



Wasp Moths (Lepidoptera: Erebidae: Ctenuchina - Euchromiina) of the Entomological Museum “Francisco Luis Gallego” (Meflg), Medellin, Antioquia, Colombia

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WASP MOTHS (LEPIDOPTERA: EREBIDAE: CTENUCHINA - EUCHROMIINA)
OF THE ENTOMOLOGICAL MUSEUM “FRANCISCO LUIS GALLEGO” (MEFLG),
MEDELLIN, ANTIOQUIA, COLOMBIA

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ABSTRACT. The wasp moths (Erebidae: Arctiinae: Ctenuchina and Euchromiina) deposited in the entomological museum “Francisco Luis Gallego” (MEFLG) of the Universidad Nacional de Colombia, Medellín campus, were revised and identified to species. We examined 204 specimens of wasp moths for a total of 47 species, belonging to the subtribes: Ctenuchina (27 species) and Euchromiina (20 species). A species list is presented, with their collecting data, as well as color plates of reported species.

Additional key words: Wasp moths, Ctenuchina, Euchromiina, Entomological Museum

Among the Lepidoptera, a good number of Colombian butterflies are well known since many researchers have produced several works that have allowed an inventory of the group (Salazar 1999, Le Crom et al. 2002a, 2002b, Andrade-C. 2011). However, the current knowledge and faunistic inventories of moths from this country are far from complete, even though comprehensive lists and detailed works have been written for families such as Castniidae and Saturniidae (Salazar 1999a, Amarillo-S. 2000, Lamas 2000, González & Salazar 2003). Several short and preliminary works on Colombian moths have been also published in recent years (see González et al. 2013, Hernández-Baz et al. 2012, 2016, Salazar et al. 2013a, 2013b, Vazquez et al. 2015). Part of the Colombian Erebidae (Ctenuchina and Euchromiina) has also been studied and preliminary works written (see Draudt 1917, Druce 1886, Hampson 1898, 1914, Zerny 1912) but detailed information of the remaining moth families is basically lacking.

Using the project “Taxonomy, Biogeography and Conservation wasp moths (Lepidoptera: Erebidae;

Ctenuchina and Euchromiina) of the American Continent”, Code DGI 22314201267”, as a model, researchers of Universidad Veracruzana (UV-MEX), Universidad Nacional de Colombia (UNC-COL) and California State University Fresno, Dept. Plant Sciences, Fresno (CSU-USA) got together with the intention of starting an effort to produce inventories of the lesser known groups of Colombian wasp moths. The main objectives include: a) to publish an inventory of the Ctenuchina and Euchromiina deposited in the Entomological Museum “Francisco Luis Gallego” (MEFLG) of Universidad Nacional de Colombia, Medellín campus; and b) to elaborate a Data Base of the MEFLG including a photographic catalog available to the public.

The Entomological Museum “Francisco Luis Gallego” (MEFLG) of Universidad Nacional de Colombia, Medellín campus (N 6°15'41.22" /W 75°34'39.26"), is one of the registered Biological Collections of Colombia (RNC) under the number 8 (06/11/2015). Its activities started in 1937, making it one of the oldest entomological collections in the nation. Its



FIG. 1a. Dr. Francisco Luis Gallego (1937)

original name was Entomological Archives, which was changed in 1967 to honor the memory of its founder and most fervent promoter. From the beginning, the main interest of the institution was to collect, preserve and understand agriculturally related insects. Their priority was to solve pest problems of the main crops of Antioquia, but also from other regions of Colombia. The collection has grown due to the increase of research and surveys related to diversity, conservation and, more recently, molecular systematics. Today, this collection is one of the most relevant references for Colombian insects at the national and international levels. Currently, the MEFLG mission is to collect, preserve and investigate the insects of Colombia and to divulge any knowledge derived by their studies (Vélez 1989).

Dr. Francisco Luis Gallego (Fig. 1a) was an enthusiastic and tireless entomologist, teaching several courses (Fig. 1b) and visiting pristine sites to collect insects (Fig. 2a) with the clear intention of enhancing the knowledge of the group and to establish what would become the MEFLG as a relevant research institution. He is considered one of the pioneers of Colombian forest entomology and promoter of research and teaching about Colombian insects (Amat-García et al. 2007).

