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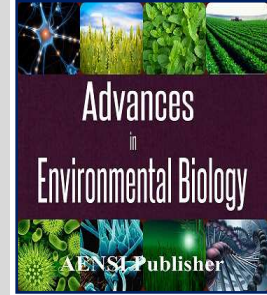
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New records of blowflies (Diptera: Calliphoridae) from Amazonian Venezuela

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ABSTRACT

Based on baited trap collections, thirty-two specimens, five genera and six species of blowflies (Diptera: Calliphoridae) were reported from Amazonian Venezuela, in particular from Bolívar state, Sifontes municipality. *Hemilucilia segmentaria* (Fabricius), *Lucilia eximia* (Wiedemann) and *Mesembrinella bicolor* (Fabricius) were recorded for the first time in Bolívar state. Also, was reported *Mesembrinella peregrina* Aldrich for the first time in Venezuela, increasing to 34 species the richness in the country.

KEYWORDS: Chrysominae, Luciliinae, Mesembrinellinae, new records, Venezuela

INTRODUCTION

The Venezuelan Calliphoridae diversity studies are mainly focused on forensic entomology at the northcentral region [21,19,20,34,27,28]. More recently, other investigations explore the utility of geometric morphometrics tools for species discrimination in adults [32] or immature stages [26]. Kosmann *et al.* [18] reported 25 blowflies species in Venezuela, and Thomas [30] in an unpublished Master Thesis, increased to 33 species for the country. However, the Diptera biodiversity at the Amazonian Province [24] that included Colombia, Peru, Ecuador, Venezuela, and Brazil, are poorly studied or still unknown [2,3,11,33,10]. The Calliphoridae studies in Amazonian Venezuela are scarce, Bonatto and Marinoni [6] described *Giovanella* genus, with the type species *G. bolivar* based on material of USNM collected between Kavanayen and Ptari-tepui in Bolívar state. Due to this, and as part of an ecological investigation of blowflies in Bolívar state, the present work report additional records of Calliphoridae species from Venezuela.

MATERIAL AND METHODS

The specimens collection were realized in a secondary forest near 11.8 km from Tumeremo (7°17' 43.7" North Latitude and 61° 24' 28.3" West Longitude) in Bolívar state, Sifontes municipality. The forest is surrounded by areas dedicated to cattle raising activities; the main landscape corresponds to savannas in the North near Tumeremo in Yuruari river basin, and forests at South near El Dorado in Cuyuní river basin. Both areas are categorized into Guayana savannas [16,24] with human activities consists in gold-mining, logging and

cattle, among others; these activities decreased the vegetation cover and increased habitat fragmentation and soil erosion [30]. In a biogeography context, the collection site corresponds to Amazonian Subregion and the Guyana Province [24] characterized by several endemic taxa: insects, crustaceans, birds, and mammals.

In this location, were placed 21 traps [13,2] baited with chicken viscera. After 48 h exposition, each trap was revised and the blowflies (adults and larvae) removed. The immature were reared to adults in the laboratory. Later, the adult specimens were mounted on insect pins and in some cases was necessary male genitalia dissection. We followed the adult morphology terminology according to McAlpine [22]. All specimens were catalogued and deposited in the invertebrate collection of Laboratorio Museo de Zoología from Universidad de Carabobo (LMZUC) registered in the Venezuelan scientific collections. Finally, the species identification were based on Guimaraes [15], Peris and Mariluis [29], Carvalho and Mello [8], Amat *et al.*, [1], Grella *et al.*, [14].

RESULTS AND DISCUSSION

Our collections based on baited traps, obtained 31 Calliphoridae specimens in five genera, and six species: *Chrysomya albiceps* (Wiedemann, 1819), *Cochliomyia macellaria* (Fabricius, 1775), *Hemilucillia segmentaria* (Fabricius, 1805), *Lucilia eximia* (Wiedemann 1819), *Mesembrinella bicolor* (Fabricius, 1805) and *Mesembrinella peregrina* Aldrich, 1922. These findings with the addition of *M. peregrina*, increased to 34 species the Venezuelan blowflies and increases the range of distribution in Bolívar state. *Hemilucillia segmentaria*, *L. eximia* and *M. bicolor* were recorded for the first time, and the three remainder species incremented their distribution. We present the current distribution in Venezuela by administrative regions (states) based on literature, and below the additional records for the country:

1. Family Calliphoridae:

1.1. Subfamily Chrysominae:

1.1.1. *Chrysomya albiceps* (Wiedemann):

Diagnosis:

“Head. Inner face of the third antennal segment dark brown; palpus yellowish with dark distal region; gena with lower half blackish and upper half pale brown. Male: outer vertical setae present; parafrontalia with pale, short, and sparse setulae, shorter in length than the frontal setae. Female: proclinate orbital setae absent. Thorax. From 5 to 7 proepisternal (propleural) setae; proepimeral (prostigmatic) seta usually absent. The proepimeral seta is present in the specimens termed by us as polymorphic, and is the only state of character that differ polymorphic specimens of non-polymorphic. Anterior spiracle whitish; lower calypter whitish with darkish setulae; the branch of vein M1 + 2 forming acute angle as it approaches the wing edge. Abdomen. Male: sternite IV with similar width and height; sternite V “V-shaped”; cercus and surstylus with almost the same length of the aedeagus. Female: tergite V with dorsal cleft.” [14].

