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Drosophila distribution in Ecuador.

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The first studies on *Drosophila* in South America were performed by Duda (1925), Dobzhansky and Pavan (1943), Pavan and Da Cunha (1947), and Brncic (1957). Such studies did not cover many zones due to geographic inaccessibility, such as the Andes mountain range or desert zones considered unimportant. From the 80's on, research on this genus has increased as demonstrated by the research works of Vilela (1983, 1984), Vilela and Bächli (1990), Vilela *et al.* (1983), Sene *et al.* (1980), Tidon-Sklorz *et al.* (1994) in Brazil; Pilares *et al.* (1990) in Peru; and Hasson *et al.* (1991) in Argentina. Thus, at present, we have a better knowledge about *Drosophila* in South America. However the data on its ecology and distribution are partial.

In Ecuador, little interest has been placed on *Drosophila* research. The knowledge we have of the fauna of *Drosophila* is that of Wheeler *et al.* (1962), who reported the presence of one *Drosophila* species in the Cotopaxi province, which has not yet been described. Carson *et al.* (1983) also reports a new species: *D. xerophila* in the Galapagos Islands. However recent studies made in continental Ecuador show that this country has a high diversity of *Drosophila*, as shown by the studies of Rafael and Arcos (1988, 1989).

In the "Costa" –the lowland region between the Andes and the Pacific Ocean– *Drosophila* has been reported in three provinces (Rafael *et al.*, 2000), whereas in the mountain region or "Sierra" it is reported to appear in seven provinces (Figure 1). It must be mentioned that the better-studied zones are those in the Pichincha province:

- a) In the Guayllabamba Valley (30 km. north-east of Quito). This area is dominated by Thorny Shrub Lower Mountain vegetation (1020 – 2600 meters) and Dry Lower Mountain Forest (2000-3000 m). In these types of vegetation, 27 *Drosophila* species classified in nine species groups were reported (Table 1), 21 of these observed in laboratory emerging from rotten fruits (Rafael *et al.*, 2000).
- b) In the Paschoa Forest, which corresponds to Very Humid Mountain Forest (above 3000 m), 44 species were reported, all except one (*D. paraguayensis*, a new record for Ecuador) new to science (Vela, 1999). Though 22 species out of the 43 have not been grouped yet, the other 21 species have been classified in six species groups (Vela, 1999): *tripunctata*, *mesophragmatica*, *flavopilosa*, *guarani*, *repleta* and *onychophora* (Table 2).

Table 1. *Drosophila* species and specimen numbers collected from 11 Ecuador provinces.