The MEFLG is divided into several sections: Central



FIG. 1b. b. Francisco Luis Gallego (standing, left), teaching an entomology class to students of the Agricultural Sciences College of the Colombian National University, Medellín campus, Antioquia (1940). Pictures: Historical Archive MEFLG-UNC.

Taxonomic Collection (CTC), Didactic Taxonomic Collection (CTD), Central Economic Collection (CEC), Didactic Economic Collection (CED), Immature Insects Collection (CFI), with a Library containing Books, Newspaper and Periodicals, and file cabinets with records of all identified species in the Museum. The CTC have 86 12-drawers cabinets (Fig. 2b), with 5,460+ identified insect species and about 300,000+ specimens in total, and are all organized phylogenetically. The main relevance of this collection is that 99% of the insect species they possess are Colombian. A preliminary review indicates that 26 insect Orders are represented within the CTC. Lepidoptera is the group with the most representatives and they are all contained in 22 cabinets and 264 drawers.

The MEFLG collection is one of the oldest in Colombia and contains historically relevant material and information that dates back to the 1930's. Besides, it is considered as one of the most relevant on acquired facts about Lepidoptera of agricultural and silvicultural importance for the country.

Colombian Lepidoptera. Worldwide, there are about 145,464 species of Lepidoptera grouped in 124 families, and 126,327 of those species (and 117 families) are moths (Heppner 1991). About 1,237 moth species, included in 21 super-families and 48 families are known from Colombia (Hernández-Baz unpublished). Wasp moths, which are currently included in the Noctuoidea: Erebiidae: Arctiinae: Arctiini, have been divided into two subtribes Ctenuchina and Euchromiina (Lafontaine &



FIG. 2a. One of the many collecting sites frequently visited by Dr. Francisco Luis Gallego;



FIG. 2b. Panoramic view of the insect collection of the MEFLG of Universidad Nacional de Colombia, Medellin campus, Antioquia. Pictures: Historical Archive MEFLG-UNC.

