

Ichneumonidae of Reunion : redescriptions of three species of Brullé (Insecta : Hymenoptera)

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ABSTRACT: Reunion houses a large variety of ichneumon wasps (Hymenoptera: Ichneumonidae). Three of them were first described in 1846 by G.A. Brullé: *Eriborus pallipes* (Campopleginae), *Netelia melanopus* (Tryphoninae) and *Xanthophenax xanthomelas* (Pimplinae). The first two are both common and variable in coloration, though their original French written description is too laconic to depict this intra-specific variability. Here are therefore proposed their redescription in order to help further identifications.

KEYWORDS: Parasitic wasps, Indian Ocean.

INTRODUCTION

The Ichneumonidae fauna of the Afrotropical area is still poorly known. That is especially true for the Mascarene Archipelago (Mauritius, Reunion and Rodrigues) though the entomofauna of Madagascar was intensely prospected for the first half of the 20th century (Seyrig's collections constitute an inestimable treasure for ichneumonid workers).

Gaspard Auguste Brullé (1846) wrote the first descriptions of Ichneumonidae from the Indian Ocean region, including three species from Reunion: *Eriborus pallipes* (Campopleginae), *Netelia melanopus* (Tryphoninae) and *Xanthophenax xanthomelas* (Pimplinae). The first two are particularly common throughout the island. Unfortunately, their descriptions are minimal and do not depict their strong intra-specific variability. Benoit (1957) noticed the color variations of *E. pallipes* but no other attempt was made to give a clear account of their morphological structure. This is the topic of this paper which is part of a comprehensive revision of ichneumonids of Reunion. All local species, and the key to them, are listed in an upcoming general catalogue (Rousse & Villemant, submitted).

MATERIAL AND METHODS

INSECTS

This work is based on the material housed at Museum National d'Histoire Naturelle de Paris (MNHN), the author's personal collection, and the large scale collections held by the Cirad (Vayssières *et al.* 2001, Jean-Philippe Deguine and Thibaut Ramage, unpublished data) and the Insectarium de La Réunion (Jacques Rochat, Dominique Martiré and Sophie Gasnier, unpublished data). The following holotypes from the MNHN (Claire Villemant) were examined: *Paniscus melanopus* Brullé, *Paniscus pungens* Saussure and *Ephialtes xanthomelas* Brullé.

TERMINOLOGY

The nomenclature used for the description of body parts follows Wahl & Sharkey (1993) though terminology used for wing venation and microsculpture follows, respectively, Gauld (1991) and Fitton *et al.* (1988). Readers may also refer to the glossary on HymaToL website (<http://www.hymatol.org>).

RESULTS

-----*Eriborus pallipes* (Brullé)-----

Campoplex pallipes Brullé

Campoplex pallidipes Dalla Torre

Diagnosis. Species variable in color, characterized by the combination of several characters including the front wing venation, the reduced propodeal carination and the long, up-curved, ovipositor (*Fig. 1 and 2a*).

Description. FEMALE. Front wing length 2.8–4.6 mm (31 specimens).

Head. Temples short and straight, head distinctly constricted behind eyes; vertex chagrined; occipital carina complete; frons without distinct median carina; frons, face and clypeus densely, regularly punctate chagrined; eyes slightly concave in front of eyes; apical margin of clypeus impressed, slightly rounded; malar space about three times shorter than mandibular width; mandible triangular, short and stout with a distinct lamella on half their lower margin, the lower tooth thinner and slightly shorter than upper; flagellum with 26–30 articles; head and whole body covered by a sparse silver pilosity.

Mesosoma. Whole mesosoma densely punctate chagrined, speculum smoother with a distinct concave impression below; scutellum weakly convex; propodeum with carination reduced: two semi-circular transversal carinas at base drawing a small triangular area basalis, and two medio-lateral longitudinal ones apically obsolescent. Legs: hind basitarsus with an inconspicuous row of tiny black hairs on ventral face; tarsal claws pectinate at base. Wings: front wing with areolet open (*3rs-m* absent), length of vein *M* between *3rs-m* and *2m-cu* about as long as *3rm*.

Metasoma. All metasomal tergites densely punctate; tergite 1 stout, moderately long, about 3.5 times longer than apical with, petiole hardly longer than postpetiole; ovipositor up-curved, ovipositor sheath 1.5 times longer than hind tibia.

Color. Head black with mouthparts, scape and pedicel yellowish (black line on dorsal face of scape and pedicel); mesosoma black; metasoma varying from red testaceous with tergite 1 black to totally black; metasomal sternites pale yellow; hind coxa black, remainder of legs very variable, from pale yellow to dark fuscous. Wings hyaline.