Species	Specimen numbers collected in each province										
	Guayas	El Oro	Manabí	Imbabura	Pichincha	Cotopaxi	Tungurahua	Chimborazo	Loja	Sucumbíos	Galápagos
<i>repleta</i> group											
<i>D. longicornis</i>	0	0	0	18	12247	0	8	208	0	0	0
<i>D. paranaensis</i>	91	4	0	0	0	0	0	0	1	0	0
<i>D. repleta</i>	0	0	0	0	1	0	4	0	0	0	23
<i>D. mercatorum</i>	0	0	0	0	6	0	3	0	0	0	0
<i>D. nigrohydel</i>	0	0	0	0	327	0	0	0	0	0	0
<i>D. neoohydel</i>	0	0	0	0	0	0	5	0	0	0	0
<i>D. nigricurta</i>	0	0	0	0	129	0	0	0	0	0	0
<i>D. hydei</i>	6	0	0	0	794	0	3	0	1	0	0
<i>D. aldrichi</i>	144	1045	8	0	13	0	0	0	0	0	0
<i>D. Inca</i>	0	0	0	0	573	0	0	6	0	0	0
<i>D. guayllabambae</i>	0	42	0	14	4706	0	3	34	11	0	0
<i>D. huancavilcae</i>	25	0	47	0	0	0	0	0	0	0	0
<i>D. pseudomercatorum</i>	0	0	45	0	0	0	0	0	0	0	0
<i>mesophragmatica</i> group											
<i>D. mesophragmatica</i>	0	0	0	0	0	28	8	0	68	0	0
<i>D. gaucha</i>	0	0	0	0	0	64	0	0	0	0	0
<i>D. pavanl</i>	0	0	0	0	0	5	0	0	0	0	0
<i>D. little species</i>	0	0	0	0	0	0	0	0	122	0	0
<i>cardini</i> group											
<i>D. cardini</i>	6	11	18	0	54	0	0	0	10	0	0
<i>D. polymorpha</i>	2	0	0	0	164	0	0	0	0	0	0
<i>D. cardinoides</i>	0	0	0	0	0	0	0	0	0	0	61
<i>immigrans</i> group											
<i>D. immigrans</i>	2	0	0	0	141	0	0	36	0	0	11
<i>melanogaster</i> group											
<i>D. melanogaster</i>	119	0	0	8	1357	0	0	105	46	20	88
<i>D. simulans</i>	46	41	227	10	3865	0	0	612	29	15	72
<i>D. malerkotllana</i>	331	884	2031	0	0	0	0	0	411	50	0
<i>D. ananassae</i>	7	19	22	0	0	0	0	0	113	0	6
<i>willistoni</i> group											
<i>D. willistoni willistoni</i>	0	0	0	0	0	0	0	0	0	38	50
<i>D. willistoni quechua</i>	28	141	4	0	81	0	0	0	56	0	0
<i>D. nebulosa</i>	107	44	32	0	0	0	0	0	0	0	43
<i>D. sucinea</i>	0	0	0	0	14	0	0	0	0	0	0
<i>D. xerophila</i> (1)	0	0	0	0	0	0	0	0	301	0	0
<i>D. bocainensis</i> (2)	0	0	0	0	4	0	0	0	0	0	0
<i>saltans</i> group											
<i>D. saltans</i>	51	147	0	0	0	0	0	0	368	0	0
<i>D. sturtevantl</i>	0	278	300	0	13	0	0	0	616	26	0
<i>D. emarginata</i>	4	0	16	0	0	0	0	0	13	0	0
<i>D. prosaltans</i>	0	0	0	0	0	0	0	0	34	0	0
<i>D. parasaltans</i>	0	0	0	0	2	0	0	0	0	0	0
<i>tripunctata</i> group											
<i>D. mesostigma</i>	0	0	0	0	2	0	0	0	0	0	0
<i>D. bandeirantorum</i> (2)	0	0	0	0	38	0	0	0	0	0	0
<i>guarani</i> group											
<i>D. guarani</i>	0	0	0	0	2	0	0	0	0	0	0
<i>D. griseollneata</i> (2)	0	0	0	0	6	0	0	0	0	0	0
<i>D. peruensis</i> (2)	0	0	0	0	4	0	0	0	0	0	0
<i>pallidipennis</i> group											
<i>D. pallidipennis</i> (2)	0	0	0	0	16	0	0	0	0	0	0
<i>flavopilosa</i> group											
unnamed species 4*	0	0	0	0	0	4	0	0	0	0	0
<i>Hirtodrosophila</i> subgenus											
<i>D. metzli</i>	0	0	0	0	0	0	0	0	0	0	27
<i>D. pictiventris</i>	0	0	0	0	0	0	0	0	0	0	78
<i>Scaptodrosophila</i> subgenus											
<i>D. latifasciaeformis</i>	346	78	12	0	0	0	0	0	16	0	3
<i>Dorsilopha</i> subgenus											
<i>D. busckii</i>	0	0	0	0	20	0	0	0	0	0	0

