, ventral view; **E, F**, penis valve, outer lateral view; **G, H**, right half without basal ring and penis valve, inner lateral view. Scale bars: 0.5 mm.



distinct. Mesopleuron almost smooth anteriorly and posteroventrally; vertical mesopleural ridge well developed and coarsely punctate-reticulate, specially ventrally, rounded and approaching metathoracic spiracle dorsally, with erect long brachyplumose setae. Metapleuron mainly smooth and shining. Lateral face of propodeum mainly smooth and shining, with a few scattered fine punctures. Metasternal process triangular, apically obtuse, about as long as metacoxal height.

**Legs.** Foreleg with tarsal comb, a few long strong articulated spines on posterior/lateral margins of tarsomeres 1-3. Mid- and hind tibiae each with two rows of prominent spines, three preapical spines in each row; each subapically with very inconspicuous secretory pore near base of inner apical spur. Metacoxa with strong even longitudinal carina on inner margin, ending posteriorly shortly before small apical tooth; inner metatibial spur  $1.34\times$  as long as outer spur,  $0.70\times$  as long as metabasitarsus.

**Metasoma.**  $1.25\times$  as wide as mesosoma. T1  $2.27\times$  as wide as long,  $0.52\times$  width of T2, evenly expanded from base, weakly convex, not constricted apically, finely and sparsely punctate, with erect slender brachyplumose setae and posterior fringe of decumbent slender simple setae; anterior auricle prominent, vertically lamellate. T2  $0.98\times$  as long as wide in dorsal view, finely and very densely punctate, clothed with decumbent slender laterally flattened setae and erect brachyplumose setae, posterior band of decumbent slender simple setae; lateral felt line broad,  $0.22\times$  lateral length of T2. T3-5 shagreened and very finely but moderately punctate, clothed with decumbent slender laterally flattened to simple setae and erect brachyplumose setae. T6 basolaterally with dense erect simple setae; broadly ovate flattened pygidial area finely longitudinally rugose basally becoming very finely and densely punctate/granulate apically, well defined on posterior half by straightish lateral carina ending posteriorly in a blunt angle, posterior margin weakly concave laterally, convex medially. S1 with weak simple median carina. S2 strongly convex anteromedially, without felt line, finely and sparsely punctate, with erect simple to brachyplumose setae and sparse apical

fringe of semi-decumbent simple setae. S3-6 faintly shagreened and finely but moderately to densely punctate, with erect and decumbent brachyplumose or simple setae. Hypopygium (S6) with apex deeply emarginate, forming an elongate straight flange-like blunt tooth on each side.

#### REMARKS

Apart from the SANTO 2006 material, the only other specimen from Vanuatu that I have seen is the one listed above from SAM. It was collected somewhat further south than the others, which indicates that this species is probably fairly common in suitable habitats.

#### *Ancistrotilla bleuensis* n. sp.

(Fig. 4)

**TYPE MATERIAL.** — Holotype ♀: NEW CALEDONIA / Refuge area near / Riviere [*sic*] Bleue Prov[incial]. P[ar] k. / km 25.8 Riv[ière]. Bleue road [approx.  $22^{\circ}11'S$ ,  $166^{\circ}44'E$ ] / Nov[ember] 3 1992, 213 m / E. & M. Schlinger; INHS / Insect collection / 263,138; specimen / measured & / photographed / D. J. Brothers (MNHN EY6689).

**DISTRIBUTION.** — New Caledonia, Grande Terre (Fig. 11).

**ETYMOLOGY.** — The specific name is a noun in the genitive case, derived from the name of the type locality.

**DIAGNOSIS.** — **Female.** Integument black with only faint metallic reflections; T2 black pubescent only anteromedially, with large patch of fairly dense pale golden setae on posterior half extending anteriorly on each side and merging with white apical band; head narrower than mesosoma; no postgenal carina; mesosoma about  $1.25\times$  as long as wide; inner metatibial spur about  $1.5\times$  length of outer spur; T2 wider than long in dorsal view; felt line about  $0.3\times$  lateral length of T2; pygidial area pyriform, narrowed anteriorly, entirely very finely and densely punctate/granulate, posterolateral carina convex; hypopygium apically with posteriorly upturned flange-like acute tooth on each side.

**Male.** Unknown.

#### DESCRIPTION

##### *Female*

Length 8.5 mm. Integument mainly black with some very weak metallic reflections; head and mesosoma black; metasoma dark bluish dorsally, very dark



FIG. 3. — *Ancistrotilla azurea* n. gen., n. sp. ♀: **A**, habitus, dorsal view; **B**, habitus, lateral view; **C**, head, anterior view; **D**, propodeum and metasoma, dorsal view; **E**, T5 and pygidium, dorsal view. Scale bars: 1 mm.

reddish brown ventrally, T1 with narrow yellowish integumental band posteriorly; pygidium and appendages, including tibial spurs, very dark reddish brown. Pubescence blackish but forming sparse patch of whitish setae on vertex, transverse broad sparse whitish band on meso-metanotal area, sparse patch of pale golden setae on propodeal declivity, sparse whitish setae on propodeal apex and T1, fairly dense

complete pale golden band apically on T1, sparse whitish setae laterally on T2, patch of fairly dense pale golden setae on posterior half of T2 extending anteriorly on each side, dense complete whitish to pale golden apical fringe on T2, sparse pale golden setae on T5, dense whitish tuft on each side of pygidial plate, sparse whitish setae on S1-2 and sparse whitish apical band on S2 and medially on S3.

**Head.** Broadly transverse,  $1.51\times$  as wide as long,  $0.94\times$  as wide as mesosoma, densely punctate-reticulate, with semi-decumbent fine slender setae and erect sparsely brachyplumose setae. Occipital carina weak, present only dorsally. Sides behind head moderate, slightly converging, distinct from posterior margin, posterolateral angle rounded; head length behind eye  $0.55\times$  eye length. Eye strongly protruding, frons width  $0.60\times$  head width. Antennal tubercles simple, smooth, slightly separated basally. Clypeus with raised narrowly triangular punctate and setose region above complete shallowly W-shaped strong transverse flange-like carina, itself above depressed transverse smooth area, ventral margin slightly convex but weakly concave medially. Malar space  $1.29\times$  basal height of mandible. Genal carina apparently absent, perhaps represented by ventral irregular vertical ridge near proboscis fossa. Postgenal carina absent. Proboscis fossa slightly longer than smooth postgenal bridge. Scape simple, fairly sparsely punctate above. Pedicel  $1.23\times$  as long as wide,  $0.68\times$  as long as first flagellomere; first flagellomere  $1.32\times$  as long as wide,  $1.45\times$  as long as second. Mandible slender, tapering, arcuate, bidentate apically, subapical tooth minute and distant from apex, with basal lamellate tooth ventrally; height across basal tooth  $0.83\times$  mandibular basal height, height immediately beyond basal tooth  $0.63\times$  height across tooth, basal tooth length  $0.83\times$  mandibular basal height.

**Mesosoma.**  $1.27\times$  as long as wide, broadened to point anterior to metathoracic spiracle, then narrowed to projecting propodeal spiracle, maximum width  $1.24\times$  width at base of propodeal spiracle; propodeum parallel-sided then rounded posteriorly, disk and declivity merging. Dorsum convex, densely punctate-reticulate, more coarsely and irregularly so posteriorly, clothed with decumbent slender laterally flattened setae and erect simple and brachyplumose setae. Pronotal dorsal face (excluding anterior collar) with anterior margin slightly convex, rounded, epaulet weakly tuberculate, humeral angle blunt; posterodorsal margin indicated by crenulate shallowly concave sinuate ridge. Meso- and metanotum delimited laterally by weak irregular longitudinal ridge. Lateral face of pronotum sparsely

punctate; pronotal-mesopleural suture entirely distinct. Mesopleuron almost smooth anteriorly and posteroventrally; vertical mesopleural ridge well developed and coarsely punctate-reticulate, specially ventrally, rounded and broad between prothoracic and metathoracic spiracles dorsally, with erect long brachyplumose setae. Metapleuron smooth and shining. Lateral face of propodeum mainly smooth and shining, with a few scattered minute punctures. Metasternal process medially triangular and apically obtuse, slightly shorter than metacoxal height, basally with strong blunt tubercle on each side.

**Legs.** Foreleg with tarsal comb, a few long strong articulated spines on posterior/lateral margins of tarsomeres 1-3. Mid- and hind tibiae each with two rows of prominent spines, three preapical spines in each row; each subapically with distinct secretory pore near base of inner apical spur. Metacoxa with strong even longitudinal carina on inner margin, ending posteriorly well before small apical tooth; inner metatibial spur  $1.52\times$  as long as outer spur,  $0.76\times$  as long as metabasitarsus.

