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NEW DATA ON THE GENUS *CHROMATOPHOTINA* RIVERA AND DESCRIPTION OF THE MALE OF *C. COFAN* RIVERA (MANTODEA: MANTIDAE, PHOTINAINAE)

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Abstract: The male of *Chromatophotina cofan* Rivera is here described for the first time. Furthermore, the authors describe a female specimen from Peru that presents a combination of characters of the two known species of the genus *Cromatophotina* Rivera.
Key words: Mantodea, Mantidae, Photinainae, male *Chromatophotina cofan*, Napo, Ecuador.

Nuevos datos sobre el género *Chromatophotina* Rivera, con la descripción del macho de *C. cofan* Rivera (Mantodea: Mantidae, Photinainae)
Resumen: Se describe el macho de *Chromatophotina cofan* Rivera, desconocido hasta el momento. Por otra parte, se describe un ejemplar hembra procedente de Perú que presenta una combinación de caracteres de las dos especies conocidas del género *Cromatophotina* Rivera.
Palabras clave: Mantodea, Mantidae, Photinainae, macho de *Chromatophotina cofan*, Napo, Ecuador.

Introduction

The genus *Chromatophotina* instituted by Rivera (2010) includes two species of Photinainae: *C. awajum* from Peru and *C. cofan* from Ecuador. Of this latter species only one female specimen has been described. We are in possession of three male specimens from Yasuni and Lumbaqui (Ecuador) ascribable to *C. cofan* and one female specimen from Yubineto (Peru) belonging to the same genus but with a combination of characters of both species.

In this note we describe the male of *C. cofan* as it is unknown and we furnish a description of the unidentified female specimen.

Material and methods

This work is based on four specimens from the province of Napo (Morrone, 1999, 2001). The series is deposited at Museum of Zoology of the Department of Biological, Geological and Environmental Sciences, University Catania (MZC).

The measurements were taken under a dissecting microscope using an ocular eyepiece with a scale bar. The following measurements were taken: TL= total length of body, measured from fore margin of head to apex of the abdomen; HW= head width, measured from between the lateral margins of the eyes; FSW=Frontal shield width; PL= pronotal length measured from fore margin to posterior margin of the pronotum; ML= metazone length measured from supracoxal sulcus to posterior margin of the pronotum; SDW= supracoxal dilation width measured between the lateral margins of supracoxal sulcus; MPW= pronotal minimum width; CL= coxal fore length measured from coxal insertion to external margins of distal lobes; FL= femoral fore length measured from the basal apex to external margin of the genicular lobe; MFW= femoral maximum width; WL= length tegmina measured from thoracic insertion to distal margin. We provide a spination formula for the front legs (F=Femur; IS=Inner Spines; ES=External Spines; DS= Discoidal Spines; T=Tibia; IS=Inner Spines; ES=External Spines). The genicular spines of the femora and the apical claw of the tibia are not included in this formula.

Anatomical terminology follows Snodgrass (1935), except for the copulatory apparatus that follows La Greca (1954). The pictures were produced using a camera lucida connected to a Leica MZ12 dissecting microscope; the photos were produced using a Leica MZ 205 C multifocus.

Systematics

***Chromatophotina cofan* Rivera, 2010**
Fig. 1a, 2a-e, 3a-f, 5, 6.

MATERIAL EXAMINED. Ecuador: Yasuni E.C.Y., 250 m, 2 m#, 2 Jun 1998 (Lombardo leg.) (MZC); Sucumbios, Lumbaqui m 400 (0°03'40,94 N; 77°21'14,60 O), 1 m #, 11 October 2010 (M. Ayala leg.) (MZC).

DESCRIPTION. General coloration of body ochraceous (Fig.1a) but with tip of legs and of subgenital plate greenish. Antennae with scape, pedicel and proximal portion of flagellum ochre-brown with remaining part darkish brown. Wings hyaline, not iridescent; costal and subcostal veins, transversal veins and anal veins ochre; discoidal veins ochre on proximal half and green on distal half.

Head pentagonal (Fig. 2a) 2.44 times as wide as pronotal supracoxal dilation; fastigium of vertex slightly convex and more elevated than imaginary line joining apex of eyes; juxtaocular tubercles weakly developed; frontal shield transverse about 4.5 times wider than high. Antennae elongated, all segments with two couples of short hairs.

