



Catalogue of Diptera of Colombia: an introduction

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Colombia has an imposing natural wealth due to its topography has many unique characteristics as a consequence of having Caribbean and Pacific shores, as well as sharing part of the Amazon basin and northern Andes mountains. Thus, many natural and biological features are due to the convergence of three biogeographical regions: Pacific, Andes and Amazonia. The Andean uplift created a complex mosaic of mountains and isolated valleys, including eleven biogeographical provinces (Morrone 2006). The Andes dominate the Colombian topography and cross the country south to north. There are three mountain ranges (Western, Central, and Eastern) with a maximum elevation of 5,775 m, and an average elevation of 2,000 m. The Magdalena and Cauca River valleys separate these ranges, that along with the Putumayo and Caquetá Rivers, the Catatumbo watershed, the Darién, Pique Hill, the Orinoquia Region (with its savannas), the Amazon region (with tropical rainforests), and some lower mountain ranges (Macarena and Chiribiquete), have generated the conditions for very high levels of endemism. This variety of conditions has resulted in an extremely diverse plant and animal biota, and in which 48% of the nation remains unexplored.

Biodiversity in Colombia is a world treasure, and therefore understanding it is the first step in preserving it. Understanding insect diversity is a challenge, due to the complexity of finding species in such a diverse biological and geological settings, as well as due to the difficulty in identifying the many, often undescribed, species. Historically, Colombia has had many entomologists that have strived towards documenting this diversity and today, continues to education new researchers for this far-from-finished goal.

Though there is a long tradition of entomological studies, taxonomic knowledge of insects in Colombia remains fragmented, with the Lepidoptera probably being the best known. Much work remains for the identification of most species in the Coleoptera, Hymenoptera and Diptera. These orders comprise nearly 70% of all known animal species in the country (Andrade, 1996, Amat *et al.* 1999, Fernández *et al.* 2004).

Diptera in Colombia has mostly been studied in species that are relevant to health and forensic concerns, such as the Culicidae, Simuliidae, Tabanidae, and Calliphoridae. The more conspicuous flies, and larger families, including the Syrphidae, Asilidae and Bombyliidae, remain poorly known and poorly studied. Recently, efforts to collect in relatively undisturbed locations may be one of the main initiatives by the government and universities for better understanding these well-preserved areas and for conservation planning.

Here, we provide a catalogue with the primary goal of providing information on Diptera diversity in Colombia. This catalogue is based on a combination of a review of the relevant literature with data from new species that will be presented here for the first time. All genus- and species-group names are listed alphabetically. Valid names are in bold type at the first mention. Synonyms when mentioned subsequently are italicized. Each published name including synonyms is given in a chronological sequence according to the scheme: the name of the species, author(s), year of description, page, genus in the original description (if different from the valid one), type-locality (or localities in the case of syntypes; updated name into brackets), information about the primary types and their deposition (and, if a lectotype, a reference to the author and date of the designation), known geographic distribution. The catalogue contains 3,135 species in 74 families from Colombia (Table 1). This adds another nine families to the Catalogue of the Diptera of the Americas South of the United States between 1966-1984 (edited by Nelson Papavero). Unfortunately, and highlighting the need for additional collecting, the families Dixidae,

Chaoboridae, Athericidae, Vermileonidae, Platypezidae, Ulidiidae and Heleomyzidae cannot be included in this catalogue, due to the lack of specialists who can identify species in these families. Also, the Culicidae, with many records in the country, is also not included in this catalogue because of its taxonomic complexity.