1 Cited in Carson *et al.*, 1983; 2 Cited in Morán *et al.*, 1999; *Cited in Wheeler *et al.*, 1962

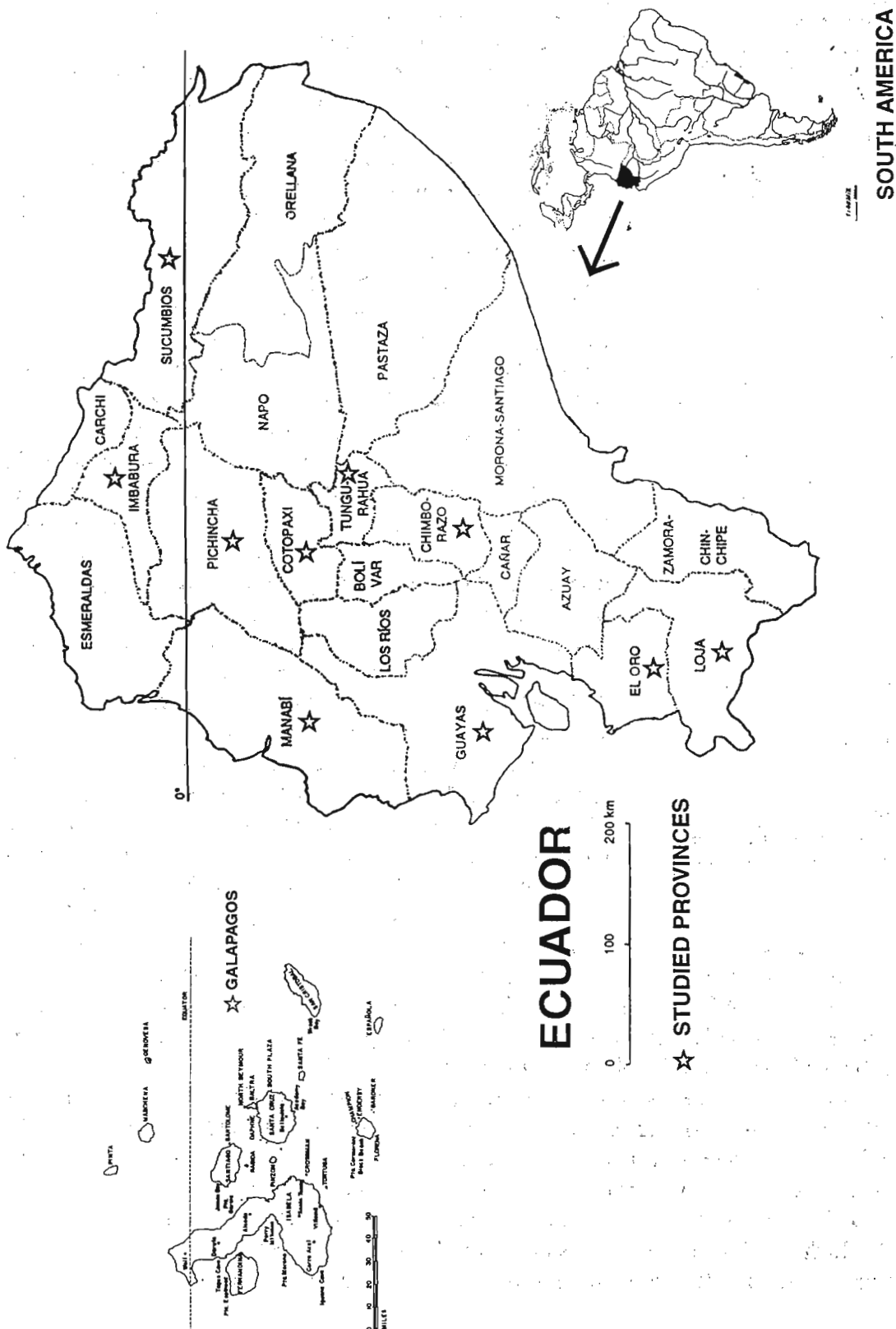


Figure. 1. The *Drosophila* genus has been studied in 11 of Ecuador's provinces, including Galapagos. Most of the sampled localities occur in the Andean provinces.

Table 2. *Drosophila* species collected from Pasochoa Protected Forest, Pichincha province

Species	Species Number
<i>tripunctata</i> group	
<i>D. paraguayensis</i> (3)	37
<i>D. paschoensis</i> n. sp. (3)	46
<i>D. machachensis</i> n. sp. (3)	3
<i>D. carlosvilelai</i> n. sp. (3)	28
<i>D. fontdevillai</i> n. sp. (3)	12
<i>D. laurarcosi</i> n. sp. (3)	2
<i>D. valenciai</i> n. sp. (3)	2
<i>D. pilaresi</i> n. sp. (3)	4
<i>D. tomasi</i> n. sp. (3)	23
<i>mesophragmatica</i> group	
<i>D. rafaelli</i> n. sp. (4)	8
<i>D. dorisvilelai</i> n. sp. (4)	1
<i>D. shyrii</i> n. sp. (4)	10
sp. 28 (4)	1
<i>flavopilosa</i> group (5)	
sp. 2	1
sp. 9	1
sp. 15	3
sp. 16	28
<i>guarani</i> group (5)	
sp. 25	2
sp. 33	4
sp. 39	8
<i>repleta</i> group (5)	
sp. 18	1
<i>onychophora</i> group (5)	
sp. 23	23
<i>Hirtodrosophila</i> subgenus (5)	
sp. 1	16
sp. 5	2
20 unclassified species (5)	147

3 Cited in Vela and Rafael, 2000 (in press); 4 Cited in Vela and Rafael, 2000 (in press); 5 Cited in Vela, 1999

Rafael (1992) reported 40 *Drosophila* species in 11 provinces of Ecuador and Morán *et al.* (1999) reports 5 new records of *Drosophila* species in the Guayllabamba Valley (Table 1).

In conclusion, nowadays 91 *Drosophila* species are known to occur in Ecuador. This shows, once again, the enormous biological diversity of this country.

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