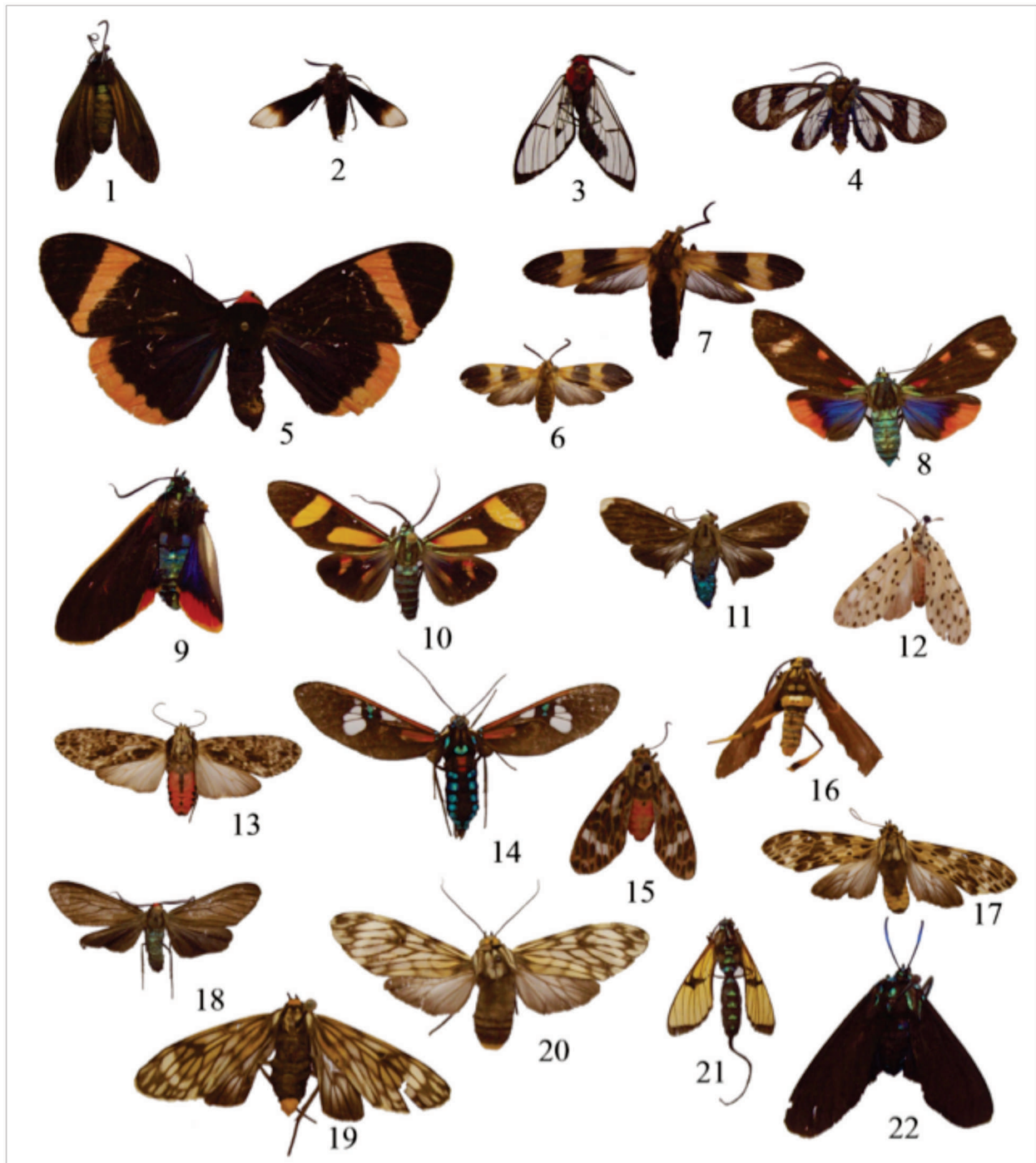


FIG. 3. Wasp-moths (Erebidae: Ctenuchina) deposited in the Entomological Museum "Francisco Luis Gallego" (MEFLG) at Facultad de Ciencias, Universidad Nacional de Colombia, Medellín campus, Antioquia. **1.** *Antichloris viridis* Druce, 1884; **2.** *Anycles anthracina* (Walker, 1854); **3.** *Argyroeides augiades* (Druce, 1896); **4.** *Cacostatia saphira* (Staudinger, 1876); **5.** *Coreura simsoni* (Druce, 1885); **6.** *Correbidia germana* (Rothschild, 1912); **7.** *Correbia lycoides* (Walker, 1854); **8.** *Cyanopepla alonzo* (Butler, 1876); **9.** *Cyanopepla cinctipennis* (Walker, [1865]); **10.** *Cyanopepla submacula* (Walker, 1854); **11.** *Episcepcis lenaeus* (Cramer, 1780); **12.** *Eucereon atrigutta* Druce, 1905; **13.** *Eucereon myrtusa* Druce, 1884; **14.** *Euclera meones* (Stoll, [1780]); **15.** *Heliura rhodophila* (Walker, 1856); **16.** *Horama panthalon* (Fabricius, 1793); **17.** *Nelphe rogersi* (Druce, 1884); **18.** *Philoros rubriceps* (Walker, 1854); **19.** *Theages flavicaput* (Hampson, 1898); **20.** *Theages xanthura* (Schaus, 1910); **21.** *Trichura cerberus* (Pallas, 1772); **22.** *Uranophora lelex* (Druce, 1890).