**Metasoma.**  $1.17\times$  as wide as mesosoma. T1  $2.16\times$  as wide as long,  $0.51\times$  width of T2, evenly expanded from base, weakly convex, not constricted apically, finely and sparsely punctate, with erect slender brachyplumose setae and posterior fringe of decumbent slender simple setae; anterior auricle prominent, vertically lamellate. T2  $0.92\times$  as long as wide in dorsal view, finely and very densely punctate, clothed with decumbent slender laterally flattened to simple setae and erect simple and brachyplumose setae, posterior band of decumbent slender simple setae; lateral felt line broad,  $0.30\times$  lateral length of T2. T3-5 shagreened and very finely but moderately punctate, clothed with decumbent slender laterally flattened to simple setae and few erect simple and brachyplumose setae. T6 basolaterally with dense erect simple setae; pyriiform flattened pygidial area entirely very finely and densely punctate/granulate, anteriorly narrowed, well defined on posterior third by convex lateral carina ending posteriorly in a blunt angle, posterior margin weakly concave laterally, convex medially. S1 mostly smoothly convex, median carina represented only by anterior tubercle. S2 strongly convex anteromedially,



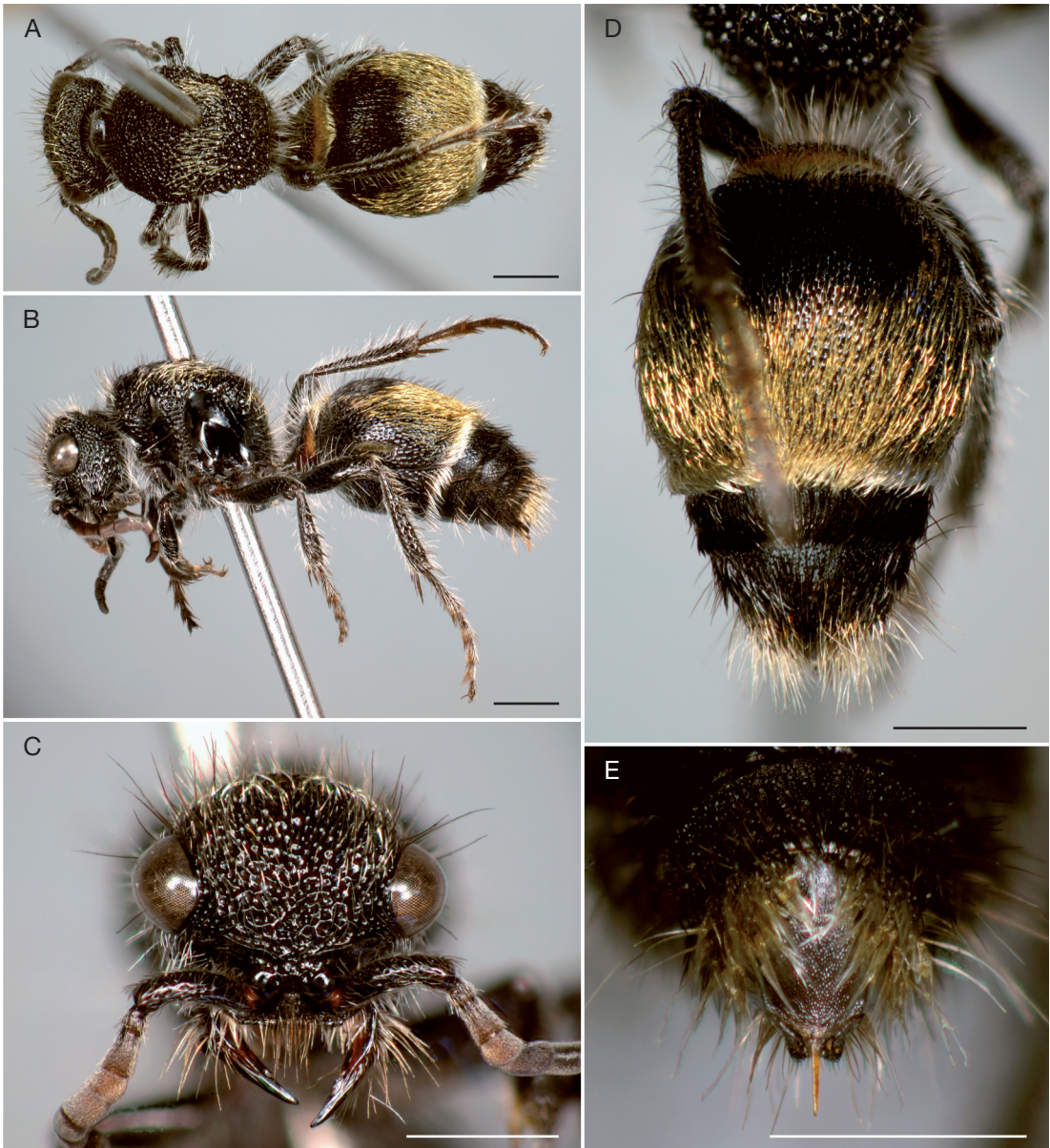


FIG. 4. — *Ancistrotilla bleuensis* n. gen., n. sp., holotype ♀ (MNHN EY6689): **A**, habitus, dorsal view; **B**, habitus, lateral view (image reversed); **C**, head, anterior view; **D**, metasoma, dorsal view; **E**, T5 and pygidium, dorsal view. Scale bars: 1 mm.

without felt line, finely and sparsely punctate, with erect simple setae and sparse apical fringe of semi-decumbent simple setae. S3-6 shagreened and finely but moderately to densely punctate, with erect and decumbent simple setae. Hypopygium (S6) with apex

deeply emarginate, forming a posteriorly upturned flange-like acute tooth on each side.

*Male*

Unknown.

*Ancistrotilla caledonica* (André, 1896) n. comb.  
(Fig. 5)

*Mutilla* (*Sphaerophthalma* [sic]) *caledonica* André, 1896: 96, 97, 100, ♀.

*Ephutomorpha caledonica* — André 1902: 49, ♀. — Mickel 1935: 296, ♀. — Williams 1945: 416, pl. XVIII (in part, ♀ not ♂).

TYPE MATERIAL. — Lectotype ♀: N[ouvel]le Calédo[nie] [pink label, typeset]; MUSÉUM PARIS / COLLECTION / ERNÉST ANDRÉ / 1914 [pink label, typeset]; TYPE [red lettering, typeset]; LECTOTYPE / Mutilla (*Sphaerophthalma* [sic]) / *caledonica* André 1896 ♀ / det. D. J. Brothers 1981 [my handwriting]; LECTOTYPE [red label, typeset] (MNHN EY6690).

Paralectotypes (4 ♀♀): labelled similarly to lectotype (1 measured and photographed, 1 measured, MNHN EY6691-6694). (Locality further specified as Nouméa [22°16'30"S, 166°27'30"E] by André [1896], see below.)

OTHER MATERIAL EXAMINED. — **New Caledonia.** 7 ♀♀: Dumbea River [approx. 22°10'S, 166°27'E], 28.X.1958 (C. R. Joyce) (1 ♀ measured BPBM); Noumea [22°16'30"S, 166°27'30"E], 10.VIII.1940 (F. X. Williams) (1 ♀ measured BPBM). — Isle of Pines [approx. 22°37'S, 167°28'E], 23.X.1940 (F. X. Williams) (1 ♀ BPBM, 1 ♀ measured DJBC); same data but 24.X.1940, 1 det. as *Ephutomorpha caledonica* by Williams (3 ♀♀, 1 measured BPBM).

DISTRIBUTION. — New Caledonia: Grande Terre, île des Pins (Fig. 11).

DIAGNOSIS. — **Female.** Integument black with only faint metallic reflections; T2 mainly black pubescent, with narrow apical band of pale golden setae merging with white apical band; head about as wide as mesosoma; postgenal carina short, near occipital foramen; mesosoma about 1.3× as long as wide; inner metatibial spur about 1.5× length of outer spur; T2 slightly wider than long in dorsal view; felt line about 0.3× lateral length of T2; pygidial area pyriform, narrowed anteriorly, entirely very finely and densely punctate/granulate, posterolateral carina convex; hypopygium apically with posteriorly upturned flange-like narrowly rounded tooth on each side.

**Male.** Unknown.

REDESCRIPTION

*Female*

Measurements are means and ranges from six specimens indicated above.

