

An annotated checklist of the land snail family Orthalicidae (Gastropoda, Pulmonata, Orthalicoidea) in Ecuador, with notes on the distribution of the mainland species

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A.S.H. Breure

National Museum of Natural History/Naturalis, Leiden

Introduction

This workdocument is a checklist of the taxa known to exist in Ecuador from the land snail family Bulimulidae (*sensu lato*) [= Superfamilia Orthalicoidea]. The list is based on the taxa mentioned in Breure (1979), on several collections - either personally checked or based on available databases - and on data taken from publications. All taxa are attributed to species following the works of Pilsbry and recent authors. Species are classified in (sub)genera following my previous work for the Bulimulinae and Zilch (1959-1960) for the Orthalicinae.. For the classification at (sub)familiar level I follow Bouchet & Rocroi (2005).

A critical review of this list will undoubtedly lead to synonymization of several taxa, thus this document can also be viewed as a longlist of the representatives of this family in the Ecuadorian malacofauna.



Ecuador has been sampled mainly during the 19th and 20th centuries. Old localities on the mainland were predominantly in the “Valley of the Volcans” and less often in the coastal area or in the eastern part of the country. Over the past 50 years collections were mainly made by K. Campell, R.W. McDiarmid, Fred G. Thompson and N.H. Williams.

The Galápagos Islands is a special case. Famous for their unique fauna which inspired Charles Darwin to his “Origin of species”, its land snails belong mainly to the Bulimulinae. There is a strong radiation which has led to many species which occupy a niche habitat on one or a few islands. Many of them are now on the IUCN Red List of endangered species (see Parent, 2003).

Fig. 1. Map of Ecuador.

Methods

For each species the original locality is given as stated by the author. As usual records from the 19th century often state the locality very imprecise ("Quito", "Andes of New Grenada", etc.). If a more precise interpretation could be given it is added between square brackets, together with the longitude and latitude coordinates derived from the GNS website¹. Whenever there are alternative spellings of a location, I have followed the standard as given on this website. Coordinates for longitude/latitude are conform those from the GNS website, even when they appeared slightly inaccurate in Google Earth. The distribution is given with data from collections or publications, arranged according to the provinces (bold in text) in alphabetical order.

All specific localities found have been listed in the table below, arranged alphabetically according to province. For each locality the altitude - derived from Google Earth - and coordinates are listed. In the last column those localities have been marked that have been sampled after 1950.

Table 1. List of localities mentioned in this paper, arranged according to provinces. The altitude has been taken from Google Earth, the longitude/latitude coordinates from the GNS-website. Localities sampled after 1950 have been marked in the last column.

Province	Locality	Altitude	GNS	post-1950
Azuay	Cuenca	2525	02° 53' 00" S 078° 59' 00" W	
Azuay	Gualeco	2400	02° 54' 00" S 078° 47' 00" W	
Azuay	Macas	2600	02° 54' 00" S 078° 56' 00" W	
Azuay	Machai	2700	02° 57' 00" S 079° 01' 00" W	
Azuay	Nabón	2700	03° 20' 00" S 079° 04' 00" W	
Azuay	Paute	2150	02° 46'44.76" S 78°45'27.75"W	
Azuay	Puyo	2850	02° 48' 00" S 078° 57' 00" W	
Canar	Azogues	2625	02° 44' 00" S 078° 50' 00" W	
Carchi	Chical	925	01° 02' 00" N 078° 14' 00" W	X
Carchi	Hacienda Paramba	710	00° 49' 00" N 078° 21' 00" W	
Carchi	Maldonado	1550	00° 54' 00" N 078° 06' 00" W	X
Carchi	road to El Angel, 35 km N Ibarra	2950	00° 32'29.68"N 77°58'18.01"W	X
Carchi	San Nicolas	2960	00° 49' 00" N 077° 47' 00" W	
Chimborazo	Cajabamba	3425	01° 42' 00" S 078° 45' 00" W	X
Chimborazo	Cerro Altar	4200	01° 39'31.42" S 78°26'15.01"W	
Chimborazo	Cerro Chanchalahua	3175	01° 35' 00" S 078° 44' 00" W	
Chimborazo	Chunchi	2525	02° 17' 00" S 078° 55' 00" W	
Chimborazo	Huigra	1500	02° 17' 00" S 078° 59' 00" W	
Chimborazo	Pallatanga	1700	01° 59' 26" S 078° 57' 33" W	
Chimborazo	Riobamba	2750	01° 40' 00" S 078° 38' 00" W	
Cotopaxi	between La Tacunga and Ambato	2650		
Cotopaxi	Cerro Cotopaxi	3500		
Cotopaxi	Sigchos	2750	00° 42' 00" S 078° 53' 00" W	
El Oro	Chacras	50	03° 33'11.18"S 80° 3'46.72"W	
El Oro	Machala	5	03° 16' 00" S 079° 58' 00" W	

¹ <http://gnswww.nga.mil/geonames/GNS/index.jsp>

Province	Locality	Altitude	GNS	post-1950
El Oro	Piñas	950	03° 40' 00" S 079° 39' 00" W	X
El Oro	Santa Rosa	5	03° 27' 00" S 079 58' 00" W	X
El Oro	Zaruma	1200	03°40'31.80"S 79°37'32.00"W	X
Esmeraldas	9 km SW Atacames	1	00° 51' 00" N 079° 50' 00" W	X
Esmeraldas	Camarones	25	00° 59' 00" N 079° 34' 00" W	X
Esmeraldas	San Lorenzo	1	01° 17' 18" N 078° 50' 13" W	
Guayas	Chongón	20	02° 14' 00" S 080° 04' 00" W	
Guayas	Colonche	25	02° 01' 00" S 080° 40' 00" W	
Guayas	Gomes Rendon	150	02° 24' 00" S 080° 22' 00" W	X
Guayas	Isla Puna	1	02° 55' 30" S 080° 06' 00" W	
Guayas	Manglaralto	25	01° 50' 00" S 080° 44' 00" W	X
Guayas	Monteverde	5	02° 03' 00" S 080° 44' 00" W	X
Guayas	Palmar	25	02° 02' 00" S 080° 44' 00" W	X
Guayas	San Juan	50	02° 29' 00" S 080° 20' 00" W	
Guayas	Santa Elena	10	02° 14' 00" S 080° 51' 00" W	X
Guayas	Zapotal	25	02° 20' 00" S 080° 33' 00" W	X
Imbabura	Cerro Imbabura	3800	00°16'14.97"N 78°10'40.30"W	
Imbabura	Ibarra	1850	00°25'48.99"N 78° 8'5.34"W	X
Loja	Macará	440	04° 23' 00" S 079° 57' 00" W	
Loja	Malacatos	1500	04° 14' 08" S 079° 14' 11" W	
Loja	San Lucas	2500	03° 45' 00" S 079° 15' 00" W	
Loja	Catamayo	1350	03° 59' 00" S 079° 21' 00" W	
Los Rios	35 mi E of Quevedo		01° 0'33.80" S 79°16'35.10"W	
Los Rios	Palenque	25	01°25'53.64" S 79°45'7.12"W	
Manabi	Ayampe	50	01° 40' 00" S 080° 49' 00" W	X
Manabi	Cascol	300	01° 40' 00" S 080° 28' 00" W	X
Manabi	Jaramijo	5	00° 57' 00" S 080° 38' 00" W	
Manabi	Jipijapa	300	01° 20' 00" S 080° 35' 00" W	X
Manabi	Machalilla	20	01° 29' 00" S 080° 46' 00" W	
Manabi	Manta	5	00° 57' 00" S 080° 44' 00" W	
Manabi	Pajan	115	01°35' 08' S 80°23'40.55"W	X
Manabi	Portoviejo	50	01° 03' 00" S 080° 27' 00" W	
Moreno-Santiago	59 km SSE Patuca	1450	03° 12'54" S 78° 7'45.92"W	X
Moreno-Santiago	Conchay	300	02° 46' 43" S 077° 48' 02" W	
Moreno-Santiago	Cusuimi	225	02° 43' 21" S 077° 40' 31" W	
Moreno-Santiago	Gualaquiza	1250	03° 24' 00" S 078° 33' 00" W	
Moreno-Santiago	Mirador	300	03° 02' 07" S 077° 59' 33" W	
Moreno-Santiago	Miasal	250	02° 37' 23" S 077° 47' 41" W	X
Moreno-Santiago	Rio Macuma	225	02°45'17.37"S 77°26'38.58"W	X
Napo	Archidona	580	00° 55' 00" S 077° 48' 00" W	
Napo	Baeza	1950	00° 27' 00" S 077° 53' 00" W	
Napo	Cerro Antisana	4300	00° 30' 00" S 078° 08' 00" W	
Napo	Llanganatis	2700	01° 13' 00" S 078° 15' 00" W	
Napo	Nachiyacu	750	00° 50' 00" S 077° 47' 00" W	
Napo	NE Rio Salado	1500	00° 8'55.08" S 77°31'10.71"W	X
Napo	Rio Jatunyacu (= R. Napo)	450	01° 04' 00" S 077° 48' 00" W	
Napo	Sarayacu	1500	00° 42' 00" S 077° 51' 00" W	
Napo	Tena	500	00° 59' 00" S 077° 49' 00" W	

