

**Faunistic and taxonomical remarks
on some interesting Caelifera from Ecuador
(Orthoptera: Caelifera: Romaleidae & Acrididae)**

Filippo Maria BUZZETTI & Giovanni CAROTTI

Abstract

Eleven species of Orthoptera are reported from Ecuador. Taxonomical and biogeographical notes are given for them, especially for *Xyleus camposi* (I. BOLIVAR, 1909). The males of *Xyleus camposi* and *Ommatolampis equatoriana* CARBONELL & DESCAMPS, 1978 are described for the first time. *Megacheilacris bullifemur otongae* n. ssp. is described, it differs from the other subspecies in genitalia of males. The following species are new records for Ecuador: *Nautia m. meridionalis* DESCAMPS, 1978, *Coscineuta pulchripes* (GERSTAECKER, 1889), *Stenopola bicoloripes* (DESCAMPS & AMEDEGNATO, 1972), *Lysacris tibialis* (GERSTAECKER, 1889), *Sciaphilacris alata* DESCAMPS, 1976.

Introduction

Ecuador is one of the South American countries most rich in biodiversity. Studies on Orthoptera of this region started with SCUDDER (1869) and continued, beside of others, with the two major contributions on Orthopteroid Insects of the country by GIGLIO TOS (1898) and HEBARD (1924). Ecuadorian entomologists were also active in studying Orthoptera of their country (CAMPOS 1921, 1923). Other studies on Caelifera from Ecuador were published by CARBONELL & DESCAMPS (1978), RONDEROS (1979), GLENN (1988) and AMEDEGNATO & POULAIN (1998). More recently the Tetrigidae from Ecuador were summarized by BUZZETTI & DEVRIESE (2007) and a list of all Caelifera known from the country was given by BUZZETTI & CAROTTI (2008).

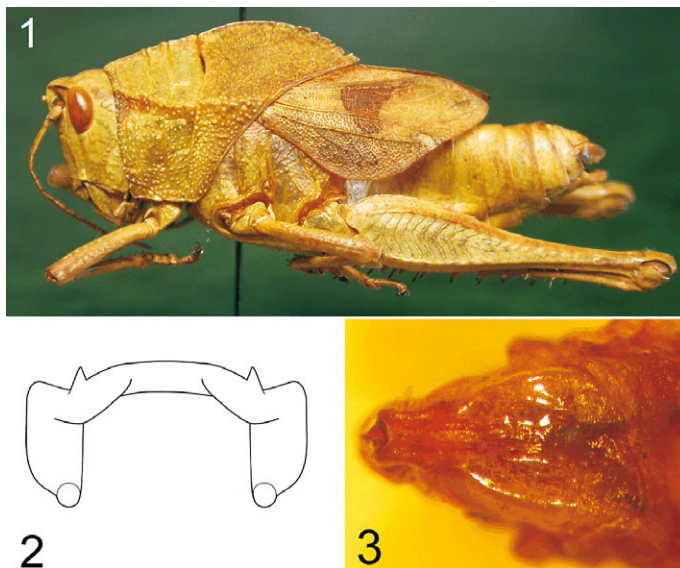


Fig. 1-3: *Xyleus camposi*. 1: Female from Isla de La Plata; 2: epiphallus; 3: cingulum.

Since 2002, the authors of the present note have undertaken collecting expeditions in Ecuador in cooperation with the Pontificia Universidad Católica del Ecuador (PUCE, Quito). The major aims of these expeditions were: firstly, the assessment of Orthoptera diversity in the Otonga Natural Reserve on the western slopes of the Andes; secondly, to gather enough information and material for compiling a list of Orthoptera of Ecuador, and lastly the remake of the travel made by the Italian Naturalist Enrico FESTA at the end of XIXth century, on which the study by GIGLIO-TOS was based.

Of the collecting localities, two were the most interesting for our aims: 1) the Otonga Natural Reserve located on the western slopes of the Ecuadorian Andes (Cotopaxi province) near the village San Francisco de Las Pampas. It has an extension of about 1500 hectares with primary forest, pastures and reforested areas. It extends in an altitudinal range between 1600 and 2100 meters (JARRIN 2001). The type of vegetation corresponds to the life-zones of the Subtropical Andean Forests (Bosque Siempreverde Montano Bajo and Bosque de Neblina Montano) (VALENCIA et al. 1999); 2) the Yasuni National Park located in the Ecuadorian Amazon area (Orellana province). It extends for about 16000 km² and the altitude ranges between 200 and 350 m. The vegetation type is moist tropical forest and is one of the most diverse vegetation in the world (PEÑAHERRERA & ASANZA 2004).