Length 6.6 (5.9-7.2) mm. Integument mainly black (sometimes dark reddish brown) with some very

weak metallic reflections; head and mesosoma very dark bluish dorsally; metasoma dark bluish dorsally, very dark reddish brown ventrally, T1 with narrow yellowish integumental band posteriorly; pygidium and appendages, including tibial spurs, very dark reddish brown. Pubescence mainly blackish but whitish laterally and ventrally, mainly whitish on head, transverse short sparse whitish band on metanotal area, whitish setae on anterior face of pronotum and on propodeal apex and T1, fairly dense complete whitish band apically on T1, complete indefinite band of pale golden setae merging posteriorly with broad dense complete whitish band apically on T2, sparse erect whitish setae anteriorly on T3, dense whitish to pale golden tuft on each side of pygidial plate.

**Head.** Broadly transverse, 1.48× (1.44-1.50) as wide as long, 0.99× (0.96-1.03) as wide as mesosoma, densely punctate-reticulate, with semi-decumbent fine slender setae and erect sparsely brachyplumose setae. Occipital carina weak, present only dorsally. Sides behind head moderate, clearly converging, distinct from posterior margin, posterolateral angle rounded; head length behind eye 0.54× (0.44-0.61) eye length. Eye strongly protruding, frons width 0.60× (0.57-0.62) head width. Antennal tubercles simple, smooth, slightly separated basally. Clypeus with raised triangular punctate and setose region above complete shallowly W-shaped strong transverse flange-like carina, itself above depressed transverse micropunctate smooth area, ventral margin slightly convex but weakly concave medially. Malar space 1.50× (1.39-1.71) basal height of mandible. Genal carina apparently absent (sometimes perhaps represented by slight ventral irregular vertical ridge approaching proboscoidal fossa). Short sharp irregular postgenal carina extending from edge of occipital depression about quarter distance to proboscoidal fossa. Proboscoidal fossa scarcely longer than smooth postgenal bridge. Scape simple, fairly sparsely punctate above. Pedicel 1.10× (1.00-1.30) as long as wide, 0.70× (0.63-0.78) as long as first flagellomere; first flagellomere 1.16× (1.00-1.27) as long as wide, 1.24× (1.10-1.33) as long as second. Mandible slender, tapering, arcuate, bidentate apically, subapical tooth minute and distant from apex, with basal lamellate tooth ventrally; height





FIG. 5. — *Ancistrotilia caledonica* (André, 1896) n. comb. ♀: **A**, habitus, dorsal view; **B**, habitus, lateral view; **C**, head, anterior view; **D**, metasoma, dorsal view; **E**, T5 and pygidium, dorsal view. Scale bars: 1 mm.

across basal tooth  $0.92\times$  (0.89-0.97) mandibular basal height, height immediately beyond basal tooth  $0.57\times$  (0.56-0.59) height across tooth, basal tooth length  $1.00\times$  (0.94-1.07) mandibular basal height.

**Mesosoma.**  $1.29\times$  (1.26-1.35) as long as wide, broadened to point anterior to metathoracic spiracle, then narrowed to projecting propodeal spiracle, maximum width  $1.22\times$  (1.19-1.26) width at base of

propodeal spiracle; propodeum parallel-sided then rounded posteriorly, disk and declivity merging. Dorsum convex, densely punctate-reticulate, more coarsely and irregularly so posteriorly, clothed with decumbent slender laterally flattened setae and erect simple and brachyplumose setae. Pronotal dorsal face (excluding anterior collar) with anterior margin slightly convex, rounded, epaulet weakly tuberculate, humeral angle acute; posterodorsal margin indicated by crenulate broadly V-shaped ridge. Meso- and metanotum delimited laterally by strong irregular longitudinal ridge. Lateral face of pronotum moderately punctate; pronotal-mesopleural suture entirely distinct. Mesopleuron almost smooth anteriorly and posteroventrally; vertical mesopleural ridge well developed and coarsely punctate-reticulate, rounded and broad between prothoracic and metathoracic spiracles dorsally, with erect long brachyplumose setae. Metapleuron smooth and shining, with scattered minute punctures ventrally. Lateral face of propodeum mainly smooth and shining, with scattered minute punctures. Metasternal process medially parallel-sided and apically broadly obtuse, slightly shorter than metacoxal height, basally with strong blunt tubercle on each side.

**Legs.** Foreleg with tarsal comb, a few long strong articulated spines on posterior/lateral margins of tarsomeres 1-3. Mid- and hind tibiae each with two rows of prominent spines, three preapical spines in each row; each subapically with distinct secretory pore near base of inner apical spur. Metacoxa with strong even longitudinal carina on inner margin, ending posteriorly well before small apical tooth; inner metatibial spur  $1.46\times$  ( $1.36$ - $1.56$ ) as long as outer spur,  $0.75\times$  ( $1.71$ - $1.78$ ) as long as metabasitarsus.

**Metasoma.**  $1.17\times$  ( $1.13$ - $1.18$ ) as wide as mesosoma. T1  $2.16\times$  ( $2.03$ - $2.31$ ) as wide as long,  $0.49\times$  ( $0.48$ - $0.50$ ) width of T2, evenly expanded from base, weakly convex, not constricted apically, finely and sparsely punctate, with erect slender brachyplumose setae and posterior fringe of decumbent slender simple setae; anterior auricle prominent, vertically lamellate. T2  $0.95\times$  ( $0.91$ - $0.99$ ) as long as wide in dorsal view, finely and very densely punctate, clothed with decumbent slender laterally flattened

to simple setae and erect simple and brachyplumose setae, posterior band of decumbent slender simple setae; lateral felt line broad,  $0.27\times$  ( $0.22$ - $0.31$ ) lateral length of T2. T3-5 shagreened and very finely but moderately punctate, clothed with decumbent slender laterally flattened to simple setae and erect simple and brachyplumose setae. T6 basolaterally with dense erect simple setae; pyriform flattened pygidial area entirely very finely and densely punctate/granulate, anteriorly narrowed, well defined on posterior third by convex lateral carina ending posteriorly as an oblique narrowing, posterior margin weakly convex laterally, abruptly convex medially. S1 mostly smoothly convex, median carina represented only by anterior tubercle, posterior declivity delimited by abrupt transverse ridge. S2 strongly convex anteromedially, without felt line, finely and sparsely punctate, with erect simple setae and sparse apical fringe of semi-decumbent simple setae denser laterally. S3-6 finely but moderately to densely punctate, with erect and decumbent simple setae. Hypopygium (S6) with apex deeply emarginate, forming a posteriorly upturned flange-like blunt tooth on each side.

#### *Male*

Unknown.

#### REMARKS

This taxon was described from more than one female specimen collected at "Nouméa (Nouvelle-Calédonie)" (collector unspecified) and in André's collection (André 1896). There are six female specimens so identified from that collection in MNHN; all have appropriate collecting data (although "Nouméa" itself does not appear on the labels and they have no dates). Five agree with the description (although the first metasomal tergum has a testaceous band at the apex and the pygidium is shagreened) and are evidently syntypes. The sixth is not contaxic with the others, has a different locality label, and does not agree with the description on numerous points (e.g., it has ferruginous legs and a distinctly striated pygidium); I consider that specimen not to be a syntype. Mickel (1935) stated that the lectotype (specified as from Noumea, presumably based on the locality given in the original description) was



in MNHN but he did not label any specimen as such and gave no indication that he had traced the syntype series. I have no reason to believe that an appropriate specimen labelled specifically as from Noumea ever existed. It is impossible to be sure which of the syntypes Mickel considered to be the lectotype, and I hereby specify the largest syntype (length about 9.0 mm) as the lectotype. The other four specimens have been labelled as paralectotypes. I have no information which might clarify why André specified Noumea as the type locality, other than the fact that it is the capital of New Caledonia.

Williams (1945) collected seven females and five males of what he identified as *Ephutomorpha caledonica*, almost all from the île des Pins but one female from Noumea, the type locality of *E. caledonica*. Since only one species was known from New Caledonia at the time, his identification (probably based on his use of Mickel's (1935) key since he had not seen the original description) and his assumption that the males were of the same species, were entirely reasonable. I have directly compared several females collected by him with two paralectotypes of *M. caledonica* and can confirm that his identification was correct; these specimens have been included in my redescription above. However, the identity of the males is problematic since it is now known that there are additional species of *Ancistrotilla* n. gen. on New Caledonia; see under *A. aenigmatica* n. gen., n. sp. below.

*Ancistrotilla aenigmatica* n. sp.

(Figs 6; 7; 10B)

*Ephutomorpha caledonica* – Williams 1945: 416, pl. XVIII (in part, ♂ not ♀).

TYPE MATERIAL. — Holotype ♂: NEW CALEDONIA / Riviere [sic] Bleue Prov[incial]. P[ar]k. / km 25.8 Riv[jère]. Bleue road [approx. 22°11'S, 166°44'E] / 30 Oct[ober] - 3 Nov[ember] 1992, 213 m / ME Erwin, DW Webb; INHS / Insect collection / 263,135; Malaise Trap / across / forest path; specimen / measured & / photographed / D. J. Brothers (MNHN EY6695).