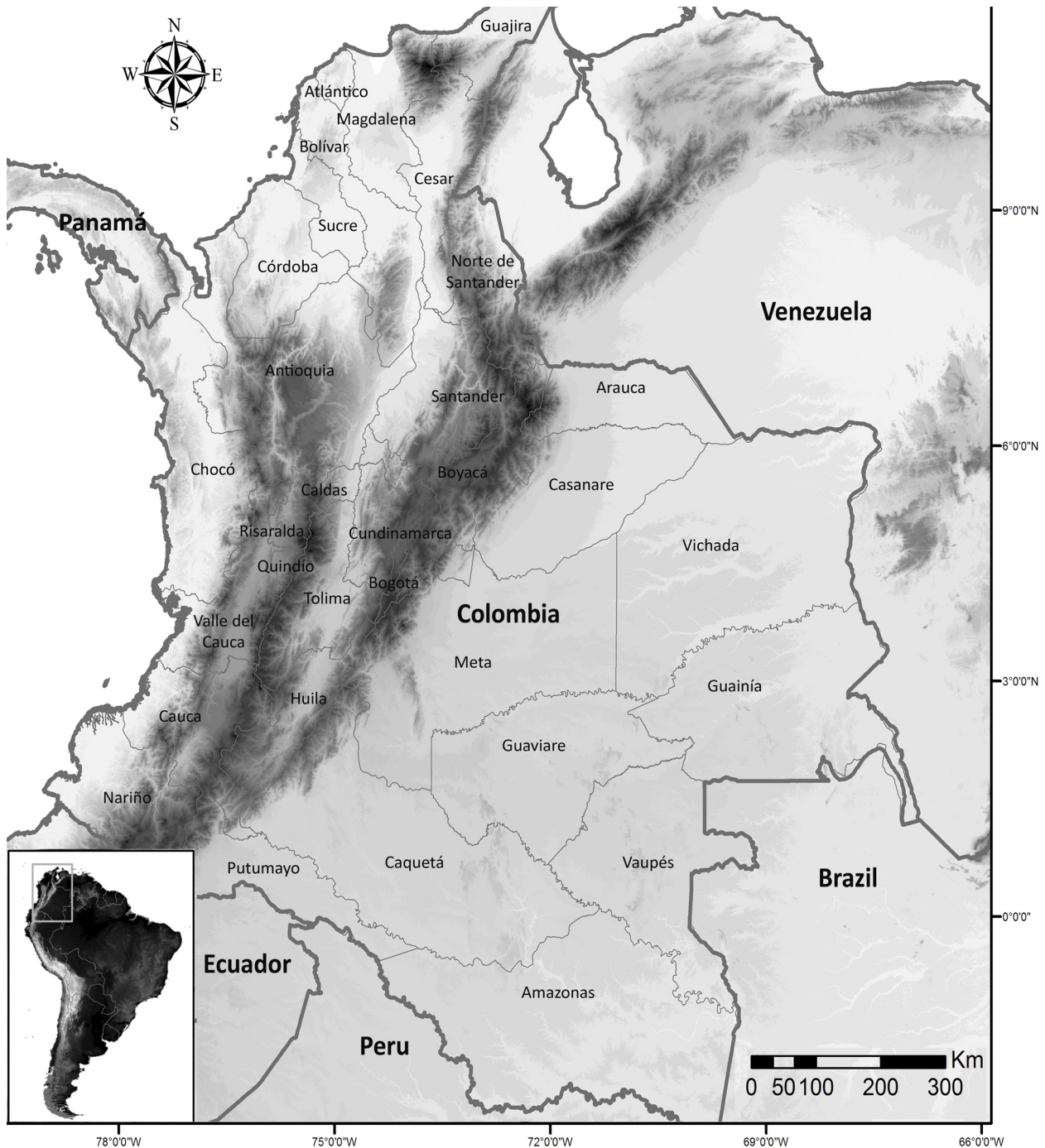


FIGURE 1. Map of Colombia, with the geopolitical departments.

Chapters of this catalogue are organized into an abstract with key words, a brief introduction, the list of species with information on valid names and synonyms for Colombian species, type locality, museum where types are deposited (when available), localities where collected in Colombia and references. Finally, we provide a table that summarizes subfamily and tribe (if applicable), genus, species and author of species and year.

TABLE 1. Summary of Diptera families in Colombia: Number of species in Colombia (based on present catalogue), Number of species in Neotropical region (based on literature), and the Distribution of each family currently known for the Colombian Departments.