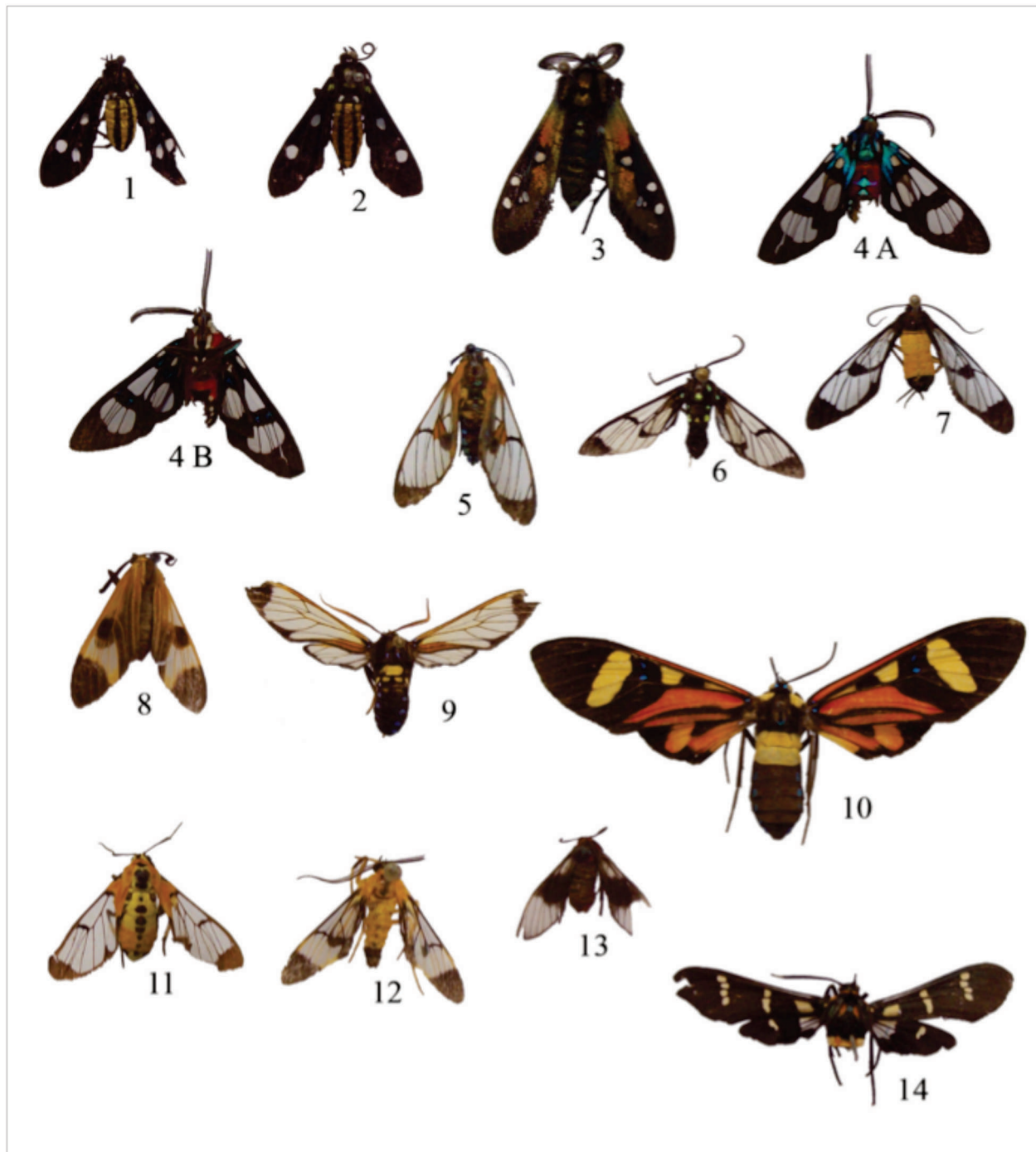


FIG. 4. Wasp-moths (Erebidae: Euchromiina) deposited in the Entomological Museum "Francisco Luis Gallego" (MEFLG) at Facultad de Ciencias, Universidad Nacional de Colombia, Medellín campus, Antioquia. **1.** *Calonotos chalcipleura* Hampson, 1898; **2.** *Calonotos tiburtus* (Cramer, [1779]); **3.** *Chrysocale regalis* (Boisduval, 1836); **4A, 4B** (ventral view) *Cosmosoma bogotensis* (Felder, 1869); **5.** *Cosmosoma centralis* (Walker, 1854); **6.** *Xanthya xanthosticta* (Hampson, 1898); **7.** *Cosmosoma stilbosticta* (Butler, 1876); **8.** *Dycladia correbioides* Felder, 1874; **9.** *Gymnelia lucens* (Dognin, 1902); **10.** *Histioea bellatrix* (Walker, 1854); **11.** *Hyda basilutea* (Walker, 1854); **12.** *Loxophlebia flavipicta* Schaus, 1912; **13.** *Pseudohyaleucerea melanthoides* (Schaus, 1920); **14.** *Syntomeida melanthus* (Cramer, [1779]).

TABLE 1. List of wasp moths (Erebidae: Ctenuchina & Euchromiina) of the Entomological Museum Francisco Luis Gallego (MEFLG), Universidad Nacional de Colombia, Medellín campus, Antioquia. Nacional de Colombia, Medellín campus, Antioquia.