First results on new or little known Ecuadorian Caelifera are given in this publication. The synonymy, material examined, the species' distribution and any notes are listed after the species' name.

Collection abbreviations:

FMB: F. M. BUZZETTI private collection, Arzignano, Italy.

ZSM: Zoologische Staatssammlung München, Germany.

PUCE: Pontificia Universidad Católica del Ecuador (Quito).

Romaleidae

Romaleinae

Romaleini

Xyleus camposi (I. BOLIVAR, 1909) (Figs 1 -4)

Paralcamenes camposi I.BOLIVAR 1909: 341.

Paralcamenes camposi: CAMPOS 1921: 86, 1923: 21.

Colpolopha camposi HEBARD 1924: 179.

Paralcamenes camposi: ROSAS-COSTA 1963: 308.

Xyleus camposi: OTTE 1978: 130.

Xyleus camposi: CARBONELL 2004: 73.

Xyleus camposi: BUZZETTI & CAROTTI 2008: 49.

Material examined: Manabi prov., Isla de La Plata, 5.VI.2002, 1♀, legit G. CAROTTI; idem, W81°4' S1°17', 25.VII.1998, 2♂♂, legit F. MOSCOSO & A. BARRAGÁN (1 ZSM, 1 FMB); Manabi prov., La Pila, 180 m., W80°34' S1°06', 17.III.2001, 1♀, legit E. CARRERA; coll. FMB.

Description of the male: Since *X. camposi* was described on females, we deem it appropriate to give the description of a male. General body colour brown, darker than in female, pronotum with light and dark areas, tegmina dark brown with pale brown well delimited areas; dorsal surface of pronotum divided from lateral lobes by denticulated keel; dorsal pronotal crest very prominent, deeply cut by three sulci with caudal crenulation (Fig. 1); last abdominal tergite divided in middle, with furcula represented by two lobes on each side, the outer larger than the inner; epiphallus and cingulum as in Fig. 2-3. Male body measurements: Isla de la Plata 1, Isla de la Plata 2, mean: frons to end of tegmen: 26 - 19.5 - 22.75; frons to end of abdomen: 35.5 - 30 - 32.75; fastigium length 1.4 - 1.1 - 1.25; fastigium width 2.2 - 2.1 - 2.15; interocular distance: 6 - 5 - 5.5; pronotum: 13.8 - 11.5 - 12.65; prozona: 5 - 4.4 - 4.7; metazona . 8.8 - 7.1 - 7.95; tegmen: 14.2 - 10 - 12.1; hind femur: 22 - 18.5 - 20.25; hind tibia: 21.5 - 17.5 - 19.5; height of pronotal crest: 2.7 - 2.5 - 2.6; number of spines on inner margin of hind tibiae: 10 - 11 - 10.5.

Distribution: Ecuador.

Remarks: In the early XXth century, the Ecuadorean entomologist Francisco R. CAMPOS sent some material he collected of this species to I. BOLIVAR (3 females) and to M. HEBARD (1 female). These 4 females were all from Posorja in Guayas province. At first I. BOLIVAR (1909) described the genus *Paralcamenes* with *P. camposi* as genus-type, mentioning a male as holotype. Fifteen years later, HEBARD (1924) described *Colpolopha camposi* on the single female received from Campos, completely ignoring the former description by I. BOLIVAR. ROSAS-COSTA (1963) redescribed the genus *Paralcamenes* I. BOLIVAR on a female belonging to BOLIVAR'S type series, since he asked for the holotype in the Instituto Español de Entomología (Madrid), receiving a female from type series. ROSAS-COSTA noticed that the measurements given by I. BOLIVAR for a male were very similar, if not identical, to those of the female in his hands. According to CARBONELL (2004) no male specimens are in the type series in Madrid and the measurements given by BOLIVAR are those of the female considered by CARBONELL as original BOLIVAR'S holotype. Furthermore CARBONELL (2004) transferred this species into the genus *Xyleus* GISTEL, considering *X. camposi* the only breviale species of the genus. To date, the only specimens known for this species are the four females collected by CAMPOS and the new material here reported.