Current distribution in Venezuela:

Aragua, Bolívar, Carabobo, Miranda, Lara and Trujillo [4,20,19,35,31].

Additional record:

Bolívar, Sifontes Municipality (7°17' 43.7" N, 61° 24' 28.3" W, Trap in secondary forest, 11.8 km/140 masl near Tumeremo), 4 ♂, 04-iv-2013, Moreno A and Moreno J. (LMZUC).

1.1.2. *Cochliomyia macellaria* (Fabricius):

Diagnosis:

Lower 1/3–1/2 of fronto-orbital plate with pale setulae outside row of frontal setae; postgenal setae usually pale yellow; female usually with yellowish basicosta; usually with two pairs of proclinate orbital setae; T5 usually with pronounced lateral areas of silvery microtomentum [36].

Current distribution in Venezuela:

Amazonas, Apure, Aragua, Barinas, Bolívar, Carabobo, Guárico, Falcón, Lara, Miranda, Monagas, Portuguesa and Zulia [9,17,5,21,20,35,31].

Additional record:

Bolívar, Sifontes Municipality (7°17' 43.7" N, 61° 24' 28.3" W, Trap in secondary forest, 11.8 km/140 masl near Tumeremo), 1 ♀, 04-iv-2013, Moreno A and Moreno J. (LMZUC).

1.2. Subfamily Luciliinae:

1.2.1. *Hemilucillia segmentaria* (Fabricius):

Diagnosis:

“Posterior spiracle yellow to creamy. Anterior part of thorax orange-yellow, and anepisternum usually yellow. Ventral surface of stem-vein with long fine hairs along the posterior margin. Dorsal surface of upper calypter bare in male, with long hairs in female.”

Current distribution in Venezuela:

Amazonas, Aragua, Falcón, Miranda, Sucre, Trujillo and Zulia [9,31].

New record:

Bolívar, Sifontes Municipality (7°17' 43.7" N, 61° 24' 28.3" W, Trap in secondary forest, 11.8 km/140 masl near Tumeremo), 1 ♀, 04-iv-2013, Moreno A and Moreno J. (LMZUC).

1.2.2. Lucilia eximia (Wiedemann):

Diagnosis:

Setae below and behind strong postocular row pale whitish or yellow and usually weak, except a few stronger setae can be found near the posteroventral corner of the eye; genal dilation and parafacial mostly tan to orange, with vestiture reddish to light brown; polished area larger on abdomen with rear half to one-third of T4, and all of T5 polished; male frons narrow, less than the width of fifth flagellomere, 0.04 (0.03–0.05) of head width, at narrowest; female frons 0.25 (0.24–0.28) [36]

Current distribution in Venezuela:

Amazonas, Aragua, Barinas, Carabobo, Lara, Merida, Miranda, Trujillo, Portuguesa and Zulia [9,20,35,38,7,28].

New record:

Bolívar, Sifontes Municipality (7°17' 43.7" N, 61° 24' 28.3" W, Trap in secondary forest, 11.8 km/140 masl near Tumeremo), 3 ♀, 04-iv-2013, Moreno A and Moreno J. (LMZUC).

1.3. Subfamily Mesembrinellinae:

1.3.1. Mesembrinella bicolor (Fabricius):

Diagnosis:

Head yellow, silvery pruinose. Front at vertex 0.03 to 0.25 of head width. Frontalia orange-yellow. Ocellar triangle brown. Parafrontalia yellow, silvery pruinose, at the narrowest point as wide as anterior ocellus. Gena yellow, about 0.09–0.10 of eye height covered with sparse setae. Thorax: Acrostichals 2:2; dorsocentral 3:3; humerals 3; post humerals absent; Wings hyaline or with diffuse spots forming a macula at the middle and costal area. Abdomen: Bluish to green, purplish metallic, except T1+2 which is yellow; T1+2 and T3 whitish pruinose. Cerci strong and fused in the middle area ending in lateral view in a slightly curved point; surstyli strongly curved, a little longer than cerci [15,29,32].