Thorax. Pronotum slender (Fig. 2b) about 5.72 times as long as pronotal supracoxal dilation and 10.42 times as long as its minimum width; lateral margins smooth; supracoxal

dilation not very developed and with lateral margins widely rounded. Disc of prozone with a median triangular dimple positioned half way along its posterior length; disc of metazone with an indistinct median carina extending about 1/3 of its length; ratio metazone/prozone is 3. Fore legs slender: coxae 0.60 times as long as length of pronotum, prismatic with a triangular section; all margins with small tubercles with an apical short hair; inner distal lobes divergent. Femora 6.58 times as long as its maximum width (Fig.2c), upper margin almost straight, all spines ochre with brown apex. Tibiae reaching half the length of femora, all spines green with brown apex. Spination formula F=16IS/5ES/3DS and T=17-18IS/20-22ES. Middle and hind legs slender; femora smooth, tibiae and tarsi with scarce pilosity. Posterior metatarsi 1.6 times as long as all other segments together. Wings well developed, extending well beyond the apex of the abdomen; Costal field of mesothoracic wings with transversal parallel veins.

Abdomen slender and cylindrical. Supranal plate short, triangular with rounded apex (Fig. 2d); it is shorter than the subgenital plate (Fig. 2e) which is wide with rounded margins and two small apical styli. Cerci extending beyond subgenital plate, all segments cylindrical more wide than long and densely hairy.

Male genitalia (Fig.3 a-f) well sclerotized; ventral phallomere (Fig. 3 a-c) longer than its width, lateral process (LP) elongated and with sinuous free part, posterior margin rounded. Ventral lamina of left phallomere (Fig. 3e) with anterior process (AP) slender but strongly elongated and slightly arcuated. Phalloid apophysis membranous.

Measurements (in mm): TL= 35-38; HW= 4.4-4.5; FSW= 1.7; SDW= 1.8-1.85;PL= 10.45-10.4; MPW= 1.05; ML= 7.8-7.85; CL= 6.2-6.3; FL= 7.6-7.8; MFW= 1.15-1.2; WL= 23.

NOTE. We assigned these three conspecific males to *C. cofan* because they share with the female holotype of *C. cofan* the same number of spines on the external margin of the inner femora and for their proximity of collection areas (Fig. 5). The male of *C. cofan* is similar exteriorly to male of *C. awajum,* it differs above all for the shape of the genitalia: the lateral process of ventral phallomere in *C. cofan* is shorter and more sinuous; the anterior process of the left phallomere in *C. cofan* is longer and more widely arcuated. Other differences regard some variations in the chromatic model.

***Chromatophotina* sp.**
Fig. 1b, 4a-d, 5, 6.

MATERIAL EXAMINED. Peru: Rio Yubineto (Department of Loreto) 1f#, 10 Jul. 1998 (Lombardo leg.) (MZC).

This female specimen is related to *C. awajum* and to *C. cofan* from which it can be distinguished by having:

– a different shape of tegminae, which are larger than in *C. cofan* and smaller than in *C. awajum*;

– wings reach the distal margin of the fourth urotergite (in *C. cofan* they reach the distal margin of the sixth urotergite and in *C. awajum* they reach the distal margin of the seventh urotergite);

–a different chromatic model of the discoidal area of the mesothoracic wings.

Unfortunately the presence of only one specimen and the fact that the ranges of variability of the two noted species are not known, did not permit us any further taxonomic evaluation. However we consider it useful to provide a brief description of this female specimen.

DESCRIPTION. Coloration. General body ochraceous but with tibiae green (Fig.1b). Mesothoracic wings with costal area opaque and with 2/3 proximal white and orange distally; discoidal area green proximally, orange distally. Metathoracic wings with the costal and discoidal areas green proximally and orange distally; anal area orange.

Head pentagonal (Fig. 4a) 2.12 times as wide as pronotal supracoxal dilation, juxtaocular tubercles weakly developed, fastigium of vertex straight, more elevated than imaginary line joining apex of eyes. Frontal shield very transverse, about 5.25 times as wide as high.

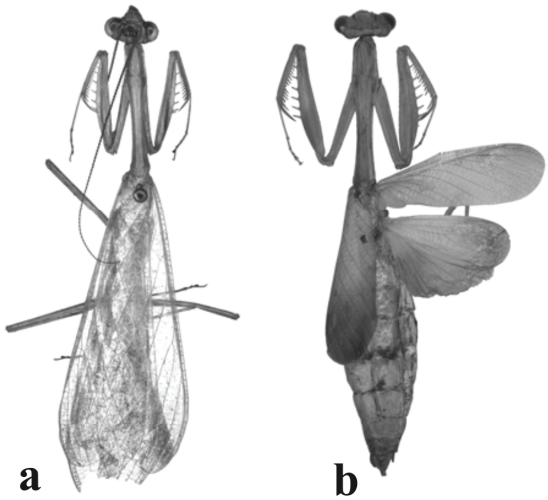
Thorax. Pronotum slender (Fig. 4b), lateral margins of prozone and metazone with small tubercles with a short apical hair, lateral margins of pronotal supracoxal dilation smooth. Fore legs slender: coxae 0.61 times as long as length of pronotum, prismatic with a triangular section; all margins with small tubercles with an apical small tooth, internal and external surface with a submedian longitudinal series of small ivory tubercles, other small tubercles are scattered on all surfaces; upper margin of femora (Fig. 4c) concave and with double series of very small tubercles, internal surface with small denticles scattered among and around the external spines; tibiae straight, spines of femora and tibiae are ochre with brown apex. Spination formula: F= 6ES/16IS/3DS and T right= the ES cannot be counted because they are missing from a part of the tibia,18 IS; T left= 21ES/19IS. Wings short, reaching the distal margin of fourth urotergite. Elliptical mesothoracic wings 2.5 times as long as wide.