Since the material collected by Campos was all from the same coastal locality, Posorja, about 80 km southwest of Guayaquil, the collecting of specimens on Isla de la Plata, about 180 km northwest from Posorja, allows us to make some considerations on the distribution of this species. *X. camposi* is present along the central Ecuadorean coasts, between two major groups of species of *Xyleus*, the first distributed in Central America and the Northern part of South America (*X. discoideus mexicanus* BRUNER, *X. d. rosulentus* STÅL and *X. d. venezuelae* CARBONELL), the second in remnant South America, with *X. andinus* CARBONELL and *X. laufferi* BOLIVAR as geographically nearest species. Concerning the external morphology, *X. camposi* appears to be near to the *discoideus* group (sensu CARBONELL 2004), but a more careful examination shows that *X. camposi* shares character states with: 1) the *discoideus* group in having the pronotal crest high and caudally crenulated, the transverse sulci of pronotum well marked and deep, the sides of the metazona in dorsal view rounded, the cingulum deeply incised medially caudad in dorsal view, 2) the *insignis* group (sensu CARBONELL 2004) in having the apical endophallic valves smooth, long and narrow (short and transversely grooved in *discoideus* group), 3) and even with the genus *Colpolopha* STÅL having the hind femur dorsally serrulate and ventrally smooth (dorsally and ventrally serrulate in *Xyleus*). Considering the extremely localized distribution, the sharing of characters typical for many taxa and the peculiar brachypterism, it is postulated here that *X. camposi* may represent a relic annectant taxon, maybe linking the genera *Xyleus* and *Colpolopha*.

To date the specimens from Isla de La Plata are the only known from an island and *X. camposi* is therefore the only species of *Xyleus* present in both the continental part of South America and on an island. The habitat (Fig. 4) of *X. camposi* in Isla de La Plata is typical coastal dry wood with low bushy vegetation. This kind of habitat includes savannah and deciduous forests. It is poor in trees but rich in scrubs and spiny herbs. The dry period lasts from May to January, the raining season from February to April (RACHELI & RACHELI 2001).

Bactrophorinae

Ophthalmolampini

Nautia meridionalis meridionalis DESCAMPS, 1978 (Fig. 5)

Nautia m. meridionalis DESCAMPS, 1978: 413.

Material examined: Esmeraldas prov., San Francisco de Bogotà, Rio Durango, 100 m, 11.V.2006, 1♀, legit G. Carotti, coll. FMB

Distribution: Colombia, Ecuador (new for Ecuador).

Remarks: *Nautia meridionalis* (Fig. 5), described from Colombia, comprises two subspecies, *N. m. meridionalis* that lives in coastal woods and *N. m. altitudinis* DESCAMPS, 1978 living at higher altitude.

The material mentioned here represents the first finding of the taxon for Ecuador. The habitat of *Nautia m. meridionalis* is the Pacific rain forest, which covers most of the province Esmeraldas. This kind of coastal forest is seriously damaged by timber exploitation activities and its extension in Ecuador is in worrying decline.



Fig. 4: *Xyleus camposi*. 4: habitat.



Fig. 5: *Nautia m. meridionalis*, female from San Francisco de Bogotá.

Taeniophorini

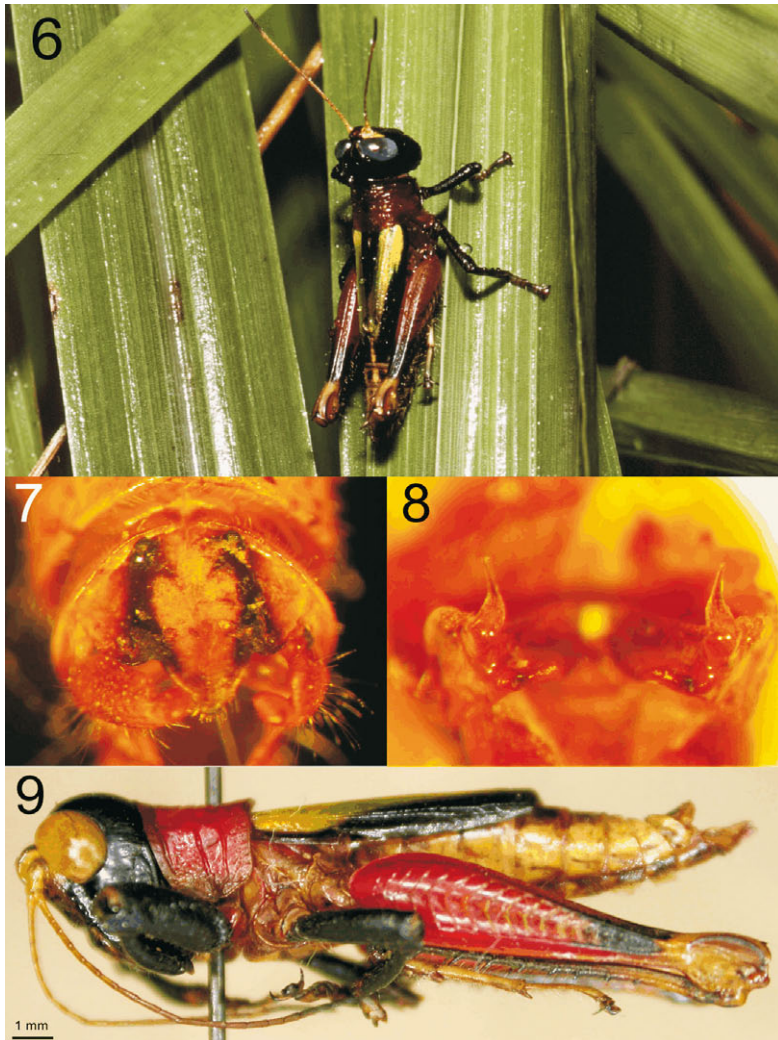
Megacheilacris bullifemur otongae n. ssp. (Figs 6 - 9)