Province	Locality	Altitude	GNS	post-1950
Napo	Rio Quijos	2000	00° 20' 00" S 077 45'00" W	
Orrelana	Ávila	750	00° 38' 00" S 077° 25' 46" W	
Orrelana	Loreto	400	00° 40' 00" S 077 19'00" W	
Orrelana	San Jose de Suno	950	00° 32' 00" S 077° 25' 00" W	
Pastaza	Abitagua	1475	01° 23' 00" S 078° 05' 00" W	
Pastaza	Canelos	450	01° 35' 00" S 077° 45' 00" W	
Pastaza	Chichirota	260	02° 23' 00" S 076° 39' 00" W	
Pastaza	Mera	1100	01° 28' 00" S 078° 08' 00" W	
Pastaza	Montalvo	300	02° 04' 00" S 076° 58' 00" W	X
Pastaza	Porvenir	200	01° 37' 00" S 075° 44' 00" W	
Pastaza	Puyo	1000	01° 28'56.94"S 77°59'10.44"W	
Pichincha	1 km W Mitad del Mundo (Nono)	2615	00° 0'7.43" S 78°27'54.07"W	X
Pichincha	59 km W Machachi	1250	00° 20' 00" S 078° 51' 00" W	
Pichincha	9.5 km ESE Chiriboga	3250	00°16'13.60" S 78°38'58.97"W	X
Pichincha	Cayambe	2900	00° 03' 00" N 078° 08' 00" W	X
Pichincha	Cerro Pichincha		00° 10' 00" S 078° 32' 00" W	
Pichincha	Chillogallo	3375	00° 16' 00" S 078° 34' 00" W	
Pichincha	Chimba	3375	00° 08' 00" N 078° 03' 00" W	X
Pichincha	Chiquilpe	3000	00° 02' 00" S 078 36' 00" W	
Pichincha	Guailabamba	2450	00° 04' 00" S 078° 21' 00" W	
Pichincha	Gualea	1400	00° 07' 00" N 078° 44' 00" W	
Pichincha	Machachi	2900	00° 30' 00" S 078° 34' 00" W	X
Pichincha	Milpe	900	00° 00' 00" S 078° 57' 00" W	
Pichincha	Nanegal	1233	00° 07' 00" N 078 40' 00" W	X
Pichincha	near Mindo	1025	00° 02' 00" S 078° 48' 00" W	X
Pichincha	Pachijal	600	00° 12' 00" N 078° 58' 00" W	
Pichincha	Pacto	1100	00° 09' 00" N 078° 45' 00" W	
Pichincha	Pifo	2650	00° 14' 00" S 078° 20' 00" W	X
Pichincha	Pintag	2750	00° 22' 00" S 078 23' 00" W	
Pichincha	Pomasqui	2450	00° 03' 00" S 078° 27' 00" W	X
Pichincha	Rio Faisanes	1970	00°15'1.76" S 78°48'7.49"W	X
Pichincha	Santo Domingo de los Colorados	600	00° 15' 00" S 079° 09' 00" W	X
Pichincha	Tandayapa	1650	00° 01' 00" S 078° 46' 00" W	
Pichincha	Tumbaco	2350	00° 13' 00" S 078° 24' 00" W	
Pichincha	valley of Rio Pilaton	1150	00°19'0.00" S 78°57' 00"W	
Pichincha	valley of Río Tandapi	1600	00° 24' 25" S 078° 47' 54" W	
Tungurahua	Ambato	2800	01° 15' 00" S 078° 37' 00" W	
Tungurahua	Banos	2000	01° 24' 00" S 078° 25' 00" W	
Tungurahua	Chaupi	3390	01° 05' 00" S 078° 31' 00" W	
Tungurahua	Pilaro	2850	01° 10' 00" S 078° 32' 00" W	
Tungurahua	Río Agoyán	2300	01° 23' 00" S 078° 19' 00" W	
Tungurahua	San Antonio	3625	01° 09' 00" S 078° 28' 00" W	X
Tungurahua	Topo	1350	01° 25' 00" S 078° 10' 00" W	
Zamora Chinchipe	Valladolid	1600	04° 33' 00" S 079° 08' 00" W	X

The location of type material is added when available, derived from different sources, and references have been added when types has been figured by modern authors. Where da-

ta from museum collections are available they have been mentioned² and an asterisk (*) has been added if the material has been collected after 1950. Where databases have been referred to the identifications have been followed, unless it was clearly a misidentification. Doubtful identifications are mentioned under 'remarks'.

The following abbreviations have been used to indicate the museum collections: ANSP - Academy of Natural Sciences, Philadelphia; BMNH - British Museum (Natural History); CAS - California Academy of Sciences, Dept. Geology, San Francisco; EPN - Escuela Politécnica Nacional, Quito; FMNH - Field Museum of natural History, Chicago; FLMNH - Florida Museum of Natural History, Gainesville; IML - Instituto Miguel Lillo, Tucumán; IRSN - Institut Royal des Sciences Naturelles, Brussels; MCZ - Museum of Comparative Zoology, Cambridge (Mass.); MNHN - Muséum National d'Histoire Naturelle, Paris; NRS - Naturhistoriska Riksmuseet, Stockholm; RMNH - Nationaal Museum van Natuurlijke Historie / Naturalis, Leiden; SMF - Natur-Museum Senckenberg, Frankfurt am Main; USNM - National Museum of natural History, Washington; UVZ - Universidad del Valle, Zoología, Cali, Colombia; ZMB - Zoologisches Museum der Humboldt-Universität, Berlin; ZSM - Zoologische Staatssammlung München, Munich.

List of taxa

The list gives the current classification of the taxa that are mentioned in all known literature on Ecuadorian Orthalicoids. Subspecies are not numbered separately but are listed under the nominal species.

SUBFAMILIA BULIMULINAE³

Genus *Plekocheilus* Guilding, 1828

Subgenus *Plekocheilus* (*Plekocheilus*) Guilding, 1828

Type species: *Caprella undulata* Guilding. Distribution: West Indies (St. Vincent, Barbados), Venezuela, Ecuador, Colombia.

***1. Plekocheilus* (*Plekocheilus*) *cardinalis* (Pfeiffer, 1853)**

Type locality: "Quito". Lectotype ZMB 112721 (figured by Köhler, 2007).

Distribution: ? **Napo** (Pilsbry, 1899: 77); **Pastaza**, Mera (FLMNH 109841, FMNH 86698, 125478); **Pichincha**, near Mindo, circa 1000m (Weyrauch, 1967: 460), Nanegal (Pilsbry, 1899: 77), valley of Río Pilatón (Pilsbry, 1899:77). New Grenada (RMNH, ex Fulton).

Subgenus *Plekocheilus* (*Eurytus*) Albers, 1850

Type species: *Helix pentadina* d'Orbigny. Distribution: West Indies (St. Lucia, St. Vincent), Venezuela, Brazil, Bolivia, Peru, Ecuador, Colombia.

² With the exception of species from the Galápagos. See also note on *Naesiotus*.

³ For a key to genera and a bibliography, see Breure, 1979.

2. *Plekocheilus (Eurytus) aristaceus* (Crosse, 1869)

Type locality: "Quito, reipublicae Aequatoris"

Distribution: **Pichincha**, near Mindo (FMNH 216871)*.

Remarks: This is the first precise locality for this species.

3. *Plekocheilus (Eurytus) aureonitens* (Miller, 1878)

Type locality: Valli Pilatonensi, 1000m.

Distribution: **Pichincha**, Río Pilatón.

4. *Plekocheilus (Eurytus) corydon* (Crosse, 1869)

Type locality: "Quito, reipublica Aequatoris"

Distribution: ? [no specific locality known].

5. *Plekocheilus (Eurytus) doliarius* (Da Costa, 1898)

Type locality: Paramba. Lectotype BMNH 1907.11.21.110 (see also Neubert & Janssen, 2004: 208, who figure a paralectotype (SMF 9513) in pl. 1 fig. 1).

Distribution: **Carchi**, Hacienda Paramba.

Remarks: As this species is also referred to Colombia, the locality is most likely in Carchi, which is also the only province where this name is attributed to in the GNS-gazetteer.

6. *Plekocheilus (Eurytus) eros* (Angas, 1878)

Type locality: Ecuador. Holotype BMNH 1879.1.21.2.

Distribution: ? [no specific locality known].

7. *Plekocheilus (Eurytus) floccosus* (Spix, 1827)

Type locality: Brazil. Holotype ZSM [Simone, 2006: 149]

Distribution: **Morona-Santiago**, Rio Macuma, ca. 10 km from Rio Morona (FMNH 187606)*; **Napo**, Río Napo, 500m (SMF 156306; see Weyrauch, 1967: 462); **Tungurahua**, Topo (FMNH 86667). Ecuador (RMNH).

8. *Plekocheilus (Eurytus) jacksoni* Pilsbry, 1939

Type locality: Napo, between Baeza and Archidona, Nachiyacu. Holotype ANSP 170694.

Distribution: **Napo**, Nachiyacu; **Pastaza**, Chichirota (FMNH 78742).

9. *Plekocheilus (Eurytus) jimenezi* (Hidalgo, 1872)

Type locality: San José (according to Weyrauch, 1967: 463 this is located 50 km E of Baeza; it is most probably San José de Suno [00° 32' 00" S 077° 25' 00" W], also known as

San José Viejo). *Plekocheilus (Eurytus) gibbonius* (Hidalgo, 1872), described from the same locality, is a synonym according to Pilsbry (1895: 87).

Distribution: **Orrelana**, San José de Suno. "Oriente Prov. (FMNH 72336).

Plekocheilus (Eurytus) jimenezi oligostylus Pilsbry, 1939

Type locality: [Ecuador, between Baeza and Archidona, Nachiyacu, see Clench & Turner, 1962: 109]. Holotype: ANSP 170696.

Distribution: **Napo**, Nachiyacu; Sarayacu (see Weyrauch, 1967: 463); valley of Río Quijos (FMNH 216872); **Pastaza**, Puyo (FLMNH 109855); Mera (FLMNH 184702).

10. *Plekocheilus (Eurytus) lynciculus* (Deville & Hupé, 1850)

Type locality: Peru, Loreto, Sarayacu.

Distribution: **Napo**, Nachiyacu (ANSP 170694: Holotype of *Plekocheilus (Eurytus) jacksoni* Pilsbry, 1939; according to Weyrauch, 1967: 463); **Orellana**, Loreto, 550m [SMF 156302; see Weyrauch, 1967: 463].

11. *Plekocheilus (Eurytus) mcgintyi* 'Pilsbry' H.B. Baker, 1963

Type locality: Rio Napo, northeastern boundary of Ecuador. Holotype ANSP 227455.

Distribution: **Napo**, Río Jatunyacu [= Río Napo].

12. *Plekocheilus (Eurytus) nocturnus* Pilsbry, 1939

Type locality: Ecuador, Puyo. Holotype ANSP 170695.

Distribution: **Pastaza**, Puyo (FMNH 86644).

13. *Plekocheilus (Eurytus) oligostylus* Pilsbry, 1839

Type locality: [Ecuador, between Baeza and Archidona, Nachiyacu, see Clench & Turner, 1962: 109]. Holotype: ANSP 170696.

Distribution: **Napo**, Nachiyacu; **Pastaza**, Puyo (FMNH 42168, 126934).

14. *Plekocheilus (Eurytus) pentadinus* (d'Orbigny, 1835)

Type locality: republica Boliviana, Yuracares. Holotype MNHN.

Distribution: **Pastaza**, Cusuimi (FMNH 170620).

15. *Plekocheilus (Eurytus) phoebus* (Pfeiffer, 1863)

Type locality: "Ecuador". Lectotype BMNH 1975143

Distribution: ? [no specific locality known].

16. *Plekocheilus (Eurytus) pulicarius* (Reeve, 1848)

Type locality: "New Grenada". Lectotype BMNH 1975281.

Distribution: ? [no locality given] (FMNH 202082).

17. *Plekocheilus (Eurytus) roseolabrum* (E.A. Smith, 1877)

Type locality: Malacatos. Lectotype BMNH 1975135.

Distribution: **Loja**, Malacatos.

18. *Plekocheilus (Eurytus) taylorianus* (Reeve, 1849)

Type locality: environs of Quito. Lectotype BMNH 1975142. Pilsbry (1895) placed *Eurytus taylorioides* Miller, 1878 in the synonymy of this species; its type locality is: circa Quito, Chimborazo.

Distribution: **Pichincha**, Milpe (FLMNH 166225); Mindo, near Rio Blanco (FLMNH 166226); Nanegal (EPN); Pacto (EPN); Pintag (EPN); Gualea (FMNH 61138, 31173); Pastaza, Mera (FMNH 202059). Ecuador (RMNH ex Frühstorfer, 1905; ex Sowerby Fulton, 1914) (FMNH 100722).