Paratypes (62 ♂♂): New Caledonia. Grande Terre, Along stream 13 km by road from Ouégoa on road to mont "Mandjanie" [Mandjélia] [approx. 20°25'S, 164°29'E], 26.XI.1992, 175 feet (D. W. Webb, E. & M. Schlinger) collected in Malaise trap, INHS 209,960 (1 ♂ INHS);

same data but INHS 263,159 (1 ♂ DJBC). — 13 km SE Kaala-Gomén 20°46'07"S, 164°27'26"E, 100 m, 20.I.1996 (M. E. Irwin, D. W. Webb), Malaise across road in dry shrub, INHS 209,957 (1 ♂ INHS). — Aoupinié, 21°10'S, 165°19'E, 550 m, sawmill, rainforest, 23.XI.2001-1.II.2002 (Burwell, Monteith), Malaise 8932 (1 ♂ QM). — Pindai Forest, 3 km SW Népoui [approx. 21°22'S, 164°59'E], 7-13.XI.1992 (D. W. Webb, E. & M. Schlinger), Malaise trap in coastal forest, INHS 263,114-117 (4 ♂♂ INHS); same data but INHS 263,113 (1 ♂ measured DJBC); same data but 13-23.XI.1992, INHS 263,118-121 (4 ♂♂ INHS). — Ni Vallée [approx. 21°26'S, 165°29'E], small stream crossing logging road in La Ni forest on SW face of La Ni Vallée, 2.XI.1992, 2300 feet (M. E. Irwin, D. W. Webb), Malaise trap across stream, INHS 263,090 (1 ♂ INHS). — 1 km N Sarraméa 21°38'14"S, 165°51'35"E, 21.I.1996 (M. E. Irwin, D. W. Webb, EI Schlinger), Malaise on forest hillside, INHS 209,958 (1 ♂ INHS). — Rivière Bleue Prov. Pk. [approx. 22°06'S, 166°40'E], trail to upper Riv. Bleue, 5-16.XI.1992, 290 m (D. W. Webb), Malaise trap across forest path INHS 263,102-106 & 109-110 (7 ♂♂ INHS); same data but INHS 263,101 (1 ♂ BPBM); same data but INHS 263,107 (1 ♂ ANIC); same data but INHS 263,111 (1 ♂ DJBC); same data but INHS 263,112 (1 ♂ measured DJBC); same data but 16-19.XI.1992, INHS 263,108 & 263,147 (2 ♂♂ INHS); same data but 19-28.XI.1992, 305 m, INHS 263,139 (1 ♂ INHS); same location but 19-28.XI.1992, 950 feet (D. W. Webb), collected in Malaise trap, INHS 209,961 (1 ♂ INHS). — Rivière Bleue Prov. Pk., 35 km NW Yaté [approx. 22°08'S, 166°42'E], 21.XII.1991 (M. E. Irwin, D. W. Webb), Malaise trap across forest path, INHS 263,158 (1 ♂ INHS). — Rivière Bleue Prov. Pk., 30 km NW Yaté [approx. 22°09'S, 166°44'E], 270 m, 27.XII.1991 (M. E. Irwin, D. W. Webb), Malaise trap across forest path, INHS 263,130 & 132 (2 ♂♂ INHS); same data but INHS 263,129 & 131 (2 ♂♂ DJBC); same data but 24-27.XII.1991, no altitude, INHS 263,142-144 (3 ♂♂ INHS). — Rivière Bleue Prov. Pk., km 19.6 Riv. Bleue road [approx. 22°09'S, 166°45'E], 18-20.XI.1992, 183 m (D. W. Webb), Malaise trap across forest path, INHS 263,140 (1 ♂ INHS); same data but 20-28.XI.1992, INHS 263,141 (1 ♂ INHS). — Dumbéa River [approx. 22°10'S, 166°27'E], 28.X.1958 (C. R. Joyce) (1 ♂ measured BPBM); same location but 22-25.V.1970 (H. E. & M. A. Evans) det. as "*Ephutomorpha senilis* (Smith)" by Petersen (1 ♂ MCZ). — Mt. Koghi [Koghis, 22°10'34"S, 166°30'17"E], 15.II.1963 (N. L. H. Krauss) (1 ♂ measured BPBM); Mt Koghis, 500 m, 17 km N-NE Nouméa, 5-15.XI.1992 (D. W. Webb), Malaise trap in tropical forest, INHS 263,155 (1 ♂ INHS); same location but 425 m, 8-10.I.1996 (M. E. Irwin, D. W. Webb, EI Schlinger), Malaise across path in rainforest, INHS 209,955 (1 ♂ DJBC). — Rivière Bleue Prov. Pk., km 25.8 Riv. Bleue road [approx. 22°11'S,

166°44'E], 5-16.XI.1992, 213 m (D. W. Webb, E. & M. Schlinger), Malaise trap across forest path, INHS 263,133 (1 ♂ BMNH); same data but 30.X-3.XI.1992 (M. E. Irwin, D. W. Webb), INHS 263,136 (1 ♂ INHS); same data but INHS 263,137 (1 ♂ MNHN); Rivière Bleue [approx. 22°11'S, 166°44'E], 30.X.1992, 213 m (E. & M. Schlinger, D. W. Webb), collected in Malaise trap, INHS 263,156 (1 ♂ INHS). — Pic du Pin, 22°14'S, 166°50'E, 280 m, site 2, rainforest, 23.XII.2004-12.I.2005 (Burwell, Wright), Malaise, Photog. Spm PS1101, 12047 (1 ♂ QM). — Chute Madeleine, 22°14'S, 166°52'E, 230 m, maquis, 18.IX-12.XI.2000 (Skevington & Burwell), Malaise, 9970 (1 ♂ measured DJBC, 2 ♂♂ QM). — North side of Mont. Dore, 4 km NW Plum [approx. 22°14'45"S, 166°36'21"E], 24-27.XII.1991 (M. E. Irwin, D. W. Webb), Malaise trap in dry wash with pools, INHS 263,157 (1 ♂ INHS). — Pic du Grand Kaori, 22°17'S, 166°54'E, 250 m, 21.XI.2001-29.I.2002 (G. Monteith), Malaise trap, 8920 (1 ♂ measured QM). — Forêt (*sic*) Nord, 22°19'S, 166°55'E, 480 m, site 1, rainforest, 1-22.XII.2004 (Burwell, Wright), Malaise, 11882 (1 ♂ QM). — Cap Ndoua 22°23'S, 166°56'E, 150 m, site 1, rainforest, 21.XII.2004-8.I.2005 (Burwell, Wright), Malaise, 12064 (1 ♂ measured QM). — Isle of Pines [approx. 22°37'S, 167°28'E], 23.X.1940 (F. X. Williams), 1 det. as *Ephutomorpha caledonica* by Williams (2 ♂♂ measured BPBM, 1 ♂ DJBC); same location but 24.X.1940 (F. X. Williams), det. as *Ephutomorpha caledonica* by Williams (1 ♂ BPBM).

**DISTRIBUTION.** — New Caledonia: Grande Terre, île des Pins (Fig. 11).

**ETYMOLOGY.** — The specific name is a Latin adjective meaning "mysterious", referring to the uncertainty surrounding the identity of these males and their sex association(s), see below.

**DIAGNOSIS.** — **Male.** Integument predominantly dark metallic blue; T6 with mainly black setae, only sparse white apical fringe; S6 entirely black pubescent; no postgenal carina; clypeal tooth with lateral margin straight; third submarginal cell shorter than high, distance between third submarginal cell and wing apex almost 3× length of third submarginal cell; tibial spurs black; pygidium apically flattened with straight transverse apical margin; penis valve with convex dorsal margin, lateroventral lamella extending to same level as inner lamella, both lamellae attaching to apical tooth within ventral quarter, apicodorsal setae on dorsal ⅔ of apical margin.

**Female.** Unknown.

#### DESCRIPTION

##### Male

Measurements are for holotype, and range and mean for all 11 specimens indicated above.

Length 8.9 (5.8-10.1, mean 8.4) mm. Integument mostly metallic dark blue; T1 with narrow pale integumental band posteriorly; T2 dark purplish blue to dark purple; T3-6, S2-7 and hypopygium dark purplish blue, becoming scarcely metallic posteriorly; antenna, mouthparts, tegula, tibial spurs, tarsi and pygidium black to very dark brown. Pubescence mainly whitish but with several interspersed dark setae on dorsum of head, dark on scutum, tegula, T2 except anterolaterally, T4-6, S2 except anteriorly, S4-6 and hypopygium; decumbent white setae forming dense apical fringes on T2-3, sparse apical fringe on T6, covering T7 except for pygidial plate, and forming apical fringes laterally on S2-3.