Material examined: Cotopaxi prov., San Francisco de Las Pampas, Otonga Natural Reserve, 1950 m, 18/19.IV.2005, 1♂ Holotypus, lg. G. CAROTTI & B. AGABITI; idem, 1♂ 1♀ Paratypi; idem, top fields, S0°24.446' W79°01.071', 16.IV.2002, 1♂ Paratypus, lg. F. M. BUZZETTI; idem, S0°26'10.2'' W79°0'11.9'', 10.III.2004, 3♂ 2♀ Paratypi, lg. F. M. BUZZETTI, G. CAROTTI & P. TIRELLO; idem, 15/16.I.2006, 1♂ Paratypus, lg. G. CAROTTI; idem, S0°26'10.2'' W79°0'11.9'', 10.III.2004, 1♀ Allotypus, lg. F. M. BUZZETTI, G. CAROTTI & P. TIRELLO; idem, 2.XII.2004, 1♀ Paratypus, lg. G. CAROTTI.

All types are deposited in FMB except for Holotypus and Allotypus which are in ZSM.

Diagnosis: *Megacheilacris bullifemur otongae* n. ssp. (Fig. 6-9) differs from conspecific subspecies by the male epiphallus provided with long spines directed forward on lophi (Fig. 8), a different shape of the male epiproct (Fig. 7) and larger size of both sexes.

Average, min and max (between brackets) measurements in mm: 7♂: tegmen 8.5 (7.3-9.3); hind femur 11.48 (10.5-12.4); pronotum 3.5 (3.1-3.8); 5♀: tegmen 8.44 (7.6-9.3); hind femur 12.06 (10.9-13.1); pronotum 3.7 (3.4-4).



Figs 6-9: *Megacheilacris bullifemur otongae* n. ssp.

6: female from Otonga; 7: male epiproct and cerci; 8: male epiphallus; 9: male holotypus.

Derivatio nominis: *M. b. otongae* n. ssp. is named after the type locality, Otonga Natural Reserve.

Remarks: To date, three subspecies are known for *M. bullifemur*: *M. b. bullifemur* (DESCAMPS & AMEDEGNATO, 1971) from Dept. Nariño in Southwest Colombia, *M. b. vallensis* (DESCAMPS & AMEDEGNATO, 1971) from Dept. Valle del Cauca in Southwest Colombia, and *M. b. otongae* described here.

M. b. otongae is similar to the nominal subspecies in having the male epiphallus curved more strongly than in *M. bullifemur*, and for the coloration. The first author compared Ecuadorean material with paratypes of *M. bullifemur* in Museum für Naturkunde Berlin. The following differences were noted: fore legs completely black instead of with yellow tibiae and apical part of femora, mid legs completely black instead of yellow, hind tibiae and tarsi black instead of dark brown and yellow respectively.

The specimens were all collected on *Paspalum* sp. (Graminaceae) in clearings of high altitude forest, confirming that the genus *Megacheilacris* (DESCAMPS, 1978) is graminoidophilous.

Acrididae

Proctolabinae

Coscineutini

Coscineuta pulchripes (GERSTAECKER, 1889) (Fig. 10)

Ophthalmolampis pulchripes GERSTAECKER, 1889: 23.

Ophthalmolampis pulchripes: KIRBY, 1910: 390.