Remarks: Köhler (2007) gives a figure of a paralectotype (ZMB 112722).

19. *Plekocheilus (Eurytus) tricolor* (Pfeiffer, 1853)

Type locality: New Grenada, Gualea. A junior synonym is - according to Pilsbry, 1901: 131 - *Bulimus semipictus* Hidalgo, 1869, for which the type locality is Baeza.

Distribution: **Cotopaxi**, Sigchos (FMNH 70912); **Imbabura**, Ibarra (FMNH 70911); **Napo**, Baeza; **Orellana**, Ávila (FMNH 31171); **Pichincha**, Gualea. "Ecuador" (RMNH, ex Sowerby & Fulton, 1914).

Subgenus ***Aeropictus*** Weyrauch, 1967

Type species: *Bulimus veranyi* Pfeiffer. Distribution: Venezuela, Brazil, Ecuador, Colombia.

20. *Plekocheilus (Aeropictus) tenuissimus* (Weyrauch, 1967)

Type locality: 20 km al oeste de Quito, Tandayapa, 2500m. Holotype IML 3364.

Distribution: **Pichincha**, Tandayapa*; near Nanegal (RMNH)*.

Plekocheilus sp.

Distribution: **El Oro**, 13.1 km WNW Pinas (FLMNH 36133)*; **Napo**, Archidona (FMNH 31133), labelled as *P. blainvillleanus loveni* (Pfeiffer), which is a Venezuelan species; **Pichincha**, 15 km NE Las Palmas, Rio Faisanes (FLMNH 22917)*; 14.3 km NE La Palma, Rio Faisanes (FLMNH 26611)*.

Genus *Thaumastus* Albers, 1860

Subgenus *Thaumastus* (***Kara***) Strebel, 1910

Type species: *Bulimus thompsonii* Pfeiffer. Distribution: Venezuela, Brazil, Bolivia, Peru, Ecuador.

21. *Thaumastus* (*Kara*) *thompsonii* (Pfeiffer, 1845)

Type locality: "Quito". Lectotype BMNH 1975464. Junior synonyms of this species are *Orphnus thompsoni nigricans* Cousin, 1887 (type locality: Cuenca), *Orphnus thompsoni oliveacea* Cousin, 1887 (type locality: Cuenca) and *Orphnus thompsoni zebra* Cousin, 1887 (type locality: near Azogues).

Distribution: **Azuay**, Cuenca (EPN; ANSP 168228, FMNH 78736); **Cañar**, near Azogues. Ecuador (RMNH ex Fulton/3; ex Sowerby & Fulton/3). "Quito" (FMNH 103304).

22. *Thaumastus* (*Kara*) *thompsonoides* Oberwimmer, 1931

Type locality: Ecuador, Loja. Holotype SMF 5144.

Distribution: **Loja**, ? [no specific localities known].

Subgenus *Thaumastus* (***Scholvienia***) Strebel, 1910

Type species: *Bulimus bitaeniatus* Nyst. Distribution: Peru, Ecuador.

23. *Thaumastus* (*Scholvienia*) *jaspideus* (Morelet, 1863)

Type locality: Peru, Huancavelica.

Distribution: **Tungurahua**, Baños (FLMNH 109807).

Remarks: This is the first record - if correctly identified - outside the known distribution in Peru.

Subgenus *Thaumastus* (***Thaumastiella***) Weyrauch, 1956

Type species: *Bulimulus sarcochrous* Pilsbry. Distribution: Peru, Ecuador.

24. *Thaumastus* (*Thaumastiella*) *sarcochrous* (Pilsbry, 1897)

Type locality: Peru. Holotype ANSP 4705.

Distribution: **Pichincha**, 15 mi N of Quito (FMNH 106151, 106152).

Remarks: This subgenus is known from northern Peru (Depts. La Libertad, Cajamarca) and if the specimens were correctly identified, this is an extension of the range into Ecuador.

Subgenus *Thaumastus* (*Thaumastus*) Albers, 1860

Type species: *Bulimus hartwegi* Pfeiffer. Distribution: Brazil, Bolivia, Peru, Ecuador.

25. *Thaumastus* (*Thaumastus*) *brunneus* Strebel, 1910

Type locality: Ecuador.

Distribution: ? [no specific localities known].

26. *Thaumastus* (*Thaumastus*) *buckleyi* (Higgins, 1872)

Type locality: San Lucas. Syntypes BMNH.

Distribution: **Loja**, San Lucas.

27. *Thaumastus* (*Thaumastus*) *flori* (Joussemae, 1897)

Type locality: Machala.

Distribution: **El Oro**, Machala; **Pichincha**, Nanegal (see Weyrauch, 1967: 472).

28. *Thaumastus* (*Thaumastus*) *hartwegi* (Pfeiffer, 1846)

Type locality: “respublica [sic] Aequatoris, ubi ad “El Catamajja” prope Loxa”. Syntypes BMNH.

Distribution: **Loja**, Catamayo (BMNH); **Pichincha**, probably vicinity of Nanegal (ANSP 195217). Ecuador (RMNH ex Sowerby & Fulton).

29. *Thaumastus* (*Thaumastus*) *indentatus* (Da Costa, 1901)

Type locality: “Ecuador”. Holotype BMNH 1907.11.21.115.

Distribution: ? [no specific locality known].

30. *Thaumastus* (*Thaumastus*) *integer* (Pfeiffer, 1855)

Type locality: “Quito”. Lectotype BMNH 1975244.

Distribution: ? [no specific locality known].

31. *Thaumastus* (*Thaumastus*) *loxostomus* (Pfeiffer, 1853)

Type locality: “Andibus Nova Granada” [Judging by the name this taxon originates from the province of Loja].

Distribution: ?**Loja** [no specific locality known].

32. *Thaumastus* (*Thaumastus*) *orcesi* Weyrauch, 1967

Type locality: Ecuador, cuenca del río Esmeraldas, 35 km al noroeste de Quito, región de Nanegal, 1500m. Holotype IML 3165.

Distribution: **Pichincha**, Nanegal.

***Thaumastus* sp.**

Distribution: **Zamora-Chinchipe**, road to Valladolid (FLMNH 157166)*.

Genus *Bostryx* Troschel, 1847

Type species: *Bulimus (Bostryx) solutus* Troschel. Distribution: ?Venezuela, Argentina, Bolivia, Chile, Peru, Ecuador.

33. *Bostryx bilineatus* (Sowerby, 1833)

Type locality: "Sanctam Elenam et in Columbia Occidentali" [Although there are more places with this name, I suppose that here is meant Santa Elena in Prov. Guayas].

Distribution: **Guayas**, 17 km WNW of Progreso [= Gómez Rendón] (FLMNH 139140)*, 11 km W of Progreso (FLMNH 139079)*, 1 km ENE of Progreso (FLMNH 139047)*, 5 km NNE of Progreso (FLMNH 139049)*, 4 km N of Palmar (FLMNH 139078)*, 5 km N of Palmar (FLMNH 139056)*, 4 km N of Monteverde (FLMNH 139077)*, 3 km E of Zapotal (FLMNH 139106)*, 9 km S of Manglaralto (FLMNH 139114)*; Santa Elena (RMNH ex Cumming); 7 mi NE Santa Elena (FMNH 106230)*; 20 mi NE Santa Elena (FMNH 106153)*; **Manabí**, Manta (FMNH 125507, 125216); 11 km WNW of Jipijapa (FLMNH 139038)*, 1 km S of Ayampe (FLMNH 139048)*.

Remarks: There are according to the GNS two places named Progreso in Guayas province [01° 46' 00" S 079° 45' 00" W and 01° 53' 00" S 079° 52' 00" W respectively]. Given the record for Zapotal, it is most probably that a place named Gómez Rendón was meant [02° 24' 00" S 080° 22' 00" W] for which the GNS lists as a variant name Progreso.

?*Bostryx ceroplastus* (Pilsbry, 1896)

Type locality: Peru, Río Marañón, Balsas. Lectotype ANSP 25468.

Distribution: **Tungurahua**, 20 mi SE Ambato (FMNH 106156).

Remarks: This is a species from the eastern slopes of the Andes in northern Peru and its disjunct distribution - both geographically and in altitude - makes a confirmation of this record necessary.

34. *Bostryx juana* (Cousin, 1887)

Type locality: "Gualacco, province de Cuenca". Lectotype MNHN.

Distribution: **Azuay**, Gualeco.

Genus *Bulimulus* Leach, 1814

Type species: *Helix exilis* Gmelin. Distribution: West Indies, Venezuela, Guyana, Surinam, French Guiana, Brazil, Paraguay, Uruguay, Argentina, Bolivia, Peru, Ecuador, Colombia, Panama, Costa Rica, Nicaragua, Guatemala, Belize, Mexico,

35. *Bulimulus fontainii* (d'Orbigny, 1837)

Type locality: "aux environs de Guayaquil".

Distribution: **Guayas**, near Guayaquil (FMNH 31339).

Remarks: This is the only species of *Bulimulus* s.str. and is well outside the range of this genus. Once revised this taxon may prove to be a synonym, possibly of *Drymaeus cactivorus* (Broderip).

Genus *Naesiotus* Albers, 1850

Type species: *Bulimus nux* Broderip. Distribution: West Indies, Venezuela, Brazil, Paraguay, Uruguay, Argentina, Bolivia, Peru, Ecuador, Colombia.

Although some authors have listed the species of *Naesiotus* from the Galápagos as *Bulimulus* (*Naesiotus*), I have chosen to follow the classification as given in my 1979 revision of the subfamily.

The species from these islands need a thorough revision and currently the distribution is given following Parent, 2003.

There are a number of species described by Coppo (1985), but not according to the ICZN-rules. These are considered to be manuscript names and have not been listed here.

36. *Naesiotus achatinellus* (Forbes, 1850)

Type locality: Chatham Island. Lectotype BMNH 1855.4.5.25.

Distribution: **Galápagos**, Isla San Cristóbal; Isla Española⁴.

37. *Naesiotus acutus* (Reibisch, 1892)

Type locality: Chatham Island. Syntypes ZMB 47964.

Distribution: **Galápagos**, Isla San Cristóbal.

38. *Naesiotus adelphus* (Dall, 1917)

Type locality: Indefatigable Island. Holotype CAS.

Distribution: **Galápagos**, Isla Santa Cruz.

⁴ Most species of the Galápagos are highly endangered and several are considered extinct. See the actual list on <http://www.iucnredlist.org> (they are all listed under *Bulimulus*).

39. *Naesiotus akamatus* (Dall, 1917)

Type locality: Indefatigable Island. Holotype CAS.

Distribution: **Galápagos**, Isla Santa Cruz.

40. *Naesiotus albemarlensis* (Dall, 1917)

Type locality: Galápagos, near Villamil, 2300-3300 feet. Holotype CAS.