**Head.** Broadly transverse, 1.84× (1.67-1.85, mean 1.74) as wide as long, 0.97× (0.92-1.02, mean 0.97) as wide as mesosoma, densely and finely punctate-reticulate, with semi-decumbent simple and long shaggy erect brachyplumose setae, erect plumose setae behind eye and on scape and median area of clypeus. Eye strongly protruding, frons width 0.54× (0.54-0.57, mean 0.56) head width. Sides behind head converging and rounded, merging with posterior margin; head length behind eye 0.48× (0.45-0.58, mean 0.53) eye length. Vertex convex, ocellar triangle scarcely elevated. Ocelli moderate, median ocellus 0.08× (0.08-0.09, mean 0.08) width of head, closely spaced, interocellar distance 1.14× (1.10-1.63, mean 1.31) width of median ocellus; interocellar distance 0.33× (0.32-0.47, mean 0.38) ocell-ocular distance. Occipital carina distinct dorsally, ending ventrally at about mid level of occipital depression. Postgenal carina absent. Genal carina absent. Antennal tubercles shining but sparsely and finely punctate, slightly separated basally. Antennal scrobe deep, well delimited laterally, not reaching eye margin, with small transverse tooth dorsomesally and separate prominent obtuse dorsally-convex lamella lateroventral to this at dorsal extremity of lateral marginal ridge. Clypeus deeply depressed dorsolateral to median abruptly margined projecting flattened almost semicircular punctate area, ventral margin convex with large obliquely horizontal acute tooth on each side of midline, tooth basally broad with lateral margin straight. Malar





FIG. 6. — *Ancistrotilia aenigmatica* n. gen., n. sp. ♂: **A**, habitus, dorsal view; **B**, habitus, lateral view; **C**, head, dorsal view; **D**, head, anterior view; **E**, metasoma, dorsal view; **F**, T5, T6 and pygidium, dorsal view. Scale bars: 1 mm.

space  $0.59\times$  (0.52-0.69, mean 0.62) basal height of mandible. Proboscis slightly longer than smooth postgenal bridge. Scape strongly bicarinate anteroventrally, dorsal carina restricted to apical  $\frac{2}{3}$ . Pedicel  $0.95\times$  (0.83-1.00, mean 0.95) as long as wide,  $0.87\times$  (0.83-1.10, mean 0.91) as long as first flagellomere; first flagellomere  $0.92\times$  (0.77-1.00, mean 0.90) as long as wide,  $0.92\times$  (0.77-0.92, mean 0.87) as long as second flagellomere. Mandible in dorsal/anterior view evenly curved, weakly tapering, with moderate longitudinal carina dorsally, bidentate apically, subapical tooth well developed, with strong projecting rounded basal tooth ventrally; height across basal tooth  $0.82\times$  (0.69-0.83, mean 0.75) mandibular basal height, height immediately beyond basal tooth  $0.50\times$  (0.44-0.53, mean 0.48) height across tooth, basal tooth length  $1.27\times$  (1.10-1.27, mean 1.17) mandibular basal height.

**Mesosoma.**  $1.46\times$  (1.42-1.55, mean 1.47) as long as wide; densely and finely punctate except micropunctate and longitudinally briefly striate on metepimeron above endophragmal pit, smooth on dorsal  $\frac{2}{5}$  of metepisternum, and reticulate on propodeum; with long shaggy semi-decumbent simple and erect mainly brachyplumose setae. Pronotal dorsal face (excluding anterior collar) with anterior margin slightly convex, rounded, epaulet a prominent ovate tuft of fine erect setae; humeral angle rounded; lateral margin straight; posterodorsal margin broadly V-shaped. Tegula  $0.54\times$  (0.51-0.57, mean 0.54) as long as scutum, broadly ovate, not reaching median level of scuto-scutellar suture, convex but very weakly recurved posteriorly, smooth and glabrous except finely punctate and setose along anterior and mesal margins. Mesoscutum without notaulus, parapsis an almost indistinguishable very short line; posterolateral corner forming a slight flattish lobe discontinuous with axilla. Scutellum flattish; axilla produced as a flattened horizontal flange, forming a rounded tooth posteriorly. Metanotum simple, transverse. Propodeum evenly convex, disk and declivity merging in lateral view but margin between dorsal/posterior and lateral faces abrupt. Metasternal process broadly tridentate but apex strongly emarginate, shorter than metacoxal height.

**Wings.** Infuscated, darkest apical to cells, becoming paler basally. Forewing with moderate ovate sclerotised pterostigma; marginal cell fairly short,  $2.08\times$  (1.96-2.55, mean 2.25) as long as high, truncate apically with distinct spurlike vein posteriorly (sometimes scarcely evident); three closed submarginal cells, third submarginal cell  $0.88\times$  (0.79-1.03, mean 0.93) as long as high; distance between third submarginal cell and wing apex  $2.72\times$  (2.64-3.47, mean 2.83) length of third submarginal cell.

**Legs.** Mid- and hind tibiae without dorsal spines; each subapically with distinct secretory pore near base of inner apical spur; apical spurs longitudinally concave dorsally, margins microsetate, densely clothed with microsetae. Metacoxa with weak longitudinal carina on inner margin ending well before small apical lamellate tooth; inner metatibial spur  $1.71\times$  (1.44-1.77, mean 1.62) as long as outer spur,  $0.94\times$  (0.88-1.00, mean 0.94) as long as metabasitarsus.

**Metasoma.**  $1.00\times$  (0.91-1.00, mean 0.97) as wide as mesosoma. T1 finely and densely punctate but sparsely so anteromedially,  $1.23\times$  (1.14-1.35, mean 1.24) as long as wide,  $0.43\times$  (0.42-0.48, mean 0.46) width of T2, evenly expanded from base, strongly convex posteriorly, not constricted but almost parallel-sided apically, with erect slender brachyplumose setae and sparse posterior fringe of decumbent slender simple setae; anterior auricle prominent, broadly dentate. T2  $0.90\times$  (0.84-0.94, mean 0.88) as long as wide in dorsal view, finely and moderately punctate, interspaces distinct, with erect and semi-decumbent simple setae, a few erect brachyplumose setae anterolaterally; felt line narrow and long,  $0.42\times$  (0.35-0.49, mean 0.41) lateral length of T2. T3-6 very finely and densely punctate, surface shining, with erect and semi-decumbent simple setae. T7 mostly finely and densely punctate with semi-decumbent simple setae, apical pygidial area very finely and densely punctate, flattened, with straight lateral and apical marginal carinae. Sterna fairly sparsely punctate with semi-decumbent simple setae and erect simple setae, erect plumose setae on S1 and anteriorly on S2. S1 with distinct simple longitudinal carina. S2 in lateral