Taxa		Number of Specimens
Erebidae: Arctiinae: Ctenuchina		
1	<i>Antichloris viridis</i> Druce, 1884	6
2	<i>Anycles anthracina</i> (Walker, 1854)	8
3	<i>Argyrooides augiades</i> (Druce, 1896)	5
4	<i>Belemniastis troetschi</i> (Druce, 1896)	1
5	<i>Cacostatia saphira</i> (Staudinger, 1876)	1
6	<i>Coreura simsoni</i> (Druce, 1885)	3
7	<i>Correbia lycoides</i> (Walker, 1854)	5
8	<i>Correbidia germana</i> (Rothschild, 1912)	3
9	<i>Cyanopepla alonzo</i> (Butler, 1876)	10
10	<i>Cyanopepla cinctipennis</i> (Walker, [1865])	1
11	<i>Cyanopepla lystra</i> (Druce, 1896)	4
12	<i>Cyanopepla submacula</i> (Walker, 1854)	10
13	<i>Dinia mena</i> (Hübner, [1827])	18
14	<i>Episcepsis lenaeus</i> (Cramer, 1780)	1
15	<i>Eucereon atrigutta</i> Druce, 1905	1
16	<i>Eucereon myrtusa</i> Druce, 1884	3
17	<i>Eucereon nervulum</i> Rothschild, 1912	2
18	<i>Euclera meones</i> (Stoll, [1780])	2
19	<i>Heliura rhodophila</i> (Walker, 1856)	2
20	<i>Horama panthalon</i> (Fabricius, 1793)	1
21	<i>Nelphe rogersi</i> (Druce, 1884)	6
22	<i>Philoros rubriceps</i> (Walker, 1854)	16
23	<i>Theages flavicaput</i> (Hampson, 1898)	3
24	<i>Theages xanthura</i> (Schaus, 1910)	2
25	<i>Trichura cerberus</i> (Pallas, 1772)	3
26	<i>Uranophora lelex</i> (Druce, 1890)	1
27	<i>Uranophora leucotelus</i> (Butler, 1876)	3
Subtotal		121

TABLE 1. List of wasp moths (Erebidae: Ctenuchina & Euchromiina) of the Entomological Museum Francisco Luis Gallego (MEFLG), Universidad Nacional de Colombia, Medellín campus, Antioquia. Nacional de Colombia, Medellín campus, Antioquia. (CONTINUED from previous page)

Taxa		Number of Specimens
Erebidae: Arctiinae: Ctenuchina		
Euchromiina		
28	<i>Calonotos chalcipleura</i> Hampson, 1898	3
29	<i>Calonotos tiburtus</i> (Cramer, [1779])	4
30	<i>Chrysocale ignita</i> (Henrich-Schäffer, [1853])	1
31	<i>Chrysocale regalis</i> (Boisduval, 1836)	8
32	<i>Cosmosoma auge</i> (Linnaeus, 1767)	7
33	<i>Cosmosoma bogotensis</i> (Felder, 1869)	1
34	<i>Cosmosoma centralis</i> (Walker, 1854)	7
35	<i>Xanthya xanthosticta</i> (Hampson, 1898)	2
36	<i>Cosmosoma teuthras</i> (Walker, 1854)	1
37	<i>Cosmosoma stilbosticta</i> (Butler, 1876)	18
38	<i>Dycladia correbioides</i> Felder, 1874	10
39	<i>Gymnelia lucens</i> Dognin, 1902	4
40	<i>Histioea bellatrix</i> (Walker, 1854)	1
41	<i>Hyda basilutea</i> (Walker, 1854)	3
42	<i>Loxophlebia flavipicta</i> Schaus, 1912	1
43	<i>Macrocneme aurifera</i> Hampson 1914	3
44	<i>Macrocneme thyridia</i> Hampson 1898	5
45	<i>Nyridela chalciope</i> (Hübner, [1831])	2
46	<i>Pseudohyaleucerea melanthoides</i> (Schaus, 1920)	1
47	<i>Syntomeida melanthus</i> (Cramer, [1779])	1
	Subtotal	83
	Total	204

TABLE 2. Collecting localities of wasps moths (Erebidae: Ctenuchina & Euchromiina) held in the Entomological Museum Francisco Luis Gallego (MEFLG), Universidad Nacional de Colombia, Medellín campus, Antioquia.