MALE (32 specimens). Similar to females.

Morphological variation. One female has front wings with the abscissa of *M* distinctly longer than *3rm*.

Comments. *Eriborus pallipes* is very common in Reunion though its biology is still unknown. It was collected in locations of various climatic and altitudinal conditions. It is not yet reported elsewhere, but this should first be related to the lack of local revisions for Campopleginae: its presence in Madagascar and/or Mauritius is almost certain. The coloration of legs and metasoma is also highly variable. *Eriborus* spp. have a median longitudinal row of hairs on hind basitarsus, but this row is often very hard to observe on *E. pallipes*, especially for individuals with dark legs.

Distribution records. Reunion.

Material examined. 1♀ St Gilles / Boucan Canot, alt. 110m, I. 2011; 1♀ St Leu / Colimaçons, alt. 260m, I.2011; 1♀ Plaine des Palmistes / Piton de Bébou, alt. 1470m, I.2011; 1♀ St Pierre / Ligne Paradis, alt. 170m, I.2011; 1♀ Cilaos / Ilet des Salazes, alt. 1420m, X.2010; 3♀ and 4♂ Le Tampon / Dix Neuvième, alt. 980m, IV. 2007; 5♀ and 9♂ Petite Ile / Piton Bloc, alt. 750-850m, IV. 2004; 1♀ and 1♂ Le Tampon / Pont d'Yves, alt. 820m, III.2003; 1♀ and 1♂ Le Tampon / Pont d'Yves, alt. 820m, III.2003; 5♀ Le Tampon / Pont d'Yves, alt. 820m, III.2003; 2♂ Le Tampon / Plaine des Cafres, alt. 1230m, X.2002; 1♀ Cilaos / Bras Sec, alt. 1250m, VII.2002; leg. Rousse; 1♂ St Philippe / Mare Longue, alt. 340m, XII.2010; 1♀ Plaine des Cafres / Notre Dame de la Paix, alt. 1940m, XII.2010; 1♀ and 2♂ Trois Bassins / Forêt des Bénaires, alt. 1660m, XI.2010; 1♀ St Benoit / Grand Etang, alt. 510m, XI.2010; leg. Ramage; 3♀ and 2♂ St Pierre / Basin Martin, alt. 290m, XII. 2010; 2♀ Bras Panon / La Caroline, alt. 130m, X.2010; 1♀ and 10♂ St Paul / Le Guillaume, alt. 750m, VIII.2010; leg. Cirad; 1♀ Cilaos / Ilet des Salazes, alt. 1420m, VIII.2003; leg. Insectarium de La Réunion.

-----***Netelia melanopus* (Brullé)**-----

Paniscus melanocotis Holmgren

Paniscus melanopus Brullé

Paniscus perforator Smith

Paniscus pungens Saussure

Diagnosis. Most individuals are recognizable thanks to their homogeneous orange coloration and their paler inner orbits, but the precise identification often needs a close examination (*Fig. 2b and 2c*).

Description. FEMALE (Holotype). Front wing length 9.8–15.2 mm (8 specimens).

Head. Temples short, constricted behind eyes; frons and intra-ocular space smooth; face convex, densely punctate chagrined; clypeus transverse, reaching eyes laterally, more sparsely punctate chagrined, its apex truncate with a very small median notch; mandible twisted, bearing a row of dense hairs; flagellum with 55-58 flagellomeres

Mesosoma. Whole thorax finely and densely punctate; notaulus long, evanescent at middle of mesoscutum; scutellum convex, carinated to apex; propodeum transversally striate, without carina but with two distinct apico-lateral crests. Legs: tibia with sparse spines. Wings: front wing with areolet closed and usually with a short ramellus on *Im-cu* pointed into discocubital cell.

Metasoma. Glymma deep; metasomal tergites almost smooth with rare punctures; ovipositor sheath about as long as half hind tibia.

Color. Overall color orange to red-testaceous; orbits generally yellow (not in darker specimens), the face sometimes totally yellow; intra ocellar area black; some specimens with infuscate markings on apex of metasoma.

MALE (5 specimens). Similar to female.

Host records. *Mythimna loreyi*, *Sesamia calamistis*, *S. inferens* (Lepidoptera: Noctuidae), *Olethreutes schistaceanus* (Lepidoptera: Tortricidae) and *Chilo sacchariphagus* (Lepidoptera: Pyralidae).