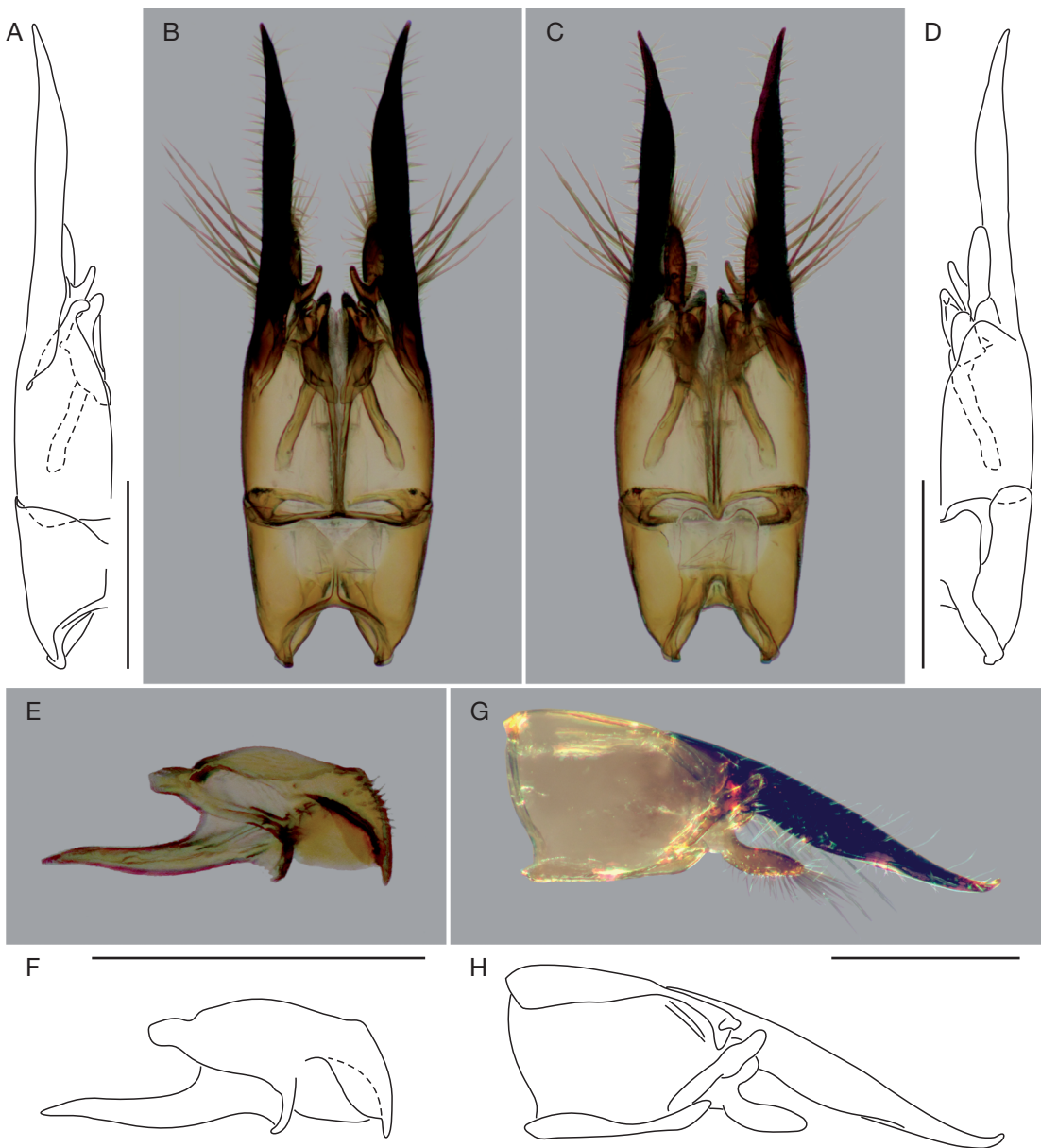


FIG. 7. — *Ancistrotilla aenigmatica* n. gen., n. sp., ♂ genitalia: **A, B**, dorsal view; **C, D**, ventral view; **E, F**, penis valve, outer lateral view; **G, H**, right half without basal ring and penis valve, inner lateral view. Scale bars: 0.5 mm.

view strongly convex anteriorly, weakly concave posteriorly; with well-developed but short felt line,  $0.31 \times (0.24-0.31, \text{mean } 0.27)$  as long as felt line on T2. S7 partially exposed, apparently about  $0.2 \times$  as

long as S6, almost entirely smooth. Hypopygium about as long as wide, sparsely punctate, flattened, posterior margin with prominent acute tooth on each side near midline.



**Genitalia.** Paramere elongate, slender, laterally obliquely flattened, acute, apex weakly curved dorsad, basilateral setae strong and reaching beyond about  $\frac{3}{4}$  length of paramere. Parapenial lobe well developed, apically hooklike and strongly curved mesad, apex slightly bulbous. Cuspis divided near base, paracuspis a short lobe, ventral lobe cylindrical; digitus elongated and laterally flattened, much shorter than cuspis. Penis valve in lateral view with dorsal margin strongly convex but briefly emarginate near each end; anteroventral arm strongly narrowed from base, anterior apex narrowly acute; lateroventral lamella apically obliquely narrowed, almost reaching apex of tooth, ventrally coincident in level with inner lamella or somewhat ventral to it; several small setae apically along at least dorsal half of apical margin; in dorsal view anteroventral arm apically parallel-sided.

#### *Female*

Unknown.

#### REMARKS

I have examined several of the male specimens collected by Williams (1945) with females of *A. calledonica* n. comb., and have been unable to find any consistent differences between them and specimens collected at the same time and place as the female holotype of *A. bleuensis* n. gen., n. sp., although there is a tendency for the Williams specimens to have slightly smaller and more distantly spaced ocelli than most of those from Rivière Bleue. Although measurements of all available specimens for this character alone suggested two groups, one with interocellar distance 1.37-1.64× (mean 1.47, SD 0.07, n 35) width of median ocellus and the other with interocellar distance 1.06-1.29× (mean 1.19, SD 0.06, n 27) width of median ocellus, the apparent gap between them (0.08) is minimal and I have not been able to find any other correlated characters which might support these groups; the distributions also overlap almost entirely, with specimens from both putative groups being found at the same localities throughout Grande Terre. This led me to describe *A. aenigmatica* n. gen., n. sp. as a separate species, since I could not reasonably associate specific specimens with particular female forms. It remains possible, however, that the male specimens listed

above may represent a mixed series, or that the two female forms may represent extremes of variability in a single species (something impossible to evaluate because of the paucity of specimens). Resolution of these questions must await more widespread sampling, specially of females which are seldom collected using the most popular survey methods involving Malaise traps.

#### *Ancistrotilla nigra* n. sp. (Figs 8; 9; 10C)

**TYPE MATERIAL.** — Holotype ♂: NEW CALEDONIA / Mt. Khogis [*sic*, Koghis, 22°10'34"S, 166°30'17"E] 500 m / 17 km NE Noumea [*sic*] / 28-XII-1992 / ME. Erwin & DW. Webb; INHS / Insect collection / 263,126; malaise trap / across forest pass; specimen / measured & / photographed / D. J. Brothers (MNHN EY6696).

Paratypes (2 ♂♂): **New Caledonia.** Rivière Bleue Prov. Pk. [approx. 22°06'S, 166°40'E], Maquis de Crete, 30.X.1992, 320 m (M. E. Erwin & D. W. Webb), Malaise trap, measured, wings and genitalia photographed, 1 ♂ (INHS 214,193). — Mt. Koghis [22°10'34"S, 166°30'17"E], 17 km NE Nouméa, 22.XII.1992, 500 m (M. E. Erwin & D. W. Webb), Malaise trap across forest pass, measured, 1 ♂ (INHS 263,122).

**DISTRIBUTION.** — New Caledonia: Grande Terre (Fig. 11).

**ETYMOLOGY.** — The specific name is a Latin adjective meaning "black", with reference to the predominant body colour.

**DIAGNOSIS.** — **Male.** Integument predominantly black; T6 and S6 mainly black pubescent but with a few whitish setae not forming a fringe; no postgenal carina; clypeal tooth with lateral margin sinuate and weakly concave apically; third submarginal cell shorter than high, distance between third submarginal cell and wing apex at least 3× length of third submarginal cell; tibial spurs black; pygidium apically weakly recurved with gently convex apical margin; penis valve with convex dorsal margin, lateroventral lamella reduced to dorsal flange, inner lamella broad but entirely separate from long apical tooth, apicodorsal setae on dorsal quarter of apical margin.

**Female.** Unknown.

#### DESCRIPTION

##### *Male*

Measurements given for holotype, and range and mean for all three specimens.



FIG. 8. — *Ancistrotilia nigra* n. gen., n. sp. ♂: **A**, habitus, dorsal view; **B**, habitus, lateral view; **C**, head, dorsal view; **D**, head, anterior view; **E**, T5, T6 and pygidium, dorsal view. Scale bars: 1 mm.

Length 9.2 (7.1-9.2, mean 7.9) mm. Integument almost entirely intense black, without metallic reflections; T1 with narrow pale yellowish integumental band posteriorly; antenna, mouthparts, tegula, tibial spurs, tarsi and pygidium black (sometimes very dark brown). Pubescence mainly whitish, but with many interspersed dark setae on dorsum of head, scutellum and T4-6; dark on scutum, tegula, T2 except anterolaterally, apical fringes on T4-6, covering T7 except for pygidial plate, S6-7 and hypopygium; semi-decumbent white setae forming sparse apical fringes on T1-3 and S2-5.