Department	Municipality	Locality and altitude	Latitude	Longitude
Antioquia	Amagá	Camilo C. Restrepo, 1437 m.	06 02 01	75 41 60
Antioquia	Andes	Andes, 1333 m.	05 39 23	75 52 47
Antioquia	Bello	Bello, 1475 m.	06 20 23	75 33 44
Antioquia	Cáceres	Cáceres, 98 m.	07 39 58	75 19 59
Antioquia	Caldas	Caldas, 1764 m.	06 05 24	75 38 15
Antioquia	Caldas	Caldas, 1771 m.	06 50 23	75 38 15
Antioquia	Campamento	Campamento, 1692 m.	06 58 42	75 17 50
Antioquia	Caucasia	Caucasia, 54 m.	07 57 59	75 11 54
Antioquia	Cocorná	Cocorná, 1109 m.	06 02 58	75 10 00
Antioquia	Concepción	Concepción, 1861 m.	06 23 44	75 15 25
Antioquia	Dabeiba	Dabeiba, 462 m.	06 59 58	76 16 04
Antioquia	Frontino	Frontino, 1449 m.	06 46 49	76 08 08
Antioquia	Guadalupe	Guadalupe, 1873 m.	06 48 54	75 14 36
Antioquia	Itagiúf	Itagiúf, 1578 m.	06 10 05	75 36 51
Antioquia	La Estrella	La Estrella, 2197 m.	06 10 00	75 40 00
Antioquia	Medellín	Medellín, 1633 m.	06 14 57	75 37 12
Antioquia	Medellín	San Cristóbal, 1806 m.	06 16 33	75 38 00
Antioquia	Medellín	Valle de Medellín, 1469 m.	06 15 41	75 34 35
Antioquia	Medellín	Corregimiento Santa Elena, Piedras Blancas, 1209 m.	06 14 48	74 58 18
Antioquia	Medellín	El Picacho, Valle de Medellín, 2052 m.	06 18 14	75 35 15
Antioquia	Medellín	Robledo, 1599 m.	06 16 36	75 35 48
Antioquia	Medellín	Santa Elena, Piedras Blancas, 2358 m.	6 17 40	75 30 06
Antioquia	Medellín	Universidad Antioquia, 1464 m.	06 16 01	75 34 06
Antioquia	Medellín	Universidad Nacional, 1467 m.	06 15 37	75 34 37
Antioquia	Medellín	Universidad Nacional, 1460 m.	06 15 53	75 34 34
Antioquia	Medellín	Valle de Medellín, 1468 m.	06 15 37	75 34 34
Antioquia	Porce	Porce, 1134 m.	06 37 25	75 08 42

TABLE 2. Collecting localities of wasps moths (Erebidae: Ctenuchina & Euchromiina) held in the Entomological Museum Francisco Luis Gallego (MEFLG), Universidad Nacional de Colombia, Medellín campus, Antioquia. (CONTINUED)

Department	Municipality	Locality and altitude	Latitude	Longitude
Antioquia	Rionegro	Rionegro, 2105 m.	06 09 14	75 23 21
Antioquia	San Jerónimo	San Jerónimo, 967 m.	06 25 51	75 42 47
Antioquia	San José de Nus	San José de Nus, 2578 m.	07 03 27	75 59 02
Antioquia	San Luis	San Luis, 1067 m.	06 02 39	74 59 38
Antioquia	San Luis	San Luis, 1097 m.	06 02 41	74 59 50
Antioquia	Santa Bárbara	Santa Bárbara, 1768 m.	05 52 25	75 34 10
Antioquia	Santa Rosa de Osos	Santa Rosa de Osos, 2540 m.	06 38 51	75 27 24
Antioquia	Segovia	Segovia, 663 m	07 04 41	74 41 52
Antioquia	Sopetrán	Sopetrán, 736 m.	06 30 11	75 44 42
Antioquia	Támesis	Támesis, 1663 m.	05 39 47	75 43 05
Antioquia	Tarazá	Tarazá, 92 m.	07 35 00	75 24 00
Antioquia	Tarso	Tarso, 1354 m.	05 51 48	75 49 17
Antioquia	Turbo	Turbo, 7 m.	08 05 35	76 43 31
Antioquia	Urabá	Villa Arteaga, 144 m.	07 22 30	76 29 01
Antioquia	Yarumal	Yarumal, 2206 m.	06 57 32	75 25 21
Atlántico	Barranquilla	Barranquilla, 29 m.	10 59 05	74 50 43
Cauca	Popayán	Popayán, 1784 m.	02 27 02	76 36 55
Caldas	Tolda Fría	Tolda Fría, 2987 m	04 57 01	75 26 12
Cesar	Agustín Codazzi	Agustín Codazzi, 174 m.	10 01 46	73 13 54
Chocó	Carmen de Atrato	Carmen de Atrato, 1664 m.	05 53 06	76 13 41
Chocó	Medio Atrato	Medio Atrato, 25 m	05 58 33	76 43 44
Chocó	Quibdó	Quibdó, 55 m.	05 41 29	76 38 38
Córdoba	Atlántico	Costa Atlántica, 45 m.	08 24 05	75 54 37
Cundinamarca	Norte Redondo	Norte Redondo, 2547 m.	04 42 08	74 08 21
Cundinamarca	Quetame	Quetame, 1441 m.	04 19 50	73 51 52
Cundinamarca	Quetame	Quetame, 1454 m.	04 19 52	73 52 04