Coscineuta pulchripes: HEBARD, 1923: 255.

Coscineuta pulchripes: DESCAMPS, 1980: 21.

Material examined: Orellana prov., Yasuni Scientific Station, S00° 40.407' W76° 23.883', 2/5.V.2002, 3♀, legit F. M. B.; Orellana prov., Yasuni Scientific Station, 219 m, S 00° 40' 26.6'' W 076° 23' 51.5'', 22/26.XI.2004, 8♀ 1♂, legit F. M. Buzzetti & G. Carotti, coll FMB.

Distribution: Peru, Bolivia, Ecuador (new for Ecuador).

Remarks: Although *Coscineuta pulchripes* is considered by DESCAMPS (1976, 1980) as dendrophilous, the material examined here was all collected on shrubs along trails in the forest near the Yasuni Scientific Station (PUCE).

C. pulchripes was described from Iquitos (Peru) and afterwards collected in Bolivia. The species was not formerly known from Ecuador.

Leptysmiinae

Tetrataeniini

Stenopola bicoloripes (DESCAMPS & AMEDEGNATO, 1972)

Pseudoxylepta bicoloripes DESCAMPS & AMEDEGNATO, 1972: 526.

Stenopola bicoloripes: ROBERTS & CARBONELL, 1979: 120.

Material examined: Orellana prov., Estacion Cientifica Yasuni, S 00° 40.407' W 76° 23.883', 2/5.V.2002, 1♂ 1♀, legit F. M. B., coll. FMB.

Distribution: Colombia, Brasil, Peru, Ecuador (new for Ecuador).

Remarks: *Stenopola bicoloripes* was described from Colombia (Putumayo) and is known from the Upper Amazon Basin. The species is new for Ecuador.

Ommatolampinae

Ommatolampini

Lysacris sylvestris DESCAMPS & AMEDEGNATO, 1972 (Fig. 11)

Lysacris sylvestris DESCAMPS & AMEDEGNATO, 1972: 509.

Material examined: Orellana prov., Yasuni Scientific Station, 219 m, S 00° 40' 26.6'' W 076° 23' 51.5'', 22/26.XI.2004, 3♂ 3♀, legit F. M. BUZZETTI & G. CAROTTI; Morona-Santiago prov., Wisuy, NE of Macuma, 664 m, S2°6'52.1'' W77°44'23.3'', 1♂, lg. F. M. BUZZETTI, G. CAROTTI & A. MARZOTTO, coll. FMB.

Distribution: Colombia, Ecuador.

Remarks: This species, described for Colombia (Putumayo) is here reported for East Ecuador. The material was collected on bushy vegetation in primary forest. Some specimens, from other localities in East Ecuador, are deposited in the PUCE collection. The new localities extend the known distribution southward. The species is probably also present in the Amazonian parts of other countries such as Peru and Venezuela.

Lysacris tibialis (GERSTAECKER, 1889)

Vilerna tibialis GERSTAECKER, 1889: 13.

Lysacris brachyptera DESCAMPS & AMEDEGNATO, 1972: 508.

Lysacris tibialis: DESCAMPS & AMEDEGNATO, 1989: 18.

Material examined: Zamora-Chinchipec prov., Zumbi, 950 m, 29/30.IV.2005, 1♀, legit G. CAROTTI & B. AGABITI, coll. FMB.

Distribution: Colombia, Ecuador (new for Ecuador).

Remarks: *L. tibialis* was described from Colombia and known only from that country. The presence of this species in Southern East Ecuador suggests that its distribution in the Upper Amazon Basin is wider than previously thought.

***Rhabdophilacris curtipennis* DESCAMPS, 1976**

Rhabdophilacris curtipennis DESCAMPS, 1976: 520.

Rhabdophilacris curtipennis: AMEDEGNATO, 1985: 62.

Rhabdophilacris curtipennis: BUZZETTI & CAROTTI 2008: 57.

Material examined: Zamora-Chinchipe prov., Zumbi, 950 m, 29/30.IV.2005, 1♂, legit G. CAROTTI & B. AGABITI, coll. FMB.

Remarks: Described from Colombia (Putumayo), the species was successively cited for North East Ecuador (Napo, Santa Cecilia, Rio Aguatico) in AMEDEGNATO (1985). Zumbi, in Southern East Ecuador is to date the southernmost locality of the species.

R. curtipennis is a dendrophilous species distributed in the Upper Amazon Basin.

***Sciaphilacris alata* DESCAMPS, 1976**

Sciaphilacris alata DESCAMPS, 1976: 515.