Current distribution in Venezuela:

Falcon and Amazonas [15,29].

New record:

Bolívar, Sifontes Municipality (7°17' 43.7" N, 61° 24' 28.3" W, Trap in secondary forest, 11.8 km/140 masl near Tumeremo), 22 ♂, 04-iv-2013, Moreno A and Moreno J. (LMZUC).

1.3.2. Mesembrinella peregrina Aldrich:

Diagnosis:

Head yellow, golden pruinose; vertex dark brown, golden pruinose. Front about 0.01 of heads width. Parafrontalia yellow, golden pruinose, at the narrowest point about 0.50 of anterior ocellus; inner verticals long and decussate. Thorax orange-yellow; mesonotum light brown. Acrostichals 2:3; dorsocentral 2:3; humerals 3. Wings hyaline, with faintly infuscated along costa and r-m. Abdomen shining with bluish reflection. T1+2 yellow, T3 and T4 with latero-marginals. Cerci subtriangular, pointed at apex; surstyli strongly curved inward [15,29,32].

New record for Venezuela:

Bolívar, Sifontes Municipality (7°17' 43.7" N, 61° 24' 28.3" W, Trap in secondary forest, 11.8 km/140 masl near Tumeremo), 1 ♂, 04-iv-2013, Moreno A and Moreno J. (LMZUC).