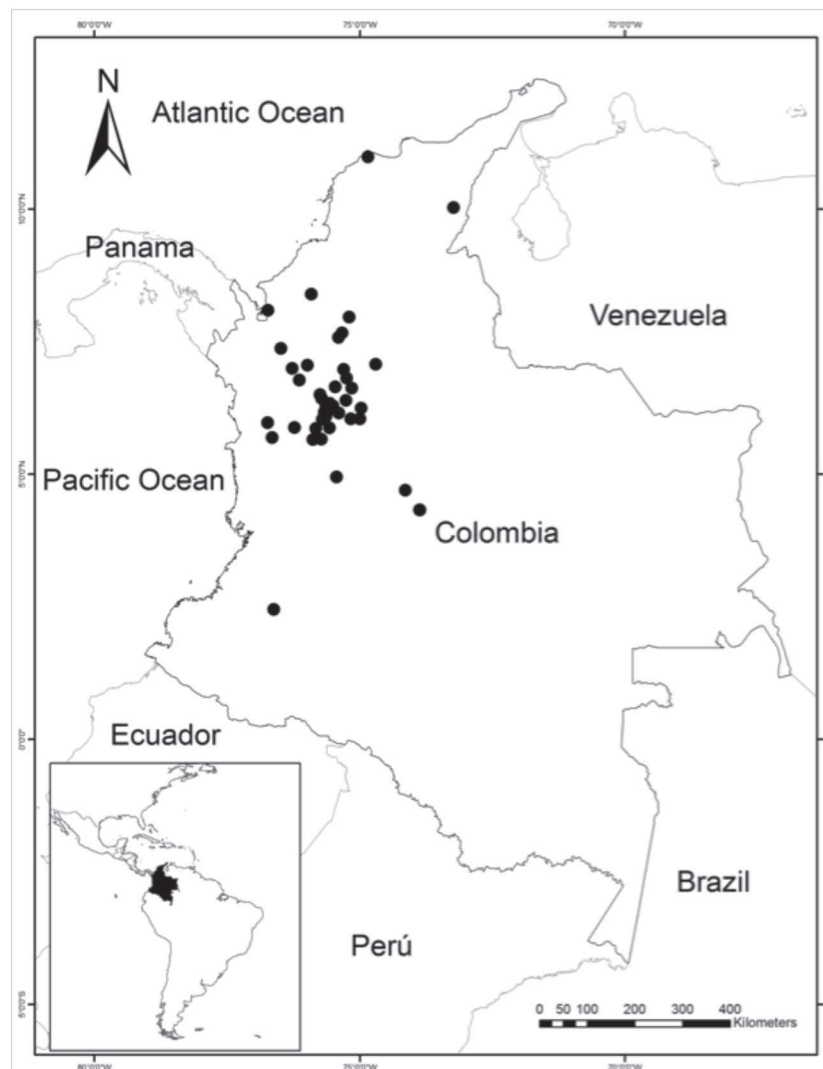


FIG. 5. Geographic distribution of collecting sites (black dots) of wasp moths (Lepidoptera: Erebiidae: Ctenuchina and Euchromiina) found in the insect collection of MEFLG of Universidad Nacional de Colombia, Medellin campus, Antioquia.

Fibiger 2006, Lafontaine & Schmidt 2010). These wasp moths are captured at lights (Hernández-Baz & Bailey 2006, Hernández-Baz et al. 2012, 2013) and present a species richness that reaches a number that varies between 2532 to 3000 species, with 2475 being exclusively Neotropical (Heppner 1991). Only 36 species in the group are Nearctic (Lafontaine & Schmidt 2010, Simmons et al. 2012). About 120 species of wasp moths were previously known from Colombia (Hernández-Baz, unpublished).