Abdomen weakly enlarged; supranal plate triangular with rounded apex (Fig. 4d).

Measurements (in mm): TL= 35; HW= 5.1; FSW= 2.1; SDW= 2.4; PL= 11.9; MPW= 1.4; ML= 8.9; CL 7.3; FL 8.7; MFW= 1.7; WL= 14.

REMARKS. In agreement with Rivera (2010), we believe that the number of external spines of anterior femora in *Chromatophotina* does not provide a valid means for the diagnostic character, because it is variable from 5 to 6 even in the same specimen; in fact one of the two males of *C. cofan* presents five spines in the right femur and six in the left. This variable condition in the number of external spines is present in other genera non-Photinainae: for example in the genus *Acanthops* Audinette-Serville the usual spination formula is F= ES/6, while in *Acanthops tuberculata* Saussure (Roy, 2002; Lombardo & Ippolito, 2004) and in *Acanthops septemspinosa* Ippolito (Ippolito, 2007) it is F=ES/7.

DISTRIBUTION. *Cromatophotina* at the moment (we are in possession of few data) is known only in the province of Napo (Fig 5, 6) that corresponds to the North of Peru, South-West Colombia and East Ecuador (Morrone, 1999, 2001). This province is one of the world's last high-biodiversity wilderness areas, and high presence of endemisms where large tracts of intact forests remain and in whose area is situated the National Park of Yasuni, where the male specimens of *C. cofan* were found. Unfortunately hydrocarbon and mining projects, illegal logging, oil palm plantations, and large-scale transportation projects constitute the major threats which confront the ecosystems of this province.



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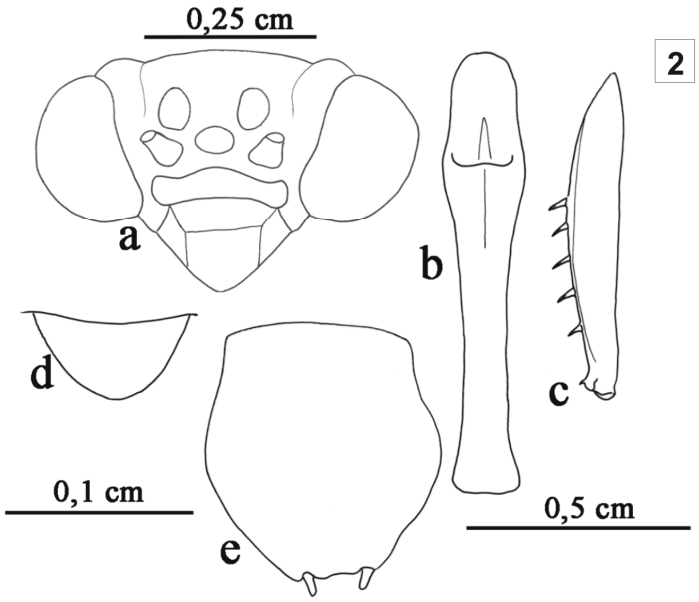

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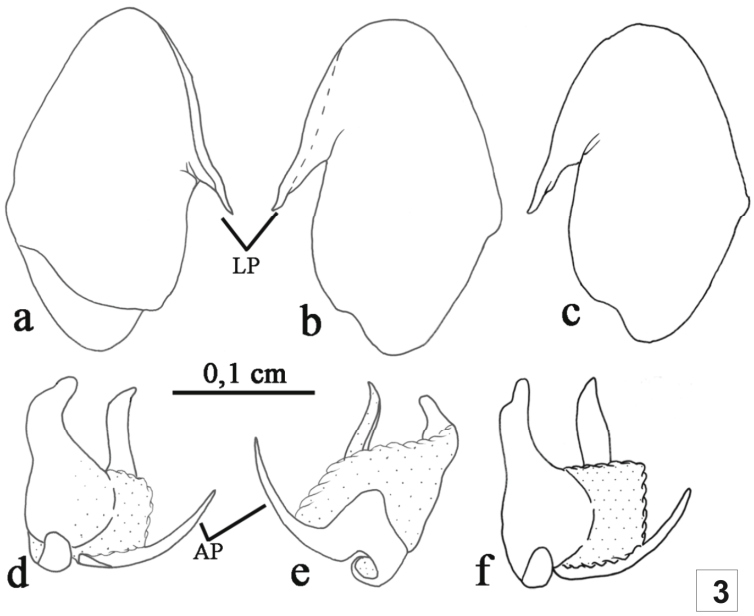