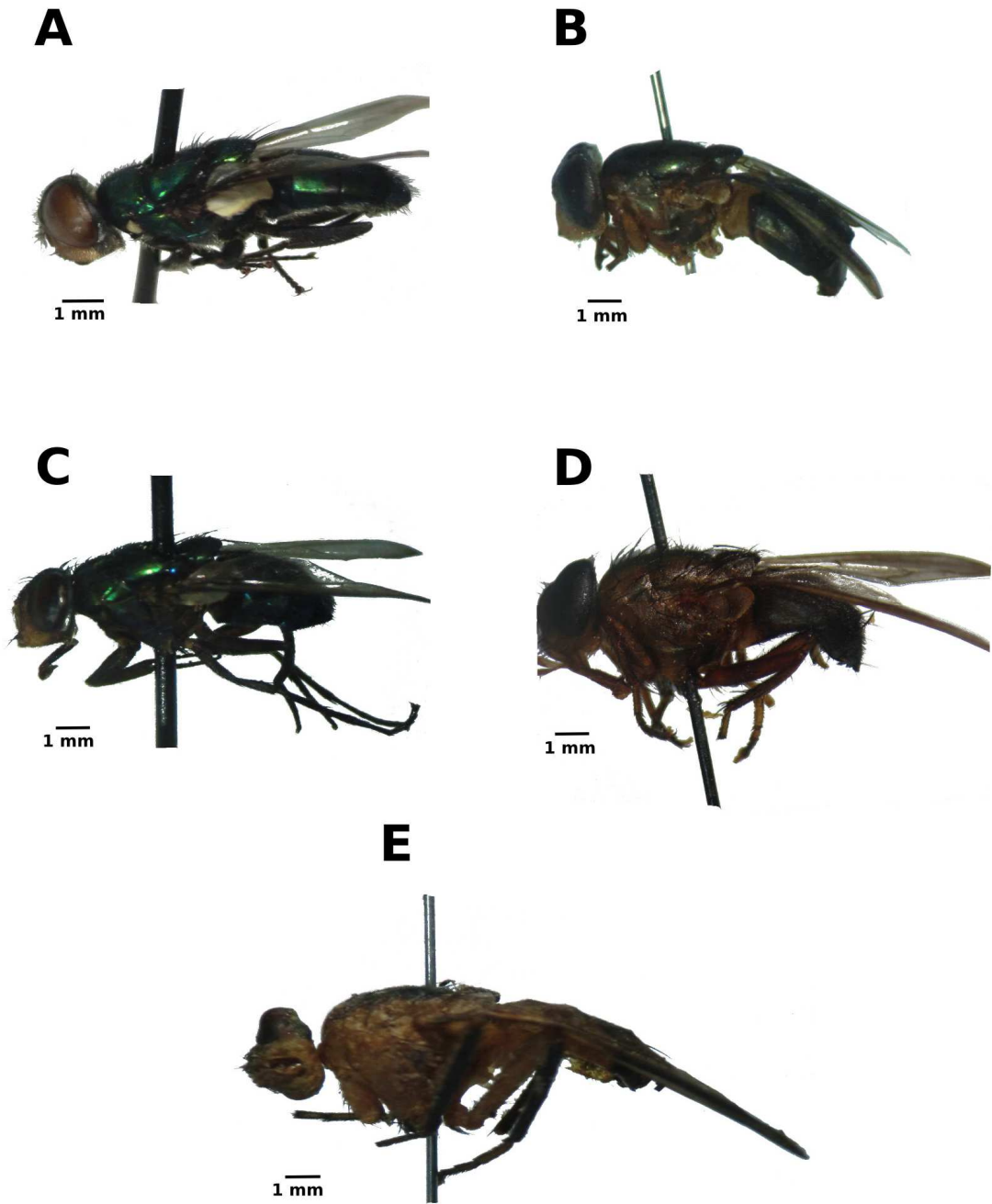


Fig. 1: Blowflies species found in Bolívar state: A. *Chrysomya albiceps*, B. *Hemilucilia segmentaria*, C. *Lucilia eximia*, D. *Mesembrinella bicolor*, and E. *Mesembrinella peregrina*.

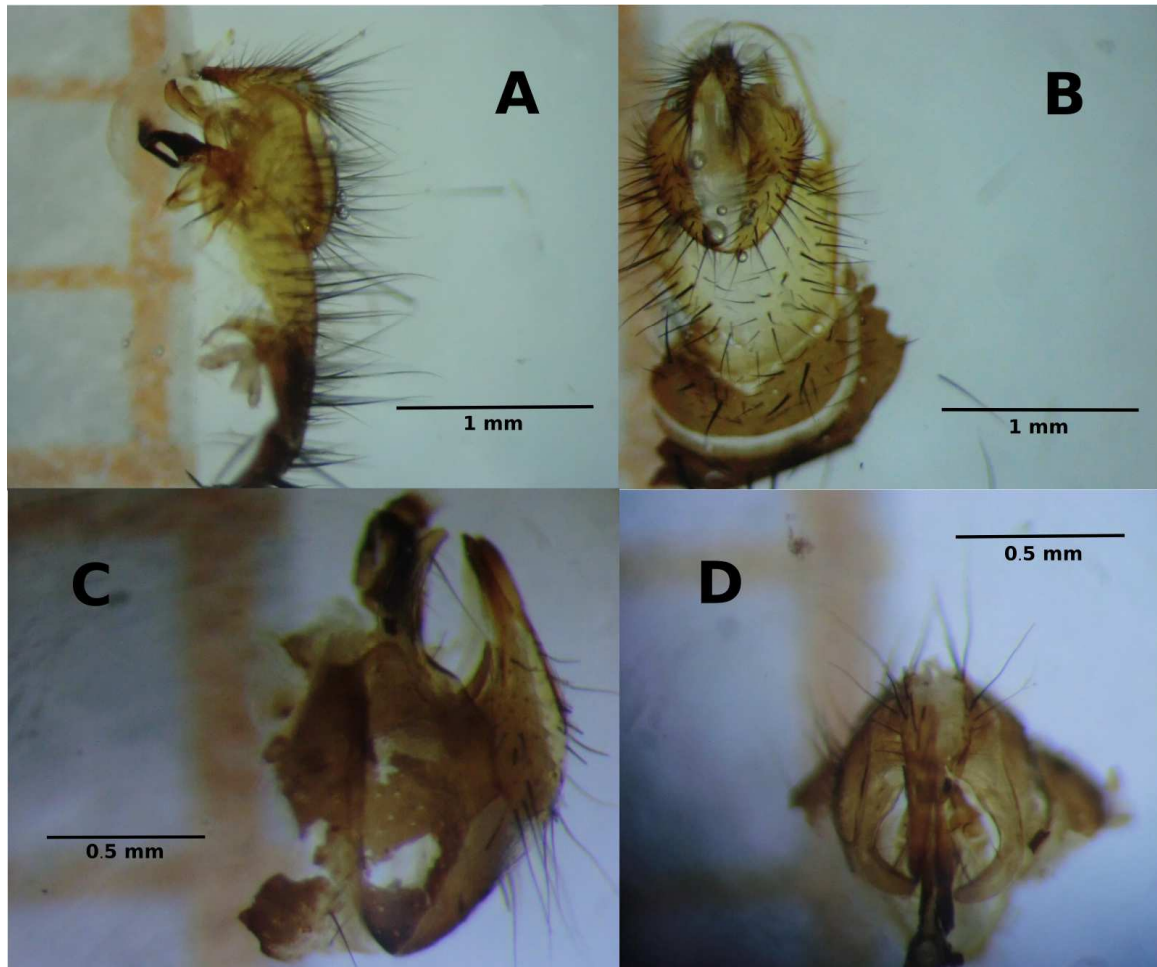


Fig. 2: Epandrium, surstyli and cerci of *Mesembrinella bicolor* (A. lateral and B. posterior) and *Mesembrinella peregrina* (C. lateral and D. posterior).

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