Material examined: Orellana prov, Yasuni Scientific Station, 2/5.V.2002, S 00° 40,407' W 76° 23,883', 1♂, legit F. M. Buzzetti, coll. FMB.

Distribution: Colombia, Ecuador (new for Ecuador).

Remarks: Described from Colombia (Amazonas), the species is new for Ecuador.

***Ommatolampis equatoriana* CARBONELL & DESCAMPS, 1978 (Figs. 12 - 14)**

Ommatolampis equatoriana CARBONELL & DESCAMPS, 1978: 30.

Ommatolampis equatoriana: BUZZETTI & CAROTTI 2008: 56.

Material examined: Napo prov., El Reventador, St. Rafael Falls, 1400 m., 9.VIII.2002, 1♂ 2♀, leg. B. Osella, coll. FMB.

Distribution: Ecuador.

Remarks: The species was described on 2 females from East Ecuador (Rio Aguatico, Lago Agrio). Apart from the types, the two females and single male here reported, no other material is mentioned in the literature for the species. The male epiproct and tegmina pattern (Fig. 13-14) are different from those of *O. perspicillata* (JOHANSEN) and *O. quadrimaculata* CARBONELL & DESCAMPS.

The male (Fig. 12) from El Reventador is the only male specimen known for this species. Its measurements are as follows in mm: pronotum: 5.25; tegmen: 4.6; hind femur: 17.62.

Acknowledgements

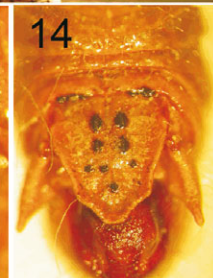
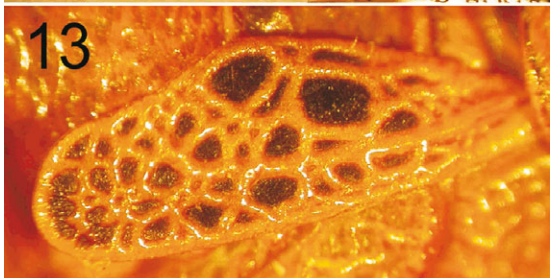
We thank the World Biodiversity Association - WBA, (Verona, Italy) for financial support for the expeditions in Ecuador, Prof. Giovanni ONORE (PUCE) for his kind hospitality in Quito. We thank Prof. Klaus SCHÖNITZER and Tanja KOTHE (both ZSM), as well as our friends Roberto BATTISTON, Adriana MARZOTTO and Paola TIRELLO for help with field work.

Zusammenfassung

Von elf Arten von Orthoptera aus Ecuador werden neue Fundmeldungen aus Ecuador berichtet. Folgende Arten sind neu für Ecuador nachgewiesen: *Nautia m. meridionalis* DESCAMPS, 1978, *Coscineuta pulchripes* (GERSTAECKER, 1889), *Stenopola bicoloripes* (DESCAMPS & AMEDEGNATO, 1972), *Lysacris tibialis* (GERSTAECKER, 1889), *Sciaphilacris alata* DESCAMPS, 1976. Taxonomische und biogeographische Anmerkungen werden insbesondere zu *Xyleus camposi* (I. BOLIVAR, 1909) gegeben. *Megacheilacris bullifemur otongae* n. ssp. wird neu beschrieben und von den anderen Unterarten an Hand der männlichen Genitalien unterschieden. Von *Xyleus camposi* und *Ommatolampis equatoriana* CARBONELL & DESCAMPS, 1978 werden erstmals die Männchen beschrieben.



Fig. 10: *Coscineuta pulchripes* from Yasuni N. P. **Fig. 11:** *Lysacris sylvestris* from Wisuy.



Figs 12-14: *Ommatolampis equatoriana* from El Reventador. **12:** allotypus; **13:** tegmen; **14:** epiproct.