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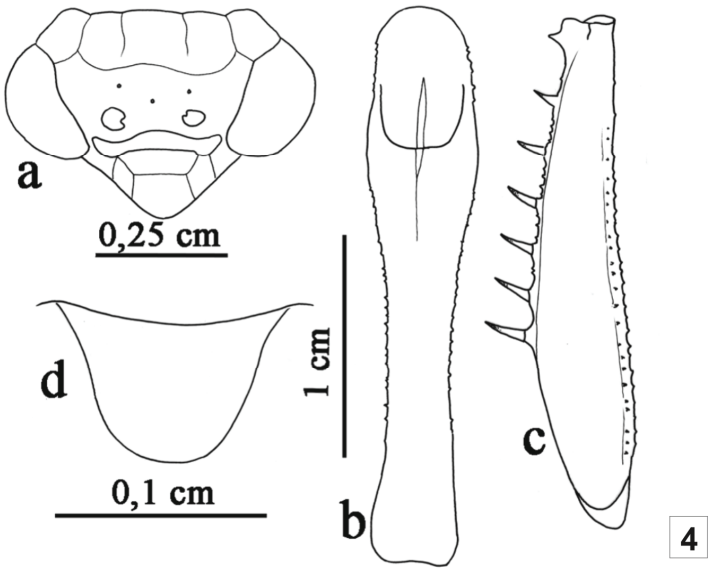
Fig.1. *Chromatophotina cofan*: **a**, male in dorsal habitus. *Chromatophotina* sp.: **b**, female in dorsal habitus.

Fig. 2. *Chromatophotina cofan*: **a**, head; **b**, pronotum; **c**, right anterior femur; **d**, supranal plate; **e**, subgenital plate.

Fig. 3. *Chromatophotina cofan*: ventral phallomere (**a**,**b**, from Yasuni in dorsal and ventral view; **c**, from Lumbaqui in ventral view), LP= lateral process; left phallomere (**d**,**e** from Yasuni in dorsal and ventral view; **f**, from Lumbaqui in dorsal view), AP= anterior process.

Fig. 4. *Chromatophotina* sp.: **a**, head; **b**, pronotum; **c**, left anterior femur; **d**, supranal plate.



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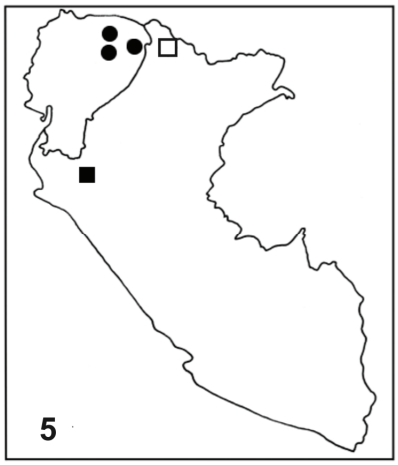

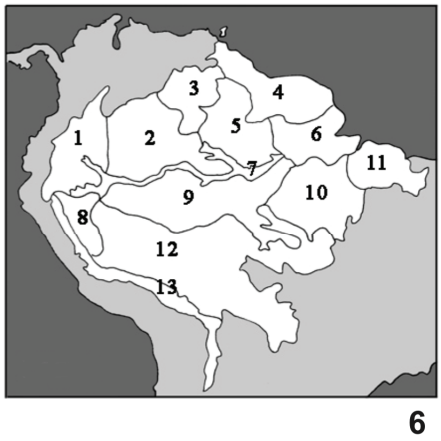

Fig. 5. Geographic distribution of the *Chromatophotina* species:
● *C. cofan*; ■ *C. awjum*; □ *C. sp.*

Fig. 6. Provinces of the Amazonic subregion. **1**, Napo; **2**, Imerì; **3**, Guyana; **4**, Damp Guyana; **5**, Roraima; **6**, Amapà; **7**, Verzea; **8**, Ucayali; **9**, Madeira; **10**, Tapajòs-Xingù; **11**, Parà; **12**, Pantanal; **13**, Yungas (by Morrone 2001 modified).

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