**Head.** Broadly transverse,  $1.82\times$  (1.78-1.85, mean 1.82) as wide as long,  $1.03\times$  (1.02-1.03, mean 1.03)

as wide as mesosoma, densely and finely punctate-reticulate, with semi-decumbent simple and long shaggy erect brachyplumose setae, erect plumose setae behind eye and on scape and median area of clypeus. Eye strongly protruding, frons width  $0.55\times$  (0.55-0.55, mean 0.55) head width. Sides behind head converging and rounded, merging with posterior margin; head length behind eye  $0.57\times$  (0.48-0.57, mean 0.52) eye length. Vertex convex, ocellar triangle scarcely elevated. Ocelli moderate, median ocellus  $0.09\times$  (0.08-0.09, mean 0.08) width of head, closely spaced, interocellar distance  $1.33\times$  (1.33-1.55, mean 1.47) width of median ocellus; interocellar distance  $0.42\times$  (0.42-0.47,

mean 0.44) ocell-ocular distance. Occipital carina distinct dorsally, ending ventrally above mid level of occipital depression. Postgenal carina absent. Genal carina absent. Antennal tubercles densely and finely punctate to rugose, slightly separated basally. Antennal scrobe deep, well delimited laterally, not reaching eye margin, with very weak transverse ridge dorsomesally and separate prominent bilobed dorsally-convex thin lamella lateroventral to this at dorsal extremity of lateral marginal ridge. Clypeus deeply depressed dorsolateral to median abruptly margined projecting flattened triangular punctate area, ventral margin convex with large obliquely horizontal acute tooth on each side of midline, tooth basally broad with lateral margin sinuate and weakly concave apically. Malar space  $0.64\times$  (0.64-0.67, mean 0.66) basal height of mandible. Proboscis fossa scarcely longer than smooth postgenal bridge. Scape strongly bicarinate anteroventrally, dorsal carina restricted to apical  $\frac{2}{3}$ . Pedicel  $0.75\times$  (0.75-0.79, mean 0.78) as long as wide,  $0.69\times$  (0.69-0.82, mean 0.75) as long as first flagellomere; first flagellomere  $0.97\times$  (0.89-0.97, mean 0.93) as long as wide,  $0.87\times$  (0.73-0.87, mean 0.80) as long as second flagellomere. Mandible in dorsal/anterior view evenly curved, weakly tapering, with weak longitudinal carina dorsally near base, bidentate apically, subapical tooth well developed, with strong projecting rounded basal tooth ventrally; height across basal tooth  $0.76\times$  (0.75-0.76, mean 0.75) mandibular basal height, height immediately beyond basal tooth  $0.47\times$  (0.44-0.47, mean 0.45) height across tooth, basal tooth length  $1.04\times$  (1.04-1.17, mean 1.08) mandibular basal height.

**Mesosoma.**  $1.49\times$  (1.37-1.49, mean 1.45) as long as wide; densely and finely punctate except longitudinally striate on metepimeron above endophragmal pit, smooth on dorsal  $\frac{5}{6}$  of metepisternum, and reticulate on propodeum; with long shaggy semidecumbent simple and erect mainly brachyplumose setae, plumose setae on mesepisternum. Pronotal dorsal face (excluding anterior collar) with anterior margin slightly convex, rounded, epaulet a prominent ovate tuft of fine erect setae; humeral angle rounded; lateral margin weakly convex; posterodorsal margin very broadly V-shaped. Tegula  $0.55\times$  (0.53-0.55,

mean 0.54) as long as scutum, broadly ovate, not reaching median level of scuto-scutellar suture, convex but very weakly recurved posteriorly, smooth and glabrous except finely punctate and densely setose anterolaterally and posteromesally. Mesoscutum without notaulus, parapsis an almost indistinguishable very short line; posterolateral corner forming a slight flattish lobe discontinuous with axilla. Scutellum flattish; axilla produced as a flattened horizontal flange, forming an abrupt tooth posterolaterally. Metanotum simple, transverse. Propodeum evenly convex, disk and declivity merging in lateral view but margin between dorsal/posterior and lateral faces abrupt. Metasternal process broadly tridentate but apex truncate, shorter than metacoxal height.

**Wings.** Infuscated, darkest on apical  $\frac{2}{3}$ , becoming paler basally. Forewing with moderate ovate sclerotised pterostigma; marginal cell fairly short,  $2.52\times$  (2.00-2.52, mean 2.23) as long as high, truncate apically with distinct spurlike vein posteriorly (sometimes scarcely evident); three closed submarginal cells, third submarginal cell  $1.03\times$  (0.81-1.03, mean 0.90) as long as high; distance between third submarginal cell and wing apex  $2.91\times$  (2.91-3.55, mean 3.21) length of third submarginal cell.

**Legs.** Mid- and hind tibiae each with one or two weak dorsolateral preapical spines (sometimes none); each subapically with distinct secretory pore near base of inner apical spur; apical spurs longitudinally concave dorsally, margins microscerrate, densely clothed with microsetae. Metacoxa with weak longitudinal carina on inner margin ending well before small apical lamellate tooth; inner metatibial spur  $1.50\times$  (1.44-1.61, mean 1.52) as long as outer spur,  $1.00\times$  (0.81-1.00, mean 0.93) as long as metabasitarsus.

**Metasoma.**  $0.93\times$  (0.87-0.94, mean 0.91) as wide as mesosoma. T1 finely and densely punctate but sparsely so anteromedially,  $1.03\times$  (1.00-1.06, mean 1.03) as long as wide,  $0.53\times$  (0.52-0.55, mean 0.53) width of T2, evenly expanded from base, strongly convex posteriorly, not constricted but diverging apically, with erect slender brachyplumose setae and sparse posterior fringe of decumbent slender simple setae; anterior auricle prominent, broadly dentate.



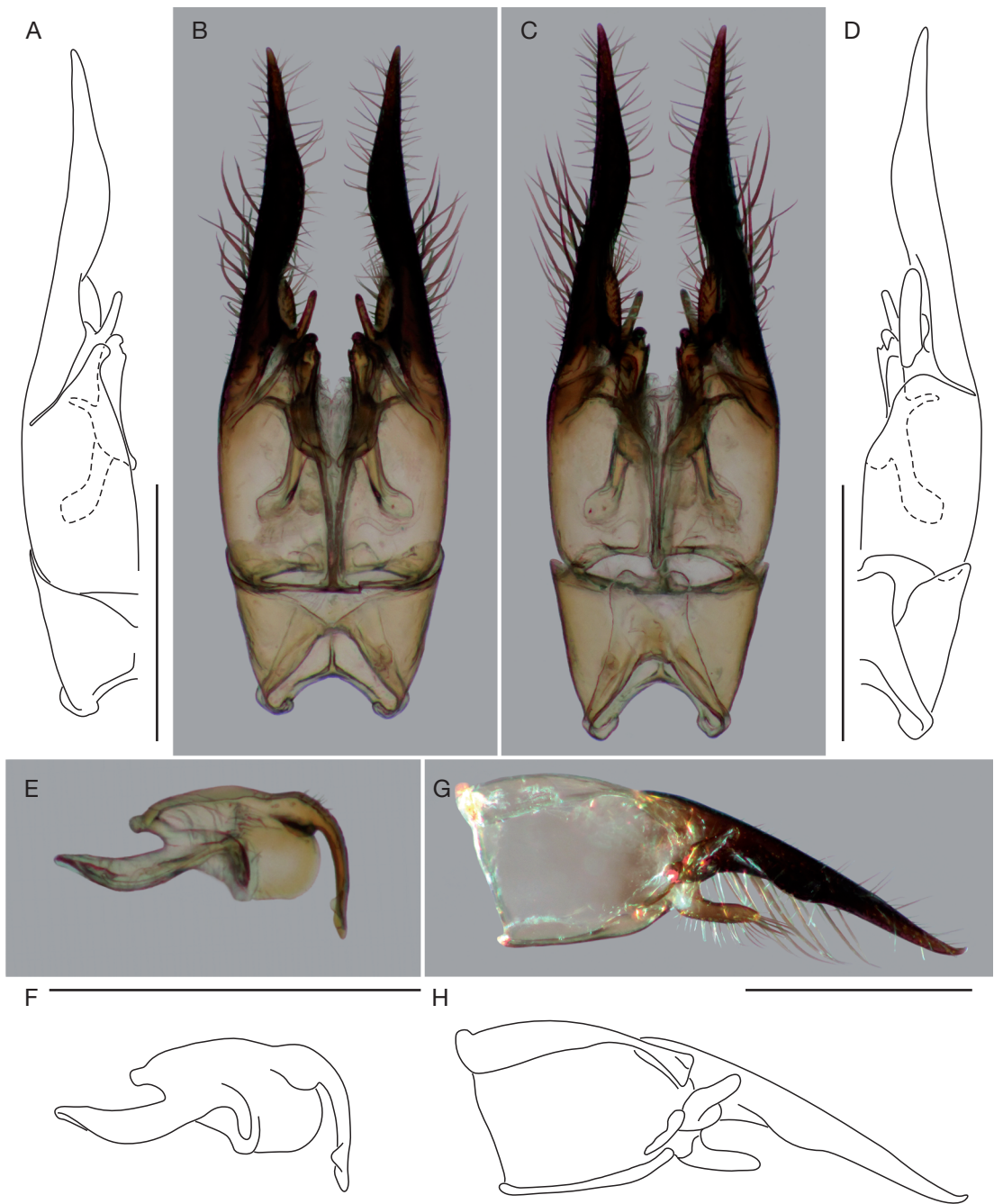


FIG. 9. — *Ancistrotilla nigra* n. gen., n. sp. ♂ genitalia: **A, B**, dorsal view; **C, D**, ventral view; **E, F**, penis valve, outer lateral view; **G, H**, right half without basal ring and penis valve, inner lateral view. Scale bars: 0.5 mm.