Distribution: **Galápagos**, Isla Isabela, near Puerto Villamil [00° 56' 00" S 091° 01' 00" W].

41. *Naesiotus alethorhytidus* (Dall, 1917)

Type locality: Indefatigable Island, 350-400 feet. Holotype CAS.

Distribution: **Galápagos**, Isla Santa Cruz.

42. *Naesiotus amastroides* (Ancey, 1887)

Type locality: "l'Archipel des Galapagos". Dall described in 1893 a variety, *Bulimulus (Naesiotus) amastroides anceyi*, from "Chatham Island, 1600 feet".

Distribution: **Galápagos**, Isla San Cristobal.

43. *Naesiotus approximatus* (Dall, 1900)

Type locality: Galápagos, Hood Island.

Distribution: **Galápagos**, Isla Española.

44. *Naesiotus bauri* (Dall, 1893)

Type locality: Galápagos, SW end of Chatham Island.

Distribution: **Galápagos**, Isla San Cristobal.

45. *Naesiotus blombergi* (Odhner, 1951)

Type locality: Galápagos, Santa Cruz Island, 200-300m. Holotype NRS.

Distribution: **Galápagos**, Isla Santa Cruz.

46. *Naesiotus calvus* (Sowerby, 1833)

Type locality: Galapagos, James I[sland]. Dall & Ochsner (1928) described the variety *cayonis* from Charles Island, 750 feet. Holotype CAS 1686.

Distribution: **Galápagos**, Isla San Salvador; Isla Floreana.

47. *Naesiotus canaliferus* (Reibisch, 1892)

Type locality: [Galápagos,] Chatham Island. Syntypes ZMB 47948.

Distribution: **Galápagos**, Isla San Cristobal.

48. *Naesiotus cavagnaroi* A.G. Smith 1972

Type locality: Galápagos, Isla Santa Cruz, 7 km NE Santa Rosa. Holotype CAS 13738.

Distribution: **Galápagos**, Isla Santa Cruz.

49. *Naesiotus chemnitzoides* (Forbes, 1850)

Type locality: Galápagos, Chatham Island.

Distribution: **Galápagos**, Isla San Cristobal.

50. *Naesiotus cinerarius* (Dall, 1917)

New name for *Bulimulus cinerarius* for *Bulimulus (Naesiotus) cinereus* Reibisch, 1892 not *Bulimus cinereus* Reeve, 1848. Type locality: James Island.

Distribution: **Galápagos**, Isla San Salvador.

51. *Naesiotus cucullinus* (Dall, 1917)

Type locality: Galápagos, Hood Island, 200-600 feet. Syntypes CAS.

Distribution: **Galápagos**, Isla Española.

52. *Naesiotus curtus* (Reibisch, 1892)

Type locality: Chatham Island.

Distribution: **Galápagos**, Isla San Cristobal.

53. *Naesiotus cymatias* (Dall, 1917)

Type locality: Galápagos, Indefatigable Island, 400-650 feet. Syntypes CAS.

Distribution: **Galápagos**, Isla Santa Cruz.

54. *Naesiotus darwini* (Pfeiffer, 1846)

Type locality: Galapagos Islands.

Distribution: **Galápagos**, Isla Santiago. According to Parent (2003) five subpopulations are known on the island and total range area is likely to be less than 2,000 km². The species is found throughout the humid zone on Santiago Island.

55. *Naesiotus deroyi* A.G. Smith, 1972

Type locality: Galápagos, Isla Santa Cruz, on the NW side, 264m. Holotype CAS 13730.

Distribution: **Galápagos**, Isla Santa Cruz.

56. *Naesiotus duncanus* (Dall, 1893)

Type locality: Galapagos Island, Duncan Island.

Distribution: **Galápagos**, Isla Pinzón.

57. *Naesiotus elaeodes* (Dall, 1917)

Type locality: Galapagos, Albemarle Island, near Banks Bay, 1500-2300 feet. Syntypes CAS.

Distribution: **Galápagos**, Isla Isabela.

58. *Naesiotus eos* Odhner, 1951

Type locality: Galapagos, Santa Cruz Island. Holotype NRS.

Distribution: **Galápagos**, Isla Santa Cruz.

59. *Naesiotus eschariferus* (Sowerby, 1833)

Type locality: Galapagos.

Distribution: **Galápagos**, Isla San Cristóbal. The species is known only from one location with a range size of approximately 3 km². The range was probably greater sometime in the past as suggested by the numerous empty shells found on that island (Parent, 2003).

60. *Naesiotus florschuetzi* Breure, 1977

Type locality: Ecuador, Prov. El Oro, 31 miles N Santa Rosa. Holotype FLMNH 22772.

Distribution: **El Oro**, 31 miles N Santa Rosa (FLMNH 22772, 22773)*; **Guayas**, 4 km N of Palmar (FLMNH 139089)*.

61. *Naesiotus galapaganus* (Pfeiffer, 1855)

Type locality: Galapagos Islands. Lectotype BMNH 1975146.

Distribution: **Galápagos**, Isla Floreana (see Parent, 2003).

62. *Naesiotus gilderoyi* (Van Mol, 1972)

Type locality: Galápagos, Santa Cruz, à proximité du Cerro Coralon [near Cerro Coralon]. Holotype IRSN.

Distribution: **Galápagos**, Isla Santa Cruz. Anonymous (2006) mentions that this species is restricted to one high valley on the island.

63. *Naesiotus habeli* (Dall, 1892)

Type locality: Galapagos.

Distribution: **Galápagos**, Isla San Cristóbal (see Parent, 2003).

64. *Naesiotus hemaerodes* (Dall, 1917)

Type locality: Galapagos, Albemarle Island, Cowley Mountains, 2100-2300 feet. Syntypes CAS.

Distribution: **Galápagos**, Isla Isabela; Isla Fernandina (see Parent, 2003).

65. *Naesiotus hirsutus* Vagvolgyi, 1977

Type locality: Ecuador, Archipiélago de Colón [Galápagos], Santa Cruz Island, on southern slope, 2.5 miles N Puerto Ayora, 400-450 feet. Holotype USNM 757715.

Distribution: **Galápagos**, Isla Santa Cruz. It is known from only one population with a range of less than 2 km². The range was probably greater in the past as suggested by empty shells found on the ground. The total area of suitable habitat available for this species is likely to be less than 100 km² (Parent, 2003).

66. *Naesiotus hoodensis* (Dall, 1900)

Type locality: Galapagos, Hood Island.

Distribution: **Galápagos**, Isla Española.

67. *Naesiotus indefatigabilis* (Dall, 1900)

Type locality: Galapagos, James and Indefatigable Islands.

Distribution: **Galápagos**, Isla San Salvador. According to Parent (2003) is this species restricted to one small population of Isla Santiago [= San Salvador].

68. *Naesiotus jacobi* (Sowerby, 1833)

Type locality: Galapagos, James Island. A probable syntype (ZMB 10283) is figured by Köhler, 2007.

Distribution: **Galápagos**, Isla San Salvador. According to Parent (2003) is this species restricted to two subpopulations, with a range less than 10 km², on Isla Santiago [= San Salvador].

69. *Naesiotus jervisensis* (Dall & Ochsner, 1917)

Type locality: Galapagos, Jervis Island, 900-1000 feet. Syntypes CAS.

Distribution: **Galápagos**, Isla Rábida.

70. *Naesiotus kublerensis* Chambers, 1986

Type locality: Santa Cruz, Island, Cueva de Kubler. Holotype USNM 842298.

Distribution: **Galápagos**, Isla Santa Cruz.

71. *Naesiotus lycodus* (Dall, 1917)

Type locality: Indefatigable Island, 450-550 feet. Syntypes CAS.

Distribution: **Galápagos**, Isla Santa Cruz.

72. *Naesiotus nesioticus* (Dall, 1896)

Type locality: James Island.

Distribution: **Galápagos**, Isla San Salvador. Parent (2003) reports six subpopulations on the island of which the population size fluctuates widely from year to year.

Remarks: Dall (1920: 121) emended the name to *naesioticus*.

73. *Naesiotus nucula* (Pfeiffer, 1854)

Type locality: “insullis Gallapagos”.

Distribution: **Galápagos**, Isla San Cristobal; Isla Floreana (Parent, 2003).

74. *Naesiotus nux* (Broderip, 1832)

Type locality: Galapagos, Charles Island. Lectotype BMNH 1975172. Junior synonyms for which type material is known are: *Bulimus incrassatus* Pfeiffer, 1853 (Lectotype BMNH 1975157), *Bulimus nuciformis* Petit, 1853 (Holotype MNHN) and *Bulimus verrucosus* Pfeiffer, 1855 (Lectotype BMNH 1975168). Dall & Ochsner described two subspecies for the populations from Isla San Cristóbal: *Bulimulus (Naesiotus) nux basiplicatus* (Syntypes CAS) and *Bulimulus (Naesiotus) nux perchloris* (Syntypes CAS).

Distribution: **Galápagos**, Isla San Cristóbal; Isla Floreana. According to Parent (2003) there are four subpopulations known, with a total area less than 20 km².

75. *Naesiotus ochseneri* (Dall, 1893)

Type locality: Indefatigable Island, 200-650 feet. Syntypes CAS.

Distribution: **Galápagos**, Isla Santa Cruz. Only one population known, with a range of less than 10 km² (Parent, 2003).

76. *Naesiotus olla* (Dall, 1893)

New name for *Bulimus jacobi* Reeve, 1848 not *Bulinus jacobi* Sowerby, 1833. Type locality: James Island.

Distribution: **Galápagos**, Isla San Salvador. It is recorded from two subpopulations, each of less than 200 individuals, with a total area of occupancy probably less than 5 km² (Parent, 2003).

77. *Naesiotus pallidus* (Reibisch, 1892)

Type locality: Albemarle Island. Lectotype ZMB 47951a (Köhler, 2007, who also gives a figure).

Distribution: **Galápagos**, Isla Isabela; Isla Pinta (Parent, 2003).

78. *Naesiotus perrus* (Dall, 1917)

Type locality: Narborough Island, rim of the crater, 200-450 feet. Syntypes CAS.

Distribution: **Galápagos**, Isla Fernandina. It is known from only one population at the summit of the island (Parent, 2003).

79. *Naesiotus perspectivus* (Pfeiffer, 1846)

Type locality: Locality unknown. Lectotype BMNH 1975166.

Distribution: **Galápagos**, Isla San Cristóbal; Isla Floreana.

80. *Naesiotus pinzonensis* Vagvolgyi, 1977

Type locality: Archipiélago de Colón [Galápagos], Pinzón Island, northern and western cliffs of main peak, 1400-1500 feet. Holotype USNM 757718.

Distribution: **Galápagos**, Isla Pinzón.

81. *Naesiotus pinzonopsis* Vagvolgyi, 1977

Type locality: Archipiélago de Colón [Galápagos], Pinzón Island, northern and western cliffs of main peak, 1400-1500 feet. Holotype USNM 757719.