Family	Colombian species	Neotropical species	Distribution in Departments
1. Anisopodidae	2	63 ¹	Ant, Cun
2. Bibionidae	17	169 ²	Bog, Met, VCau,
3. Cecidomyiidae	44	360 ²	Ces, Mag, Vau
4. Sciaridae	16	193 ²	Bog, Cal, Caq, Cun, Mag.
5. Rangomaramidae	1	20 ³	Ris
6. Ditomyiidae	6 undescr	44 ²	Nar, NSant
7. Diadocidiidae	1 undescr	2 ²	Ris
8. Keroplatidae	5	151 ²	Cau, Met, Nar, VCau
9. Lygistorrhinidae	1 undescr	7 ²	Vau
10. Mycetophilidae	12	991 ²	Ama, Bol, Boy, Cau, Cho, Cun, Hui, Mag, Met, Nar, NSant, Put, Vau.
11a. Tipulidae	38	718 ²	Bol, Bog, Boy, Cal, Cau, Ces, Cun, Mag, Met, Tol, VCau,
11b. Limoniidae	93	2369 ²	Boy, Cal, Cau, Cho, Cun, Mag, Met, Tol, Gorg Is.
	235	690 ²	Ama, Ant, Ara, Atl, Boy, Caq, Cau, Ces, Cho, Cun, Guj, Guv, Hui, Mag, Met, Nar, Put, Ris, Tol, VCau, Vau,
13. Chironomidae	30	205 ²	Met. (without others specifics localities)
14. Simuliidae	67	348 ⁴	Ama, Ant, Boy, Cal, Cau, Ces, Cun, Guj, Hui, Mag, Met, Nar, NSant, Qui, Tol, Vau, VCau
15. Corethrellidae	9	44 ²	Ama, Boy, Cor, Cun, Met, VCau
16. Blephariceridae	13	63 ²	Ant, Cal, Cun, Guj, Mag, Qui, Tol, VCau
17. Psychodidae	199	370 ²	All departments (32)
18. Scatopsidae	2	62 ⁵	VCau
19. Rhagionidae	3	97 ⁶	**
20. Tabanidae	255	1200 ⁷	Ama, Ant, Atl, Bol, Boy, Cal, Caq, Cas, Cau, Cho, Cor, Cun, Hui, Mag, Met, Nar, Put, Sant, Tol, VCau, Vau
21. Xylophagidae	1	28 ²	Cho
22. Panthophthalmidae	11	20 ⁸	Ama, Ant, Boy, Cal, Cho, Cun, Met, Put, Sant, VCau,
23. Stratiomyidae	86	987 ⁷	Ama, Ant, Atl, Boy, Cal, Cho, Cun, Gorg Is, Mag, Met, Nar, VCau
24. Xylomyidae	1	9 ²	Nar, VCau
25. Acroceridae	4	*	Cun
26. Nemestrinidae	1	64 ⁹	Mag
27. Asilidae	72	1576 ¹⁰	Ama, Ant, Bog, Cal, Cau, Ces, Cun, Cho, Mag, Met, VCau
28. Bombyliidae	22	472 ¹¹	**
29. Mydidae	2	116 ¹²	Boy
30. Therevidae	4	147 ²	Bol, Mag
31. Empididae	4	500 ¹³	Cau
32. Hybotidae	19	250 ¹⁴	Ant, Caq, Hui, Met, Nar, Put, Tol, VCau
33. Dolichopodidae	29	1195 ¹⁵	Ant, Atl, Boy, Cau, Cun, Gorg Is, Mag, Met, VCau

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TABLE 1. (Continued)

Family	Colombian species	Neotropical species	Distribution in Departments
34. Phoridae	225	*	Ama, Bol, Boy, Caq, Cau, Cho, Cun, Gorg Is, Hui, Mag, Met, Nar, NSant, Put, Ris, Suc, VCau, Vau, Vich
35. Pipunculidae	10	250 ⁷	Ama, Cau, Cun, Nar, Tol, VCau
36. Syrphidae	312	1637 ²	31 dptos excepto Guv
37. Micropezidae	57	273 ²	Ama, Ant, Atl, Bol, Boy, Caq, Cun, Mag, Met, Nar, Put, Tol, VCau, Vich
38. Neriidae	17	39 ²	Ama, Ant, Atl, Bol, Boy, Cal, Caq, Cau, Cho, Cun, Guj, Hui, Mag, Met, Nar, NSant, Put, Qui, Ris, Sant, Suc, VCau, Vau, Vich
39. Tanypezidae	9	19 ²	Ant, Boy, Cun
40. Syringogastridae	3	9 ²	Ama, Cal, Cor, VCau
41. Conopidae	16	175 ²	Met, VCau
42. Lonchaeidae	44	*	Ant, Cau, Cun, NSant, Sant, Tol, VCau
43. Piophilidae	2	10 ⁷	Ant, Boy, Cun, Ris
44. Platystomatidae	1	26 ²	**
45. Pyrgotidae	1	42 ²	Ant, Cun
46. Richardiidae	19	170 ²	Ant, Cal, Cun, Met, Qui, Ris, Sant, Suc, VCau
47. Tephritidae	93	675 ²	Ama, Ant, Bol, Boy, Cal, Cau, Cor, Cun, NSant, Put, Qui, Sant, Tol, VCau
48. Lauxaniidae	36	367 ²	Ama, Bol, Boy, Cau, Cho, Cun, Hui, Mag, Met, Nar, NSant, Put, Ris, Tol, Vau, Vich
49. Ropalomeridae	8	31 ¹⁶	Ant, Atl, Bol, Boy, Cal, Caq, Cau, Cho, Hui, Mag, Met, Suc
50. Sciomyzidae	7	74 ²	Cun, Nar, Put, VCau
51. Sepsidae	10	26 ²	Mag
52. Clusiidae	23	95 ²	Ama, Ant, Cun, Mag, Met, Tol, Vau, VCau
53. Agromyzidae	74	300 ¹⁷	Ama, Ant, Cal, Cau, Ces, Cun, Met, Nar, VCau
54. Perisclididae	3	14 ²	Cun, VCau
55. Aulacigastridae	1	2 ²	VCau
56. Sphaeroceridae	25	174 ²	Ama, Ant, Cun, Mag, Met, NSant, VCau
57. Chloropidae	46	430 ²	Atl, Cal, Cun, Mag
58. Milichiidae	6	66 ²	VCau
59. Curtonotidae	3	21 ²	**
60. Drosophilidae	176	694 ²	Ama, Ant, Atl, Cal, Cau, Cho, Cun, Guj, Hui, Mag, Met, Nar, NSant, Sant, VCau
61. Ephydriidae	53	281 ²	Ant, Atl, Bol, Cau, Cun, Mag, Tol, VCau,
62. Hippoboscidae	18	44 ²	Ant, Atl, Bog, Bol, Boy, Caq, Cau, Cun, Hui, Mag, Met, NSant, Sant, VCau,
63. Nycteribiidae	8	37 ²	Ant, Bol, Caq, Cun, Cho, Met, Put, Sant, Tol
64. Streblidae	73	152 ⁷	Ant, Bol, Cal, Caq, Cas, Cau, Cor, Cun, Cho, Gui, Hui, Mag, Met, Nar, NSant, Put, Sant, Tol, VCau, Vau, Vich
65. Anthomyiidae	6	108 ²	Cun
66. Fanniidae	32	79 ⁷	Ama, Ant, Boy, Cal, Cun, Cho, Mag, Met, NSant, Ris, Sant