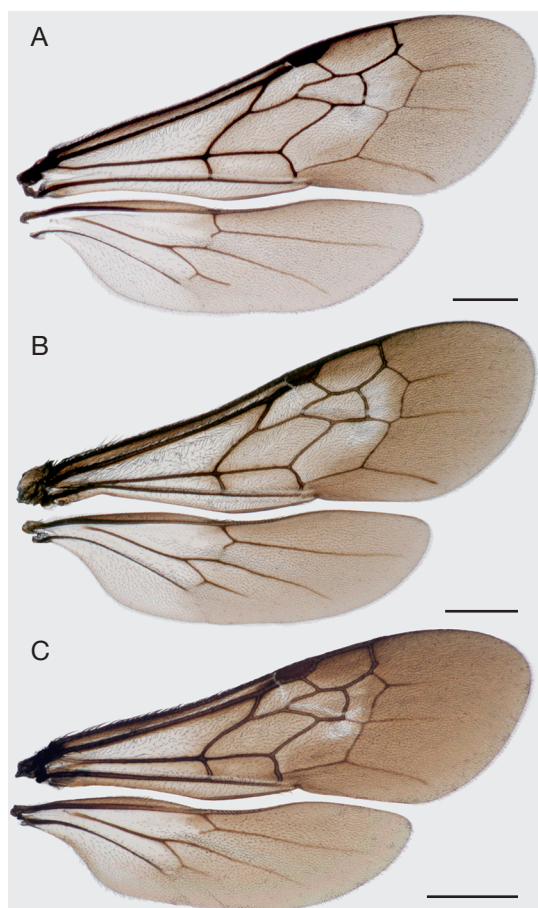


FIG. 10. — *Ancistrostilla* n. gen. ♂, right wings: **A**, *A. azurea* n. gen., n. sp.; **B**, *A. aenigmatica* n. gen., n. sp.; **C**, *A. nigra* n. gen., n. sp. Scale bars: 1 mm.

T2  $0.95\times$  (0.92–0.95, mean 0.93) as long as wide in dorsal view, finely and moderately punctate, interspaces distinct, with erect and semi-decumbent simple setae, a few erect brachyplumose setae anterolaterally; felt line long,  $0.46\times$  (0.44–0.47, mean 0.46) lateral length of T2. T3–6 very finely and densely punctate, surface shining, with erect and semi-decumbent simple setae. T7 mostly finely and densely punctate with semi-decumbent simple setae, apical pygidial area smooth but very finely and densely punctate apically, weakly recurved, with weak continuous lateral and apical marginal carinae, apex evenly convex. Sterna fairly sparsely

punctate with semi-decumbent simple setae and erect simple setae, erect plumose setae on S1 and anteriorly on S2. S1 with distinct simple longitudinal carina. S2 in lateral view entirely convex but more strongly so anteriorly; with well-developed but short felt line,  $0.35\times$  (0.26–0.35, mean 0.30) as long as felt line on T2. S7 partially exposed, apparently about  $0.3\times$  as long as S6, finely and moderately punctate. Hypopygium about as long as wide, sparsely punctate, weakly concave in lateral view, posterior margin with prominent acute tooth on each side near midline.

**Genitalia.** Paramere elongate, fairly slender, laterally obliquely flattened, acute, apex weakly curved dorsad, basilateral setae strong and reaching beyond about  $\frac{2}{3}$  length of paramere. Parapenial lobe well developed, apically weakly hooklike and curved mesad, apex slightly bulbous. Cusps divided near base, paracuspis a short lobe, ventral lobe cylindrical; digitus elongated and laterally flattened, shorter than cuspis. Penis valve in lateral view with dorsal margin convex but briefly emarginate near each end; anteroventral arm weakly broadened from base then strongly narrowed apically, anterior apex narrowly acute; lateroventral lamella restricted to a flange near dorsal base of apical tooth, inner lamella very broad but entirely separated from apical tooth; apical tooth long with small flange-like expansion laterally near apex; several small setae apically restricted to base of apical tooth; in dorsal view anteroventral arm apically broadened and spatulate.

#### *Female*

Unknown.

#### REMARKS

The female of this species is likely also not to have metallic reflections on the integument, so I suspect that it is as yet unknown.

#### Acknowledgments

I thank Claire Villemant and Agn  le Touret-Alby (MNHN) for sending me the Santo specimens and two paralectotypes of *M. caledonica*; Don Webb, Colin Favret and Dmitry Dmitriev (INHS), Chris

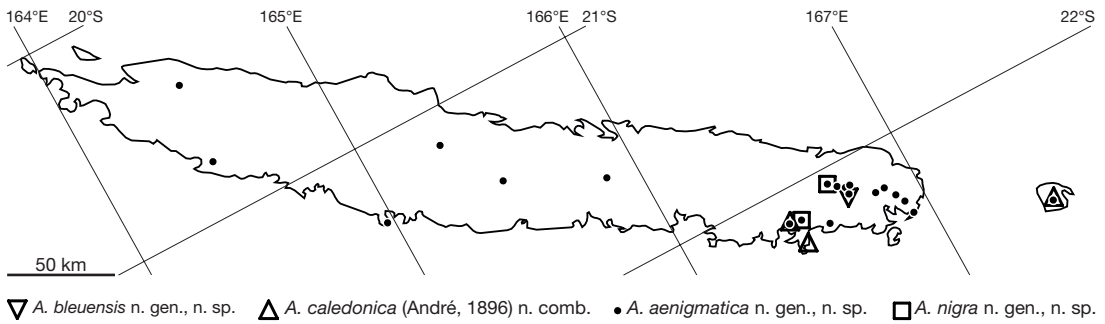


FIG. 11. — New Caledonia, specimen locations for species of *Ancistrotilla* n. gen.

Burwell (QM), and Neale Evenhuis and Keith Arakaki (BPBM) provided New Caledonia specimens, and Eric Matthews (SAM) lent a specimen from Santo. Sandi Willows-Munro (University of KwaZulu-Natal) kindly cleared the genitalia preparations. Arkady Lelej, James Pitts and Annemarie Ohler made useful comments on the manuscript. This research was supported by the University of KwaZulu-Natal Research Office.

## REFERENCES

- ANDRÉ E. 1896. — Étude sur les Mutillides existants dans les collections du Musée civique de Gênes. *Annali del Museo Civico di Storia Naturale di Genova* 17 (2): 66-104.
- ANDRÉ E. 1902 ["1903"]. — Fam. Mutillidae, in WYTSMAN P., *Genera Insectorum*, fasc. 11. P. Wytsman, Bruxelles: 1-77, pls 1-3.
- BROTHERS D. J. 1989. — Alternative life-history styles of mutillid wasps (Insecta, Hymenoptera), in BRUTON M. N. (ed.), *Alternative life-history styles of animals. Perspectives in Vertebrate Science* 6: 279-291.
- ESAKI T. 1938. — The occurrence of a mutillid wasp in Micronesia. *Annotationes Zoologicae Japonenses* 17: 431-432.
- HADLEY A. 2010. — CombineZP software. <http://www.hadleyweb.pwp.blueyonder.co.uk/CZP/files.htm>
- KROMBEIN K. V. 1971. — A monograph of the Mutillidae of New Guinea, Bismarck Archipelago and Solomon Islands, Part I: Mutillinae (Hymenoptera, Aculeata). *Entomological Essays to Commemorate the Retirement of Professor K. Yasumatsu*. Hokuryukan Publishing Co. Ltd., Tokyo: 25-60.
- KUHLMANN M. 2006. — Fauna and biogeography of the bees and wasps of the Cook Islands (Hymenoptera Aculeata). *Journal of Hymenoptera Research* 15: 26-37.
- MICKEL C. E. 1935. — The mutillid wasps of the islands of the Pacific Ocean (Hymenoptera; Mutillidae). *Transactions of the Royal Entomological Society of London* 83: 177-312.
- VALENTINE E. W. & WALKER A. K. 1983. — Three families of Hymenoptera new to New Zealand. *New Zealand Entomologist* 7: 397-400.
- VILLEMANT C. 2011. — Focus on bees and wasps, in BOUCHET P., LE GUYADER H. & PASCAL O. (eds), *The Natural History of Santo*. Patrimoines Naturels 70. Muséum national d'Histoire naturelle, Paris; IRD, Marseille; Pro-Natura International, Paris: 131-141.
- WILLIAMS F. X. 1945. — The aculeate wasps of New Caledonia, with natural history notes. *Proceedings of the Hawaiian Entomological Society* 12: 407-451.
- YASUMATSU K. 1936. — Hymenoptera of the Bonin Islands. *Transactions of the Natural History Society of Formosa* 26: 356-363.

Submitted on 17 October 2011;  
accepted on 13 December 2011.