MATERIAL AND METHODS

All wasp moth specimens of MEFLG were organized as morph-species following (Triplehorn & Johnson 2005). Their genera were identified following Hampson (1898, 1914), and for species identification, we followed

Druce (1886), Draudt (1917), Dietz & Duckworth (1976), Dietz (1994) and Hernández-Baz (2012). Genera and species for each subtribe are listed alphabetically here (Table 1). The information on each and all specimens studied was integrated to the “Polilla” database of the project Taxonomy, Biogeography and Conservation wasp moths (Lepidoptera: Erebiidae; Ctenuchina and Euchromiina) of the American Continent”, Code DGI 22314201267, at Universidad Veracruzana, Xalapa, Veracruz, México. A duplicate of the data base “Polilla” is now deposited at the MEFLG of the UNC Medellin campus.

All taxa were organized by subtribes in an Excel spreadsheet (Microsoft 2016). All Ctenuchina and Euchromiina registers in the MEFLG collection were georeferenced based on a cartographic physical map

with 1:500 000 and 1:100 000 scales designed by the Geographic Institute Agustín Codazzi (IGAC 2016). The catalogs of the Colombian territories were also used (IGAC, 1995). We checked the obtained information in <http://www.google.com/earth/>. The dates taken from the “Polilla” database were converted into sexagesimal data for inclusion in a geographical information system for the Arc View 2.0 program (Esri 1998) to obtain a species/localities distribution map.

RESULTS AND DISCUSSION

A total of 1,032 drawers containing Lepidoptera specimens within the MEFLG collection were examined, 264 of which contained several families and only two contained exclusively wasp-moths. Out of the 204 wasp moth specimens found, 47 species were represented. Among them, 27 were Ctenuchina, containing 20 genera and 121 specimens, while Euchromiina was represented by 20 species and 12 genera, in a total of 83 specimens (Table 1, Figs. 3 & 4). Gallego (1938, 1946) had previously identified only five of those wasp moths' species (within the old families Syntomidae and Amatidae) in the MEFLG collection. Those identifications were then corroborated by W. Schaus of the Smithsonian Institution—United States National Museum (USNM). Hernández-Baz (unpublished) reports 120 species of Ctenuchina and Euchromiina for Colombia, thus the 43 species held by MEFLG represent 35 % of the species of those groups for the country.

After curation of the wasp moths of MEFLG, we found that they were collected at 49 collecting sites from six Colombian Departments: Antioquia (with 41), Cauca (2), César (1), Chocó (1), Córdoba (1) and Cundinamarca (3), with altitudinal ranges fluctuating between 7 and 2,197 masl, and covering a wide range of vegetation types from mangroves to wet forests of the Central Mountain Range (Cordillera Central) of Colombia (Table 2). About 85% of the collecting sites are from Antioquia Department and the remaining 15% represents other localities (Fig. 5). The particular bias towards Antioquian insects is explained by the fact that the institution was originally created with the main purpose of collecting and identifying agricultural and silvicultural pests of the area around the Aburrá river valley, which was a region surrounded by crops and logging forests.

The studied collection (MEFLG) and the wasp moths in particular (Erebidae: Ctenuchina y Euchromiina) can be considered small (only 204 specimens and 47 species). That only shows the little interest in collecting these moths, which is a phenomenon that is frequently repeated in numerous Latin-American collections. The

importance and value of this particular set of wasp-moths is that they were collected during the years 1930 to 1950, when the vegetation of the collecting sites was in more pristine conditions.

The 47 wasp moth species found at MEFLG were included in the data base “Polilla” enhancing the number of registered and georeferenced Colombian species to 130. This could be considered a low number of known species for the group based on the fact that Colombia is not only a neotropical country but a megadiverse one (Amat-García et al. 2007). This conclusion could be easily understood when we compare such number with those found in the neotropical French Guyana and the neighboring Ecuador having each more than 400 wasp-moth species (Cerdeña 2008; Piñas & Manzano 2003) and even México (with a combination of nearctic and neotropical fauna) that have more than 200 (Hernández-Baz 2012).

We have been revising all Colombian scientific collections since 2010. The main goal of this effort is to locate all wasp moths deposited in them with the purpose of building a comprehensive and precise list that will lead us to better understand their richness in the country. This is also a preliminary step to generate a more ambitious public data base of wasp moths of the Americas.

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