Literature

- AMEDEGNATO, C. 1985: Descriptions d'*Ommatolampinae* inféodés aux troncs et branches maitresses (Orthoptera Acrididae). – Annales de la Société entomologique de France (N. S.) **21(1)**: 51-68.
- AMEDEGNATO, C. & S. POULAIN 1998: New Acridoid Taxa from Northwestern South America: Their Significance for the Phylogeny and Biodiversity of the Family Acrididae (Orthoptera). – Annals of the Entomological Society of America, **91(5)**: 532-548.
- BOLIVAR, I. 1909: Acrididos nuevos americanos. – Revista Chilena de Historia Natural **13(6)**: 337-354.
- BUZZETTI, F. M. & G. CAROTTI 2008: Annotated list of the Caelifera of Ecuador (Insecta: Orthoptera). Biodiversity of South America, I. Memoirs on Biodiversity, **1**: 29-66.
- BUZZETTI, F. M. & H. DEVRIESE 2007: Tetrigidae from Ecuador (Orthoptera Caelifera Tetridoidea). Atti Acc. Rov. Agiati, a. 257, ser. **VIII, 7 (B)**: 41-54.
- CAMPOS, F. 1921: Especies nuevas de insectos ecuatorianos. – Revista del Colegio Nacional Vicente Rocafuerte, Guayaquil **3**: 84-92.
- CAMPOS, F. 1923: Estudios sobre la fauna entomológica del Ecuador. IX, Ortopteros. – Revista del Colegio Nacional Vicente Rocafuerte, Guayaquil **5 (11-12)**: 3-43.
- CARBONELL, C. S. 2004: The genus *Xyleus* Gistel 1848 (Acridoidea, Romaleidae, Romaleinae). – Journal of Orthoptera Research **13 (1)**: 63-133.
- CARBONELL, C. S. & M. DESCAMPS 1978: Revue des *Ommatolampae* (Acridoidea, *Ommatolampinae*). – Annales de la Société entomologique de France (N. S.) **14(1)**: 1-35.
- DESCAMPS, M. 1976: Les Nicarchi, *Ommatolampini* dendroscélérophiles de la forêt neotropicale (Acridomorpha, *Ommatolampinae*). – Annales de la Société entomologique de France (N. S.) **12(3)**: 509-526.
- DESCAMPS, M. 1978: La faune dendrophile néotropicale. II, Revue des Taeniophorini et Ophthalmolampini (Orth. Romaleidae). – Bulletin du Museum National d'Histoire Naturelle, Paris 3ème. Sér. N° 517, Zoologie **355**: 371-476.
- DESCAMPS, M. 1979: Missions entomologiques en Guyane et au Brésil. Troisième note: *Orthoptera Acridomorpha*. – Annales de la Société entomologique de France (N. S.) **15(2)**: 311-317.
- DESCAMPS, M. 1980: La Faune dendrophile neotropicale V. Seconde Revue des Proctolabinae amazoniens et guyanais. – Annales de la Société entomologique de France (N.S.), **16(1)**: 19-47.
- DESCAMPS, M. 1984: Revue préliminaire de la tribu des Copiocerini (Orth. Acrididae). – Memoires du Museum National D'Histoire Naturelle, serie A, Zoologie, **130**: 1-72.
- DESCAMPS, M. & C. AMEDEGNATO 1971: Contribution a la faune des *Acridoidea* de Colombie (Mission M. Descamps) II. Les genres *Taeniophora* Stål 1873 et *Megacephalacris* nov. – Annales de la Société entomologique de France. (N.S.) **7(1)**: 115-146.
- DESCAMPS, M. & C. AMEDEGNATO 1972: Contribution a la faune des *Acridoidea* de Colombie (Mission M. Descamps) III. Diagnoses de Catantopinae (*sensu lato*). – Annales de la Société entomologique de France (N.S.) **8 (3)**: 505-579.
- DESCAMPS, M. & C. AMEDEGNATO 1989: Les genres *Vilerna*, *Locheuma* et *Pseudovilerna* nov. I. Le genre *Vilerna* Stål, 1873. (Orthoptera, Acrididae *Ommatolampinae*). – Revue française de Entomologie (N. S.) **11(1)**: 17-28.
- GERSTAECKER, A. 1889: Charakteristik einer Reihe bemerkenswerther Orthopteren. – Mitteilungen aus dem Naturwissenschaftlichen Verein für Neuvorpommern und Rügen in Griefswald **20**: 1-58.
- GIGLIO-TOS, E. 1898: Viaggio del Dr. Enrico Festa nella Repubblica dell'Ecuador e regioni vicine. V. Ortoteri. – Bollettino dei Musei di Zoologia ed Anatomia comparata della R. Università di Torino, **XIII(311)**: 1-108.
- GLENN, G. S. Jr. 1988: Description of a new grasshopper species from Ecuador (Caenolampis, Ophthalmolampini, Romaleidae, Orthoptera). – Proceedings of the Academy of Natural Sciences of Philadelphia **140(1)**: 308-310.
- GÜNTHER, K. 1940: Über die Verbreitung einiger Insekten im Gebiete des Amazonenstromes und die Frage eines columbischen Faunendistriktes in der brasilianischen Subregion. Archiv für Naturgeschichte **9**: 450-500.