Distribution: **Galápagos**, Isla Pinzón.

82. *Naesiotus planospira* (Ancey, 1887)

Type locality: “Île Chatham”.

Distribution: **Galápagos**, Isla San Cristóbal; Isla Floreana; Isla Gardner; Isla Campion (Parent, 2003).

83. *Naesiotus prepinguis* Vagvolgyi, 1977

Type locality: Archipiélago de Colón [Galápagos], Pinzón Island, secondary peak, 864 feet, north of the crater. Holotype 757720.

Distribution: **Galápagos**, Isla Pinzón.

84. *Naesiotus quitensis* (Pfeiffer, 1848)

Type locality: Quito. Lectotype BMNH 1975320. *Bulimus catlowiae* Pfeiffer, 1853 is a junior synonym of this species; the lectotype is also in the BMNH-collection (BMNH 1975414). Another synonyms are *Bulimus irregularis* Pfeiffer, 1848, also from Quito (**nov. comb.**) and *Bulimus caliginosus* Reeve, 1849 (**nov.comb.**).

Distribution: **Carchi**, 35 km N of Ibarra on the road to El Angel, 1700m (RMNH)*; **Chimborazo**, Riobamba (FLMNH); S of Cajabamba (FLMNH 176545)*; Cerro de Altar (Pilsbry, 1897: 33); **Imbabura**, 9.4 km N of Ibarra (FLMNH 189112, 189113)*; Otavalo (Pilsbry, 1896: 159); Cerro Imbabura; ?“Salinas Ibarre, 1659m, coll. Stübel” (Pilsbry, 1897: 34); **Napo**, slopes of Mt. Antisana (FMNH 70905, 107553); **Pastaza**, Cerros de Abitagua (FMNH

125462); **Pichincha**, Quito (FLMNH); 9 mi NW Quito (FMNH 146936, RMNH); slopes Cerro Pichincha (FMNH 86651, 86652, 125440, 125442, 125444, 125464, 158902); Pomasqui (FLMNH); 13.9 km W Pifo (FLMNH 37396)*; Cayambe (FLMNH 37394, 37395)*; Tumbaco; Guallabamba (both Pilsbry, 1897: 34); 1 km W of Mitad del Mundo, 2400m (RMNH)*; 22.6 km NNE Quito at the road to Cayambe, 2200m (RMNH)*; Chimba, 3 km E Olmedo (FMNH 223385, 223386, 223387)*; above Chillogallo (Pilsbry, 1897: 33); **Tungurahua**, 5 miles N of San Antonio (FLMNH 39904)*; Ambato (Pilsbry 1897: 35); Cerro Cachimani near Ambato (FMNH 216992); Píllaro (FLMNH; FMNH 86654, 86686); Baños (FMNH 125482, 126162, 125700, 126207, 216987); Río Agoyán falls (FMNH 72346, 125472, 126183, 126239).

Remarks: It is a rather widespread and quite variable species, for which several subspecies have been described:

Naesiotus quitensis ambatensis Rehder, 1940

Type locality: **Tunguragua**, Ambato. Holotype: USNM 473973.

Naesiotus quitensis antisana Rehder, 1942

Type locality: **Napo**, slopes of Mt. Antisana. Holotype USNM 516940, paratypes FMNH 86659, 125369, 125371, 126188, 126988.

Naesiotus quitensis jacksoni Rehder, 1940

Type locality: **Pichincha**, Guallabamba. Holotype USNM 473969, paratypes FMNH 86661, 158913, 306498.

Naesiotus quitensis orinus Rehder, 1940

Type locality: **Chimborazo**, near Riobamba, 1200 feet. Holotype USNM 473971, paratypes FMNH 86660, 125402, 126268, 158871.

Naesiotus quitensis rufescens Germain, 1910

Type locality: **Pichincha**, Tumbaco. It is also mentioned from "Cujuja", which I have been unable to locate.

Naesiotus quitensis vermiculatus Rehder, 1940

Type locality: **Tungurahua**, Agoyán. Holotype MCZ 64957, paratypes FMNH 126269.

85. *Naesiotus rabidensis* (Dall, 1917)

Type locality: Jervis Island, 900-1000 feet. Syntypes CAS.

Distribution: **Galápagos**, Isla Rábida.

86. *Naesiotus reibischii* (Dall, 1895)

Type locality: Indefatigable Island.

Distribution: **Galápagos**, Isla Santa Cruz. According to Parent (2003) there is only one population with a range of probably not more than 10 km².

87. *Naesiotus rugatinus* (Dall, 1917)

New name for *Bulimulus acutus* Reibisch, 1892 not Leach, 1814. Type locality: Chatham Island. Lectotype ZMB 47964a (Köhler, 2007).

Distribution: **Galápagos**, Isla San Cristóbal; Isla Floreana (Parent, 2003).

88. *Naesiotus rugiferus* (Sowerby, 1833)

Type locality: James Island. Lectotype BMNH 1975178.

Distribution: **Galápagos**, Isla Santa Cruz; San Salvador (Parent, 2003).

Remarks: Köhler (2007) figures a probable paralectotype.

89. *Naesiotus rugulosus* (Sowerby, 1838?)

Type locality: Galapagos. Lectotype BMNH 1975176.

Distribution: **Galápagos**, Isla San Cristóbal; Isla Floreana; Isla Pinta (Parent, 2003).

90. *Naesiotus saeronius* (Dall, 1917)

Type locality: Indefatigable Island. Holotype USNM 274097.

Distribution: **Galápagos**, Isla Santa Cruz.

Remark: Parent (2003) mentions this species as being a synonym of *Naesiotus rugiferus* (Sowerby, 1833) on the summary tab, despite that otherwise she treats *saeronius* as a distinct species.

91. *Naesiotus sculpturatus* (Pfeiffer, 1846)

Type locality: Galapagos. Lectotype BMNH 1975174.

Distribution: **Galápagos**, Isla San Salvador; it is only known from one population found in a small area near a natural fresh water source. There are probably no more than 200 individuals on a total range less than 1 km² (Parent, 2003).

92. *Naesiotus simrothi* (Reibisch, 1892)

Type locality: Albemarle Island.

Distribution: **Galápagos**, Isla Isabela.

93. *Naesiotus snodgrassi* (Dall, 1900)

Type locality: Hood Island.

Distribution: **Galápagos**, Isla Española.

94. *Naesiotus steadmani* Chambers, 1986

Type locality: Santa Cruz, Cueva de Kubler. Holotype CAS 59358.

Distribution: Galápagos, Isla Santa Cruz.

95. *Naesiotus tanneri* (Dall, 1895)

Type locality: Indefatigable Island.

Distribution: **Galápagos**, Isla Santa Cruz. According to Parent (2003) this species may already be extinct.

Naesiotus tanneri bartolomensis Vagvolgyi, 1977

Type locality: Ecuador, Archipiélago de Colón [Galápagos], off Santiago Island, Bartolomé Island, at western foot of main peak. Holotype USNM 757717.

Naesiotus tanneri edenensis Vagvolgyi, 1977

Type locality: Ecuador, Archipiélago de Colón [Galápagos], off Santa Cruz Island, Eden Island, on southern slope, 100-150 feet. Holotype USNM 757716.

96. *Naesiotus tortuganus* (Dall, 1893)

Type locality: South Albemarle Island, La Tortuga.

Distribution: **Galápagos**, Isla Isabela. It is known from only one population at the top of Darwin Volcano (Parent, 2003).

97. *Naesiotus trogonius* (Dall, 1917)

Type locality: Albemarle Island, 1300 feet. Holotype USNM 274096.

Distribution: **Galápagos**, Isla Isabela.

98. *Naesiotus unifasciatus* (Sowerby, 1833)

Type locality: Charles Island. Lectotype BMNH 1975187.

Distribution: **Galápagos**, not further data known (see Seddon, 2000).

99. *Naesiotus ustulatus* (Sowerby, 1833)

Type locality: Charles Island. A probable syntype is in the Berlin museum (ZMB 10239) and figured by Köhler, 2007.

Distribution: **Galápagos**, no further data known (see Seddon, 1996)

100. *Naesiotus ventrosus* (Reibisch, 1892)

Type locality: Barrington Island. Lectotype ZMB 47949a (designated and figured by Köhler, 2007)

Distribution: **Galápagos**, Isla Santa Fe?

101. *Naesiotus wolffi* (Reibisch, 1892)

Type locality: Indefatigable Island. Lectotype ZMB 47950 (designated and figured by Köhler, 2007)

Distribution: **Galápagos**, Isla Santa Cruz. It is known from one population with a very restricted distribution (less than 2 km²). Population size is no more than 500 (Parent, 2003).

Genus *Scutalus* Albers, 1850

Subgenus ***Scutalus (Vermiculatus)*** Breure, 1978

Type species: *Bulimus bicolor* Sowerby. Distribution: Bolivia, Peru, Ecuador.

102. *Scutalus (Vermiculatus) aequatorius* (Pfeiffer, 1853)

Type locality: “reipublicae Aequatoris, monte Schinchulagua” . Lectotype BMNH 1975377.

Distribution: **Chimborazo**, Cerro Chanchalahua, a foothill of Cerro Chimborazo; **Napo**, Anthisana (FMNH 124573); **Pastaza**, Cerros de Abitagua (FMNH 129020).

103. *Scutalus (Vermiculatus) anthisanensis* (Pfeiffer, 1853)

Type locality: “reipublicae Aequatoris, monte Anthisana”. Lectotype BMNH 1975372.

Distribution: **Napo**, Cerro Anthisana.

104. *Scutalus (Vermiculatus) cotopaxiensis* (Pfeiffer, 1853)

Type locality: “reipublicae Aquatorius, monte Cotopaxi”. Lectotype BMNH 1975370.

Distribution: **Cotopaxi**, Cerro Cotopaxi.

Remarks: as this mountain forms the cross of intersection of the provinces of Cotopaxi, Pichincha and Napo, I have arbitrarily attributed the locality to Cotopaxi, not knowing on which slope the type material was taken.

105. *Scutalus (Vermiculatus) cousini* (Jousseume, 1887)

Type locality: “Equateur, Concha”. Holotype MNHN.

Distribution: ? **Morona-Santiago**, Conchay.

Remarks: Conchay is the only name that turns up in the GNS, that is closely resembling the original locality.

Subgenus ***Scutalus (Kuschelenia)*** Hylton Scott, 1951

Type species: *Kuschelenia simulans* Hylton Scott. Distribution: Argentina, Bolivia, Peru, Ecuador.

106. *Scutalus (Kuschelenia) subfasciatus* (Pfeiffer, 1853)

Type locality: "reipublicae Aquatorius, monte Anthisana". Lectotype BMNH 1975368.

Distribution: **Napo**, Cerro Antisana.

***Scutalus* sp.**

Distribution: **Azuay**, Paute (FLMNH 151259)

Genus *Stenostylus* Pilsbry 1898

Type species: *Bulimus nigrolimbatus* Pfeiffer. Distribution: ?Venezuela, Peru, ?Ecuador, ?Colombia.