Comments. *Netelia* is greatly diversified (about 60 species in Ethiopian region and India). The coloration of *N. melanopus* is variable and it has been described under different names in every island of the Indian Ocean subregion. All of them thereafter fell into synonymy.

Distribution records. Madagascar, Mauritius, Rodrigues, South Africa, Uganda, Zimbabwe, Reunion (Yu *et al.* 2005).

Material examined. 1 ♀ (MNHN, type of *Paniscus pungens* Saussure), no label; 1 ♀ and 2 ♂ Trois Bassins / Forêt des Bénaires, alt. 1660m, XI.2010; 1 ♀ St Pierre / Ligne Paradis, alt. 180m, IX.2003; leg. Rousse (light trap); 1 ♀ and 1 ♂ St Pierre / Ligne Paradis, alt. 170m, VIII.2010; leg. Ramage (light trap); 1 ♂ Petite Ile / Forêt de Bel Air, I.2006; 1 ♂ St Denis / Roche Ecrite, alt. 1740m, XI.2005; 1 ♀ Les Avirons / Tevelave, alt. 1730m, I.2005; leg. Insectarium de La Reunion (light trap); 1 ♀ and 2 ♂ St Paul / Maïdo, I.1994; leg. Guillermet (light trap); 1 ♀ St Paul / Bois de Nêfles, II.1984; 1 ♀ Ste Marie, XI.1980; leg. Cirad.

-----*Xanthophenax xanthomelas* (Brullé)-----

Ephialtes xanthomelas Brullé

Diagnosis. A large reddish and black species which is quickly identifiable thanks to its clypeus strongly notched at apex (*Fig. 2d*).

Description. FEMALE (Holotype). Front wing length 10.8-11.5 mm (2 specimens).

Head. Temples moderate, rounded, head little constricted behind eyes; vertex sparsely punctate; median ocellus with a small acute triangular pit behind; frons moderately punctate with a median longitudinal carina from median ocellus to between toruli; inner margin of eyes slightly concave in front of toruli; face and clypeus moderately punctate; basal margin of clypeus convex, otherwise clypeus concave, with apical margin so strongly notched medially that whole clypeus appears π-shaped; malar space short, 0.2 time as long as mandibular width; mandible moderately long, basally wide then distinctly narrowed, with two subequal teeth; flagellum with 33 articles.

Mesosoma. Pronotum and mesopleuron polished, smooth; metapleuron with median row of transverse wrinkles; mesoscutum polished with sparse fine punctures, notaulus deep reaching middle of mesoscutum; scutellum finely, more densely punctate; propodeum densely and roughly punctate, punctures centrally confluent into transverse striations.

Metasoma. All metasomal tergites densely punctate, tergites 2-5 with lateral swellings set off by shallow depressions; ovipositor sheath about four times longer than hind tibia.

Color. Occiput, vertex and dorsal part of gena black; ventral part of gena yellow; frons centrally black, laterally orange; face orange with two semi-lunar vertical maculae on middle; inner orbits yellow; clypeus orange, apically black; malar space black; mandible dark reddish, basally yellow; palpi pale yellow; antenna black excepted tip orange and base of scape reddish; propleuron and mesopleuron black, with two yellow spots below tegula; pronotum reddish; mesoscutum reddish with two triangular yellow maculae anteriorly and a large median longitudinal black stripe; scutellum black, laterally yellow; propodeum reddish, its margins black; metasomal tergites reddish, tergites 1-3 apically black; legs reddish, tibia and tarsus darker; inner face of fore tibia yellow. Wings hyaline.

MALE. Unknown.

Comments. This species was collected only once, in primary forest, since it has been first described. This large and notifiable species is also absent from Mauritius and Madagascar (Seyrig 1932, 1934) and may therefore be considered as endemic.

Distribution records. Reunion.

Material examined. HOLOTYPE ♀ (MNHN): Verbatim label data: Muséum de Paris, La Réunion, Bréon 4112-33; leg. Bréon. 1f# Ste Suzanne / Forêt Dugain, alt. 360m, I.2001, leg. Cirad.

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Figure 1. – *Eriborus pallipes* (Brullé). photo by D. Martiré.



2a



2b



2c



2d

Figure 2. – Habitus : 2a) *Eriborus pallipes* (Brullé) ; 2b) and 2c) *Netelia melanopus* (Brullé) ; 2d) *Xanthophenax xanthomelas* (Brullé). Photos by R. Rousse (2a, 2c, 2d), and D. Martiré (2b).