- HEBARD, M. 1923: Studies in the Dermaptera and Orthoptera of Colombia. Third Paper. Orthopterous Family Acrididae. – Transactions of the American Entomological Society **XLIX**: 165-313.
- HEBARD, M. 1924: Studies in the Dermaptera and Orthoptera of Ecuador. – Proceedings of the Academy of Natural Sciences of Philadelphia **76**: 109-248, pl. 5-10.
- JARRIN, V. P. 2001: Mamíferos en la niebla. Otonga, un bosque nublado del Ecuador. – Publicación especial 5. Museo de Zoología. Departamento de Ciencias Biológicas. Pontificia Universidad Católica del Ecuador, Quito pagg. 244.
- KIRBY, W. F. 1910: A synonymic catalogue of Orthoptera. – London, Vol. III, Part **II**, 674 pp.
- OTTE D. 1978: The primary types of Orthoptera (Saltatoria, Mantodea, Phasmatodea and Blattodea) at the Academy of Natural Sciences of Philadelphia. – Proceedings of the Academy of Natural Sciences of Philadelphia **130**: 26-87.
- PEÑAHERRER, S. A. & J. L. ASANZA 2004: Composición de la vegetación en una hectárea de bosque tierra firme en el Parque Nacional Yasuni, Ecuador. – *Lyonia* **7(1)**: 63-82.
- RACHELI, T. & L. RACHELI 2001: An annotated list of Ecuadorian Butterflies (Lepidoptera: Papilionidae, Pieridae, Nymphalidae). – *Fragmenta entomologica* **33(2)**: 213-380.
- ROBERTS, H. R. & C. S. CARBONELL 1979: A Revision of the Genera *Stenopola* and *Cornops* (Orthoptera, Acrididae, Leptysminae). – Proceedings of the Academy of Natural Sciences of Philadelphia **131**: 104-130.
- RONDEROS, R. A. 1979: Revision del genero *Jivarus* Giglio Tos, 1898. – Obra del Centenario del Museo de La Plata **VI**: 195-226.
- ROSAS-COSTA, J. A. 1963: A propósito del género *Paralcamenes* I. Bolívar 1909 (Orth., Acridoidea). – *EOS* **39(1-2)**: 307-311.
- SCUDDER, S. H. 1869: Notes on the Orthoptera collected by Professor James Orton on either sides of the Andes of Equatorial South America. – Proceedings of the Boston Society of Natural History **12**: 330-345.
- SCUDDER, S. H. 1875: Notes on Orthoptera from Northern Peru collected by Pr. James Orton. – Proceedings of the Boston Society of Natural History **17**: 257-282.
- SYNTAX, 2006: A Database System for Systematics and Taxonomy. – Online version 2006, www.biologie.uni-ulm.de/syntax/
- WALKER, F. 1870: Catalogue of the specimens of *Dermaptera Saltatoria* in the Collection of the British Museum, **IV**: 605-801.
- VALENCIA, R., CERÓN, C., PALACIOS, W. & R. SIERRA 1999: Las formaciones naturales de la sierra del Ecuador. In: R. Sierra (ed.), 1999. Propuesta preliminar de un sistema de clasificación de vegetación para el Ecuador continental. – Proyecto INEFAN/GEF-BIRF y EcoCiencia, Quito: 79-108.

Author's addresses:

F. M. BUZZETTI
Via Trento 59D,
I-36071 Arzignano (VI), Italy,
E-Mail: buzzjazz@hotmail.com

G. CAROTTI
Via Clementina 26,
I-60031 Castelplanio (AN), Italy,
E-Mail: giovannicarotti@hotmail.com

ZOBODAT - www.zobodat.at

Zoologisch-Botanische Datenbank/Zoological-Botanical Database

Digitale Literatur/Digital Literature

Zeitschrift/Journal: [Mitteilungen der Münchner Entomologischen Gesellschaft](#)

Jahr/Year: 2010

Band/Volume: [100](#)

Autor(en)/Author(s): Buzzetti Ph. D. Filippo Maria, Carotti Giovanni

Artikel/Article: [Faunistic and taxonomical remarks on some interesting Caelifera from Ecuador \(Orthoptera: Caelifera: Romaleidae & Acrididae\). 21-30](#)