107. ? *Stenostylus guttulus* (Pfeiffer, 1854)

Type locality: "Gualea, reipublicae Aequatoris".

Distribution: **Pichincha**, Gualea.

Remarks: Breure, 1979: 102 mentioned that this taxon may prove to belong to *Simpulopsis (Eudioptus) citrinovitrea* (Moricand, 1836).

Genus *Drymaeus* Albers, 1850

Subgenus ***Drymaeus (Drymaeus)*** Albers, 1850

Type species: *Helix hygrohylaea* d'Orbigny. Distribution: Venezuela, Brazil, Uruguay, Argentina, Bolivia, Peru, Ecuador, Colombia, Panama, Costa Rica, Nicaragua, Honduras, Guatemala, Mexico.

108. *Drymaeus (Drymaeus) aequatorianus* (E.A. Smith, 1877)

Type locality: Ecuador. Lectotype BMNH 1975137.

Distribution: **Carchi**, 1,5 hour walk W of Chical (FLMNH 26617)*; San Nicolas (FMNH 31409). 'Ecuador' (ANSP 25752, 78535).

Remarks: These are the first exact localities reported for this species.

109. *Drymaeus (Drymaeus) albolabiatus* (E.A. Smith, 1877)

Type locality: Malacatos. Holotype BMNH 1877.3.28.3.

Distribution: **Loja**, Malacatos. "Oriente Prov." (FMNH 72339).

110. *Drymaeus (Drymaeus) ambustus* (Reeve, 1849)

Type locality: No locality given. Lectotype BMNH 1975441. *Bulimus chamaeleon* Pfeiffer, 1855 is considered a junior synonym (Syntypes BMNH; labelled as 'near Quito').

Distribution: **Pichincha**, Pomasqui (FLMNH 176052)*; 3 km NE of Cayambe (FLMNH 37397)*; "Quito" (FMNH 31480, 61126); **Cotopaxi/Tungurahua**: between Jacunga [Latacunga] and Ambato (BMNH 1975441, 1975442).

111. *Drymaeus (Drymaeus) andai* (Jousseume, 1898)

Type locality: Tena. Lectotype MNHN (designated and figured by Breure, 1976).

Distribution: **Napo**, Tena.

112. *Drymaeus (Drymaeus) baezensis* (Hidalgo, 1869)

Type locality: Baeza.

Distribution: **Napo**, Baeza. Without locality (RMNH ex Schmeltz, 1909)

113. *Drymaeus (Drymaeus) bourcierii* (Pfeiffer, 1853)

Type locality: Pichincha. Lectotype BMNH 1975446.

Distribution: **Tungurahua**, Chaupi (FMNH 72599). 'Ecuador' (ANSP 5249; RMNH).

Remarks: This is the first precise locality for this species.

114. *Drymaeus (Drymaeus) buckleyi* (Sowerby, 1895)

Type locality: Ecuador. Lectotype BMNH 1907.11.21.48 (designated, redescribed and figured by Breure & Eskens, 1981).

Distribution: ? [no specific locality known].

115. *Drymaeus (Drymaeus) chimborasensis* (Reeve, 1848)

Type locality: Chimborazo. Syntypes BMNH 1975460.

Distribution: **Chimborazo** [probably on the slopes of Mt. Chimborazo, which could also be in provs. Bolívar or Tungurahua].

116. *Drymaeus (Drymaeus) decoratus* (Lea, 1838)

Type locality: Colombia, near Carthagená.

Distribution: **Napo**, Llanganate [Cordillera de Llanganatis] (NRS).

117. *Drymaeus (Drymaeus) elegantissimus* (Mousson, 1873)

Type locality: "Nördlichem Süd-Amerika".

Distribution: **Moreno-Santiago**, Cusuimi (FMNH 173042, 173043)*.

Remarks: This is the first locality from Ecuador for this species, which has been reported from Colombia (Pilsbry 1899: 211).

118. *Drymaeus (Drymaeus) expansus* (Pfeiffer, 1848)

Type locality: Peru, Huallaga.

Distribution: **Tungurahua**, Topo (ANSP 306773)*.

Drymaeus (Drymaeus) expansus altorum (Weyrauch, 1958)

Type locality: Peru, Río Chanchamayo, Quirimi Sur, oberhalb Puente Herreria. Holotype SMF 156295.

Distribution: **Moreno-Santiago**, Cusuimi (FMNH 173050)*.

Drymaeus (Drymaeus) expansus orcesi (Weyrauch, 1958)

Type locality: Montalvo, Río Bobonaza, 340m. Holotype SMF 156292 (refigured by Neubert & Janssen, 2004).

Distribution: **Orrelana**, Loreto; **Pastaza**, Montalvo; Sarayacu (all Weyrauch, 1958).

119. *Drymaeus (Drymaeus) fallax* (Pfeiffer, 1853)

Type locality: Tungurahua. *Bulimus abscissus* Pfeiffer, 1855 is now considered a junior synonym (**syn.nov.**). The type material is labelled 'Quito' (ex Cuming-collection) in the BMNH.

Distribution: **Pastaza**, Puyo (ANSP 170713); **Pichincha**, Quito (ANSP 5247); near Nane-gal (ANSP 195213); Santo Domingo de los Colorados (ANSP 306782)* (FMNH 85376).

Remarks: There two places called Puyo, one is in Azuay province at 2850m altitude, the other is in Pastaza province at 1000m. Given the height range of the other localities (up to 1500m, western slope of the Andes), it is more probably that the Pastaza locality is meant, rather than the central located Puyo in Azuay province.

120. *Drymaeus (Drymaeus) fordii* Pilsbry, 1898

Type locality: None given. Lectotype ANSP 72368a.

Distribution: **Morona-Santiago**, Miasal; **Orrelana**, Loreto (both Weyrauch, 1958).

121. *Drymaeus (Drymaeus) hidalgoi* (Da Costa, 1898)

Type locality: Ecuador. Lectotype BMNH 1907.11.21.28.

Distribution: **Napo**, Nachiyacu (ANSP 170712); **Pastaza**, Mera (FMNH 125503, labelled as "Meva").

Remarks: These are the first exact localities for this species.

122. *Drymaeus (Drymaeus) inaequalis* (Pfeiffer, 1857)

Type locality: Peru, banks of the Maranhon [Río Marañon].

Distribution: **Napo**, Nachiyacu (ANSP 170711).

123. *Drymaeus (Drymaeus) membielinus* (Crosse, 1867)

Type locality: Republica Aequatoris.

Distribution: **Napo** (see Pilsbry, 1898: 210); **Orrelana**, Loreto (Weyrauch, 1958).

124. *Drymaeus (Drymaeus) napo* (Angas, 1878)

Type locality: "Ecuador". Holotype BMNH 1879.1.21.4.

Distribution: **Tungurahua**, Cerro Tungurahua near Baños (FMNH 72597).

125. *Drymaeus (Drymaeus) nystianus* (Pfeiffer, 1853)

Type locality: Reipublicae Aequatoris. Lectotype BMNH 1975573.

Distribution: **Napo**, Cerro Antisana (ANSP 186859, FMNH 125506); **Pichincha**, Pomasqui (ANSP 25804); Machachi (FLMNH 22973)*; Tumbaco (Pilsbry, 1898: 263); Quito (RMNH ex Laudauer, FMNH 31326, 78753). Ecuador (RMNH ex Henrard).

126. *Drymaeus (Drymaeus) ochrocheilus* (E.A. Smith, 1877)

Type locality: Malacatos. Holotype BMNH 1877.3.28.4.

Distribution: **Loja**, Malacatos.

127. ?*Drymaeus (Drymaeus) orthostomus* (E.A. Smith, 1877)

Type locality: ?Ecuador. Lectotype BMNH 1975132.

Distribution: ? [no specific locality known].

Remarks: This species is only known by the type material and a lot in the Chicago museum without locality (FMNH 31469). E.A. Smith compared this species with *Drymaeus albo-labiatus*.

128. *Drymaeus (Drymaeus) petasites* (Miller, 1878)

Type locality: Nanegal, Sebondoï, in valli Pilantonensi.

Distribution: **Los Rios**, 35 mi E of Quevedo (FMNH 106260)*; **Pichincha**, Nanegal, valley of Río Pilatón; ?, "Los Puentes" (FMNH 31083).

Remarks: It is not clear if the localities mentioned by Miller were meant to be close together or not. Nanegal is - according to the GNS gazetteer - slightly further north in the same province and I have been unable to trace Sebondoï (or Sebundoï as it has also been mentioned). The locality "35 miles east of Quevedo" is the first precise locality for this species.

129. *Drymaeus (Drymaeus) planibasis* Pilsbry, 1932

Type locality: above Chunchi, Pagma forest. Holotype ANSP 148436a.

Distribution: **Chimborazo**, Chunchi.

130. *Drymaeus (Drymaeus) quadrifasciatus* (Angas, 1878)

Type locality: Ecuador. Holotype BMNH 1879.1.21.3. *Bulimus napo* Angas, 1878 (type locality: Ecuador. Holotype BMNH 1879.1.21.4) is considered a junior synonym by Weyrauch (1958: 128).

Distribution: **Pichincha**, Nanegal (EPN, according to Weyrauch, 1958).

131. *Drymaeus (Drymaeus) rabuti* (Joussemaume, 1898)

Type locality: Tena. Lectotype MNHN (designated and figured by Breure, 1976).

Distribution: **Napo**, Tena.

132. *Drymaeus (Drymaeus) rubrovariegatus* (Higgins, 1868)

Type locality: Peru, Huamachuco. Syntypes BMNH.

Distribution: **El Oro**, 6 km N Zaruma on road to Malvas (FLMNH 37402)*.

133. *Drymaeus (Drymaeus) rhoadsi* Pilsbry, 1932

Type locality: Pachijal. Holotype ANSP 148440.

Distribution: **Pichincha**, Río Pachijal.

134. *Drymaeus (Drymaeus) sachsei* (Albers, 1854)

Type locality: Peru, Río Marañon. Lectotype ZMB 10290a (designated and figured by Köhler, 2007).

Distribution: **Chimborazo**, Huigra (FMNH 78757); **Loja**, Catamayo (type locality of the junior synonym *Mormus catamayensis* Miller, 1879).

135. *Drymaeus (Drymaeus) strigatus* (Sowerby, 1833)

Type locality: Peru, Huallaga.

Distribution: **Moreno-Santiago**, Cusuima (FMNH 173048); "Ecuador" (FMNH 77563).

136. *Drymaeus (Drymaeus) subeffusus* (Philippi, 1869)

Type locality: Peru, Huancayo, Coyllorbamba.

Distribution: **Loja**, Macará (FMNH 31317).

137. *Drymaeus (Drymaeus) tigrinus* (Da Costa, 1898)

Type locality: Ecuador. Holotype BMNH 1907.11.21.55.

Distribution: ? [no specific locality known].