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TABLE 1. (Continued)

Family	Colombian species	Neotropical species	Distribution in Departments
67. Muscidae	108	846 ¹⁸	Ama, Ant, Bol, Boy, Cal, Caq, Cas Cau, Ces, Cor, Cun, Cho, Guj, Hui, Mag, Met, Nar, NSant, Put, Qui, Ris, Sant, Suc, Tol, VCau, Vich
68. Scatophagidae	1	6 ¹⁹	Ant
69. Calliphoridae (includes Mesembrinellinae)	52	126 ²	Ama, Ant, Atl, Boy, Cal, Caq, Cau, Cho, Cun, Guj, Hui, Mag, Met, Nar, NSant, Put, Qui, Ris, Sant, Suc, Tol, VCau, Vau, Vich.
70. Oestridae (Cuterebridae)	3	37 ²⁰	Ant, Cun, Hui,
71. Rhinophoridae	1	2 ²	Mag
72. Sarcophagidae	102	750 ⁷	Ama, Ant, Boy, Cal, Cau, Cho, Cun, Gor Is, Mag, Met, Nar, Put, Qui, Sant, Suc, Tol, VCau, Vau, Vich
73. Tachinidae	154	2864 ²¹	Ant, Boy, Cal, Cun, Mag, VCau,

* Species not catalogued.

** Without specific localities.

Abbreviations used for Colombian Departments: Ama=Amazonas, Ant=Antioquia, Ara=Arauca, Atl=Atlántico, Bol=Bolívar, Boy=Boyacá, Cal=Caldas, Caq=Caquetá, Cas=Casanare, Cau=Cauca, Ces=Cesar, Cho=Chocó, Cor=Córdoba, Cun=Cundinamarca, Gorg Is= Isla Gorgona, Gui=Guainía, Guj=Guajira, Guv=Guaviare, Hui=Huila, Mag=Magdalena, Met=Meta, Nar=Nariño, NSant=Norte de Santander, Put=Putumayo, Qui=Quindío, Ris=Risaralda, Sant=Santander, Suc=Sucre, Tol=Tolima, VCau=Valle del Cauca, Vau=Vaupés, Vich=Vichada.

References cited for number of Neotropical species: 1, Hancock & Amorim, 2009; 2, Amorim et al. 2002; 3, Amorim & Falaschi, 2012; 4, Coscaron, Coscaron-Arias & Papavero, 2008; 5, Amorim 2009; 6, Santos 2008; 7, de Carvalho et al. 2012; 8, Papavero, 2009a; 9, Papavero & Benardi, 2009; 10, Papavero, 2009b, 11, Evenhuis & Greathead, 1999; 12, Papavero, 2009c; 13, Yang et al., 2007; 14, Smith, 1967; 15, Yang et al 2006; 16, Prado & Papavero, 2009; 17, Spencer, 1984; 18, de Carvalho et al., 2005; 19, Albuquerque, 1984; 20, Papavero & Guimarães, 2009; 21, Guimarães, 1971.

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