Remarks: Pilsbry (1898: 231) suggests that this taxon may be a junior synonym of *Drymaeus strigatus* (Reeve, 1848), which occurs in northern Peru. If he is correct, this species may be found in southern Ecuador.

138. *Drymaeus (Drymaeus) violaceus* (Mousson, 1873)

Type locality: "In the northern part of South America"

Distribution: **Pichincha**, hill N of Tandapi, 71.7 km SW Quito on the road to Santo Domingo, 1600m (RMNH)*.

139. *Drymaeus (Drymaeus) volvus* Fulton, 1907

Type locality: Ecuador. Holotype BMNH 1907.5.3.162.

Distribution: ? [no specific locality known].

Subgenus ***Drymaeus (Mesembrinus)*** Albers, 1850

Type species: *Helix virgulata* Férussac. Distribution: West Indies, Venezuela, Guiana, Surinam, French Guyana, Brazil, Peru, Ecuador, Colombia, Panama, Costa Rica, Nicaragua, El Salvador, Honduras, Guatemala, Belize, Mexico, USA.

140. *Drymaeus (Mesembrinus) cattivorus* (Broderip, 1832)

Type locality: Colombia "ad montem Chris". A junior synonym is *Mormus occidentalis* Miller, 1879, type locality Guyaquil.

Distribution: **Guayas**, 3 km E Zapotal (FLMNH 139105)*; 11 km W Progreso (FLMNH 139108)*.

Remarks: There are according to the GNS two places named Progreso in Guayas province [01° 46' 00" S 079° 45' 00" W and 01° 53' 00" S 079° 52' 00" W respectively]. Given the record for Zapotal, it is most probably that a place named Gómes Rendón was meant for which the GNS lists as variant Progreso.

141. *Drymaeus (Mesembrinus) colmeiroi* (Hidalgo, 1872) **comb.nov.**

Type locality: Baeza. Holotype MNHN (refigured by Breure, 1976).

Distribution: **Napo**, Baeza; 5.5 km SSE of Baeza (FLMNH 37384)*; 19.3 km NNE of Baeza (FLMNH 37385)*.

Remarks: Breure (1979: 102) lists this taxon under the genus *Stenostylus* Pilsbry, 1898. Subsequently I have examined material from Colombia (UVZ) that brought me to the conviction that it belongs to *Drymaeus (Mesembrinus)*.

142. ?*Drymaeus (Mesembrinus) fidustus* (Reeve, 1849)

Type locality: New Grenada, Sebundoi. Lectotype BMNH 1975517.

Distribution: ? [no specific locality known].

Remarks: I have been unable to locate Sebundoi - or a similar name - with the gazetteer of the GNS. Pilsbry (1898:308) mentions "Colombia, Sebundoi (Funck in Cuming collection)", while Miller (1878) gives the name in an Ecuadorian context.

143. *Drymaeus (Mesembrinus) flavidulus* (E.A. Smith, 1877)

Type locality: South Ecuador, Zarama. Lectotype 1975134.

Distribution: **El Oro**, Zaruma.

144. *Drymaeus (Mesembrinus) loxanus* (Higgins, 1872)

Type locality: Loxa. Lectotype BMNH 1975552.

Distribution: ?**Loja** [no specific locality known].

145. *Drymaeus (Mesembrinus) loxensis* (Pfeiffer, 1846)

Type locality: "reipublica Aequatoris, El Catamaija prope Loxa". Lectotype BMNH 1975552 (Figured by Breure & Eskens, 1981).

Distribution: **Loja**, Catamayo (BMNH).

146. *Drymaeus (Mesembrinus) subpellucidus* (E.A. Smith, 1877)

Type locality: Ecuador. Holotype BMNH 1872.5.22.19.

Distribution: ? [no specific locality known].

147. *Drymaeus (Mesembrinus) wintlei* Finch, 1929

Type locality: Ecuador. Holotype BMNH 1929.6.11.1.

Distribution: ? [no specific locality known].

***Drymaeus* sp.**

Carchi, 2 km E Maldonado, 1550m (FLMNH 26610)*; **Napo**, 14.7 km NE Río Salado (FLMNH 22928)*; **Pichincha**, 9.5 km ESE Chiriboga (FLMNH 22942)*

Genus *Simpulopsis* Beck, 1837

Subgenus ***Simpulopsis (Eudioptus)*** Albers, 1860

Type species: *Helix pseudosuccinea* Moricand. Distribution: Brazil, Paraguay, Argentina, Peru, Ecuador, Colombia.

148. *Simpulopsis (Eudioptus) citrinovitrea* (Moricand, 1836)

Type locality: Brazil, Bahia, near Salvador. Syntypes MNHN.

Distribution: **Pichincha**, 59 km by road W Machachi, 1250m (RMNH)*

SUBFAMILIA ORTHALICINAE⁵

Genus *Sultana* Shuttleworth, 1856

Subgenus ***Sultana (Sultana)*** Shuttleworth, 1856

Type species: *Helix sultana* Dillwyn. Distribution: Guiana, Brazil, Bolivia, Peru, Ecuador.

Remarks: This is the first record of the nominal subgenus from Ecuador.

149. *Sultana (Sultana) sultana* (Dillwyn, 1817)

Type locality: New Zealand [sic].

Distribution: **Los Rios**, Centro Científico Rio Palenque (FLMNH 181509)*; **Morona Santiago**, 59 km SSE Patuca (FLMNH 139123)*; Cusuimi (FMNH 173044); Rio Macuma, ca. 10 km from Rio Merona (FMNH 170626); **Orrelana**, Loreto (ANSP 195216).

Remarks: These are the first precise localities for this species in Ecuador. There is also a lot collected by Cousin and labelled “Rio Napo” (FLMNH 166126). In the Philadelphia museum is a lot *Orthalicus sultana angustior* Preston, which is a taxon described from eastern Peru, and labelled “Topo, Ecuador” [prov. Tungurahua] (ANSP 306772).

Subgenus ***Sultana (Metorthalicus)*** Pilsbry, 1899

Type species: *Bulimus yatesi* Pfeiffer. Distribution: Peru, Ecuador.

150. *Sultana (Methorthalicus) augusti* (Jousseume, 1887)

Type locality: “l’Equateur”.

Distribution: **Azuay**, Quebrada Machai (Pilsbry, 1899: 195); **Pastaza**, Mera (ANSP 306612); Puyo (FMNH 86638); Tungurahua, Topo (FMNH 86639).

151. *Sultana (Metorthalicus) deburghiae* (Reeve, 1859)

Type locality: Peruvian side of the Amazon.

⁵ The most recent revision of this subfamily is from Strebel (1909), who apparently saw all the material in the major European collections at that time.

Distribution: ? **Moreno-Santiago**, Mirador (Strebel, 1909: 173); **Napo**, 6.5 km SSE Baeza (FLMNH 36103); Nachiyacu (FLMNH 166252); **Pastaza**, Cerros de Abitagua (FMNH 126171, 125467); Mera (FMNH 86674); Porvenir (Strebel, 1909: 173); **Tungurahua**, Topo (FMNH 86673); Baños (FMNH 126172, 125514, 124582). “Ecuador” (RMNH, FLMNH 166253).

Remarks: Although there are different localities named “Mirador”, there is only one in the eastern part of the country. “Porvenir”, which is also a locality mentioned by Strebel, could be either in Prov. Orellana or Pastaza. The latter place is located in the easternmost part of the country, close to the border of Peru.

152. *Sultana (Metorthalicus) kellettii* (Reeve, 1850)

Type locality: Ecuador?. Lectotype BMNH 1975241.

Distribution: **Azuay**, Nabón (Strebel, 1909: 160); **Loja**, Malacatos (Strebel, 1909: 159); **Pastaza**, Mera (FLMNH 109372); Cerros de Abitagua (FMNH 125477). “Ecuador” (RMNH, FLMNH 166255).

Subgenus ***Sultana (Trachyorthalicus)*** Strebel, 1909

Type species: *Bulimus fraseri* Pfeiffer. Distribution: Ecuador.

Remarks: I have retained the classification of this subgenus, although I am doubtful if it warranted given the slight differences with the previous one.

153. *Sultana (Trachyorthalicus) fraseri* (Pfeiffer, 1858)

Type locality: provincia Cuenca reipublicae Aequatoris.

Distribution: **Azuay**, near Cuenca; **Loja** (Strebel, 1909: 154, as forma *brevispira*; no specific locality mentioned); **Morona-Santiago**, Gualaquiza (SMF 90606) “Ecuador” (RMNH, FLMNH 109360, 109358).

Genus *Orthalicus* Beck, 1837

Type species: *Buccinum zebra* O.F. Müller. Distribution: West Indies, Venezuela, Guiana, Surinam, French Guyana, Brazil, Peru, Ecuador, Colombia, Panama, Costa Rica, Nicaragua, El Salvador, Honduras, Guatemala, Belize, Mexico, USA.

154. *Orthalicus bensoni* (Reeve, 1849)

Type locality: ‘Banks of the Amazon’. Syntypes BMNH 1975582.

Distribution: **Napo**, Sarayacu (Pilsbry, 1899: 148)

155. *Orthalicus bifulguratus* (Reeve, 1849)

Type locality: “Andes of Colombia”.

Distribution: **El Oro**, 10.2 km W Pinas (FLMNH 26616)*; **Pichincha**, Río Pilatón (Pilsbry, 1899: 143 mentions Pilaton Valley on the basis of specimens collected by Wolf); **Tungurahua**, Topo (FMNH 86649)..

156. *Orthalicus maracaibensis* (Pfeiffer, 1856)

Type locality: Venezuela, Maracaibo.

Distribution: ?**Guayas**, San Juan (Pilsbry, 1899: 140 mentions “Ecuador, San Juan de la Costa” as locality for his colourform *imitator*. From among the many places named ‘San Juan’ this is only one located near the coast.

157. *Orthalicus mars* (Pfeiffer, 1861)

Type locality: Ecuador.

Distribution: ?. This taxon is known by the original description only.

***Orthalicus* sp.**

Napo, 14.7 km NE Río Salado (FLMNH 22929)*; Río Napo (FMNH 72330), labelled as *Orthalicus phlogerus* (d’Orbigny, 1835) which is a Bolivian species.

Genus *Corona* Albers, 1850

Type species: *Helix regina* Férussac. Distribution: Venezuela, Guiana, Brazil, Bolivia, Peru, Ecuador, Colombia.

158. *Corona pfeifferi* (Hidalgo, 1869)

Type locality: Canelos.

Distribution: **Pastaza**, Canelos; **Tungurahua**, Topo (ANSP 306620).

159. *Corona regalis* (Hupé, 1857)

Type locality: Brazil.

Distribution: **Pastaza**, Banos (FLMNH 109374 [labelled “Banes”]); “Ecuador” (FLMNH 166132, 166132)

160. *Corona regina* (Férussac, 1821)

Type locality: not given.

Distribution: “Ecuador” (FLMNH 109375).

161. *Corona rosenbergi* Strebel, 1909

Type locality: Not given.

Distribution: **Orrelana**, Loreto (ANSP 195205).

Remarks: This is the first precise locality for this species.

Genus *Porphyrobaphe* Shuttleworth, 1856

Subgenus *Porphyrobaphe (Porphyrobaphe)* Shuttleworth, 1856

Type species: *Bulinus iostoma* Sowerby. Distribution: Peru, Ecuador.

162. *Porphyrobaphe (Porphyrobaphe) iostoma* (Sowerby, 1824)

Type locality: Not given.

Distribution: **El Oro**, 3.1 miles [5 km] N Santa Elena (FLMNH 21274)*; near Machala (FMNH 72337); Chacras ; Santa Rosa (both Pilsbry, 1899: 151); **Esmeraldas**, 9 km SW Atacames (FLMNH 139140)*; San Lorenzo (FLMNH 109870, 166241); ravine W of Camarones (FLMNH 182642)*; Esmeraldas [without further indication] (FMNH 94931, 127535); **Guayas**, 5 km N Palmar (FLMNH 139104, 139116, 139117)*; 4 km N Palmar (FLMNH 139117)*; 5 km NNE Progreso [= Gómez Rendón] (FLMNH 139141)*; 4 km N Monteverde (FLMNH 139144)*; Isla Puna (FMNH 146951); Colonche (Pilsbry, 1899) (ANSP 266744); Cerro Colorado, 15 km N Guayaquil (ANSP 195221); Chongón (Strebel, 1909: 104); **Manabí**, Manta (FLMNH 109869, 182643, FMNH 72331, 86701); Quebrada Balsa-Maragua, N of Jaramijo (ANSP 195222, FMNH 216972); 6 km SSE Jipijapa (FLMNH 139103, 139134)*; 11 km WSW Jipijapa (FLMNH 139136)*; 9 km WSW Paján (FLMNH 139135)*; 8 km NNW Cascol [= Cascajal] (FLMNH 139143)*; Portoviejo (Pilsbry, 1899); Machalilla (Strebel, 1909: 104). Ecuador [no specific locality given] (FLMNH 48927, 48928)*.

Remarks: In the ANSP-collection is a lot (ANSP 306623) labelled "Mindó" [Prov. Pichincha], on the western slopes of the Andes but at an altitude of 1100m. This might be *P. irroratus*, which is a species of higher altitudes and has also been reported from the same locality. Another lot (ANSP 142458) identified as *P. iostoma* is labelled "Punta Ayancay"; the only name in the GNS-database is a place called Ayancay, which is in Prov. Cañar at 2375m on the eastern slopes of the Andes.

163. *Porphyrobaphe (Porphyrobaphe) saturnus* (Pfeiffer, 1860)

Type locality: Pallatanga

Distribution: **Chimborazo**, Pallatanga (FLMNH 109376); **El Oro**, 10 km S Piñas (FLMNH 36106, 37404)*; 6 km N Zaruma on road to Malvas (FLMNH 36125)*; **Loja**, Malacatos (Strebel, 1909: 107, as "Malacates").

Remarks: Besides the village Pallatanga in Prov. Chimborazo on the western slopes of the Andes at 1700m, there is a Hacienda Pallatanga in Prov. Azuay on 2475m altitude [02° 44' 00" S 078° 38' 00" W].

Subgenus *Porphyrobaphe (Oxyorthalicus)* Strebel, 1909

Type species: *Bulimus irrorata* Reeve. Distribution: Ecuador, Colombia.

164. *Porphyrobaphe (Oxyorthalicus) irrorata* (Reeve, 1849)

Type locality: Brazil? New Grenada?. Lectotype BMNH 1975248.

Distribution: **Napo**, "Oriente" (FMNH 126177, 125499); **Pastaza**, Puyo (ANSP 170707); Mera (FLMNH 109894, FMNH 126254, 127526); **Pichincha**, hill N of Río Tandapi, 71.7 km SW Quito on road to Santo Domingo, 1600m, secondary forest, in leaf litter. (RMNH)*; Mindo (ANSP 337840, FLMNH 166234, FMNH 86681, 216973); near Nanegal (ANSP 195218, 195219); valley of Río Pilatón; Gualea (both Pilsbry, 1899:156); **Tungurahua**, Topo (ANSP 306611, FMNH 86690). "Oriente Prov." (FMNH 125476).

Remarks: *Bulimus grevillei* (Pfeiffer, 1876) - type locality: "Quito" - is considered a subjective junior synonym.

165. *Porphyrobaphe (Oxyorthalicus) subirroratus* (Da Costa, 1898)

Type locality: Paramba. Holotype BMNH 1907.11.21.114.

Distribution: **Carchi**, Hacienda Paramba; **Pastaza**, Mera (FMNH 125481, FMNH 86675); ?**Pichincha**, Mera (FLMNH 166243).

Remarks: The GNS-gazetter lists two localities in Pichincha named "Hacienda Mera", one directly south of Quito [00° 25' 00" S 078° 33' 00" W], the other now being part of that city. It is more likely - also seeing the material from the Chicago museum - that Mera in Pastaza is meant. The specimens are labelled *Porphyrobaphe subirroratus yeronta* Miller, which is an unpublished name.

Genus *Hemibulimus* Martens, 1885

Subgenus *Hemibulimus (Hemibulimus)* Martens, 1885

Type species: *Liguus (Hemibulimus) excisus* Martens. Distribution: Ecuador, Colombia.

166. *Hemibulimus (Hemibulimus) excisus* (Martens, 1885)

Type locality: Colombia, near Popayán.

Distribution: ? **Azuay**, Macas (Strebel, 1909: 108, as "Maccas").

Remarks: There are two places called Macas, one in Prov. Azuay the other in Prov. Moreno-Santiago which I think is too low in altitude compared with the Colombian type locality (2400m). Besides, there are two places called Quebrada de Macas, one in Prov. Chimborazo (near Riobamba), the other in Prov. Cotopaxi. I have tentatively attributed the locality, which is based on material treaded by Rolle, to the one in Azuay, near Cuenca.

Analyses

Geographical

Ecuador, with a total area of 269.939 square km², has 22 provinces (including the Galápagos Islands). The mainland is divided in three regions: 1) *La Costa*, the low-lying coastal plain in the western part of the country; 2) *La Sierra*, the high-altitude belt running north to south along the center of the country is part of the Andes mountain range; 3) *El Oriente*, the Amazon rainforest areas in the eastern part of the country.

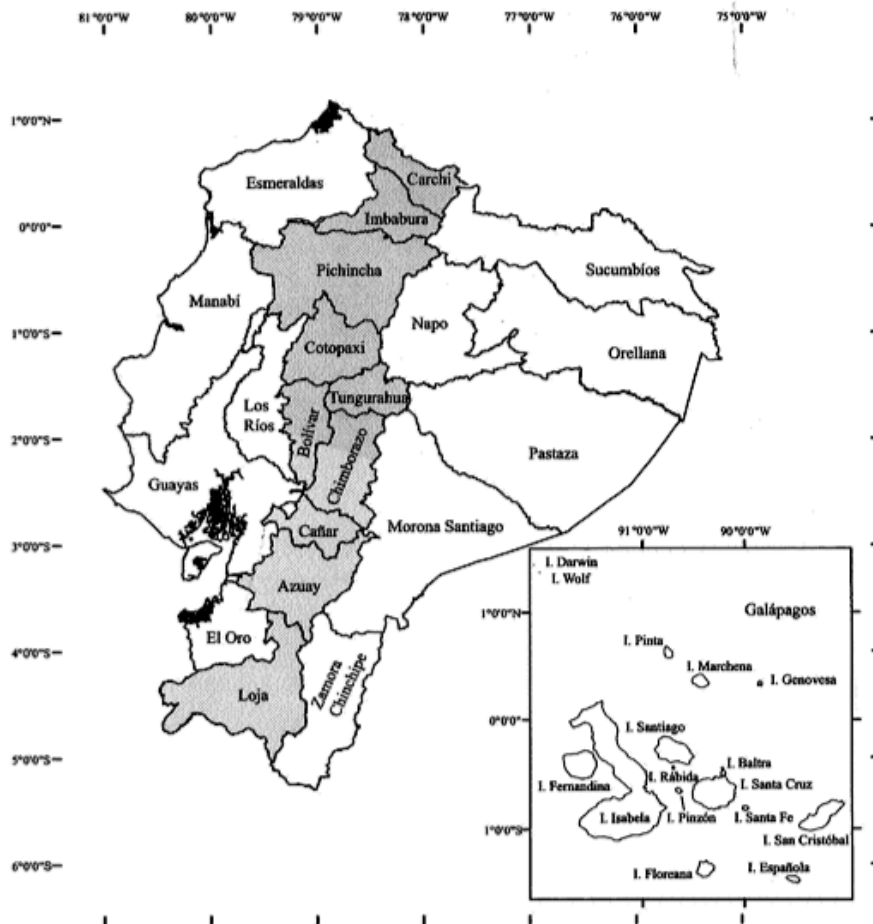


Fig 2. Map of Ecuador, showing the provincial borders. The Andean provinces are shown in grey.

Orthalicidae have been collected at 117 localities which, however, are not evenly spread throughout the country. The following table gives the number of localities and the number of taxa per province (excluding 17 taxa for which no specific localities are known, unidentified specimens for which specific localities were given in collections and questionable records). When compared to the area of each province⁶, it is clear that the Galápagos is outstanding in its biodiversity, while some provinces (notably Bolívar, Sucumbios and Zamora-Chinchipe are undersampled..

⁶ Adapted after <http://www.populstat.info/Americas/ecuadorp.htm>

Table 2. Area, number of localities and taxa arranged per province.

Province	sq.km2	%	localities	%	taxa	%
Azuay	8125	3%	7	6%	5	3%
Bolívar	3940	1%	0	0%	0	0%
Cañar	3122	1%	1	1%	1	1%
Carchi	3605	1%	5	4%	4	2%
Chimborazo	6072	2%	7	6%	6	3%
Cotopaxi	6569	2%	3	3%	3	2%
El Oro	5850	2%	5	4%	7	4%
Esmeraldas	15239	6%	3	3%	1	1%
Guayas	20503	8%	10	9%	5	3%
Imbabura	4559	2%	2	2%	2	1%
Loja	11207	4%	4	3%	12	6%
Los Ríos	7175	3%	2	2%	2	1%
Manabí	18879	7%	8	7%	2	1%
Morona-Santiago	25690	10%	7	6%	7	4%
Napo	11431	4%	10	9%	22	11%
Orellana	22500	8%	3	3%	8	4%
Pastaza	29774	11%	7	6%	18	9%
Pichincha	12915	5%	25	21%	22	11%
Sucumbíos	18328	7%	0	0%	0	0%
Tungurahua	3335	1%	7	6%	12	6%
Zamora-Chinchipe	23111	9%	1	1%	0	0%
Galápagos	8010	3%			60	30%
TOTAAL	269939	100%	117	100%	199	100%

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