

# Distribution of the arachnid species of the Orders Scorpiones, Solifugae, Amblypygi, Schizomida, Opiliones and Pseudoscorpiones in Galápagos

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## Summary

A review is given of the distribution of the arachnid species of the Orders Scorpiones, Solifugae, Amblypygi, Schizomida, Opiliones and Pseudoscorpiones living in the Galápagos archipelago. The paper is provided with a key to the Orders and species (except for the Araneae and Pseudoscorpiones species) of Galápagos. Distribution maps are given.

## Introduction

Little is known about the distribution of arachnids within the Galápagos archipelago (with exception of the Acari studied by H. SCHATZ, the Araneae studied by L. BAERT and the Pseudoscorpiones studied by V. MAHNERT). Since 1982, sampling expeditions for arthropods have been regularly carried out on the Galápagos islands by a Belgian team (L. BAERT, K. DESENDER & J.-P. MAELFAIT: 1982, 1986, 1988 and 1991), a Canadian team (S. PECK and collaborators: 1985, 1989, 1991 and 1992), an Austrian team (H. & I. SCHATZ: 1985-88) and the CDRS (S. ABEDRABBO and collaborators). All major islands and volcanoes have been sampled, at least on one side, along an altitudinal gradient. All samplings took place in the rainy season (between December and June). These samplings provide the possibility of enlarging our knowledge of the composition of the arachnofauna and the distribution of the individual species in this remote archipelago. While the first team concentrated their sampling efforts on the edafic fauna, the second one and later on (1991) a Spanish team (the team of J.J. HERNANDEZ and collaborators concentrated exclusively on the cave fauna) sampled valuable data from cave situations.

This paper does not have a taxonomic purpose. Its purpose is to reassemble the literature data of the species belonging to the arachnid Orders Scorpiones, Solifugae, Amblypygi, Schizomida Opiliones and Pseudoscorpiones (only literature data, the material is revised by V. MAHNERT) that occur on the Galápagos Islands. It is supplemented with the findings made since 1982. For the nomenclature of Solifugae and Amblypygi advise was given by Prof. W. SHEAR (Hampden-Sydney College).

For each species we give the distribution as known from literature, followed by the localities of the samples made since 1982 by the teams cited above and examined by the first author and of older samples collected by N. LELEUP, H. FRANZ and S. JACQUEMARD (the identification of the Schizomida was done by Dr. J. COKENDOLPHER (Lubbock)). For each locality we give: the initials of the name of the collecting teams or persons followed by the year of capture (abbreviations are: B: L. BAERT and collaborators; F: H. FRANZ; H: J. HERATY; J: S. JACQUEMARD; L: N. & J. LELEUP; P: S. PECK and collaborators); the number of specimens caught (sp); the month of capture in roman ciphers.

We give also for each species a map with its distribution as given in the literature (mostly no accurate localisation) and a map with the recent findings. An asterisk means a new island record.

## Key to the arachnid orders and species of Galápagos

1. – Carapace and abdomen fused (Fig. 1) ..... 2
  - Carapace and abdomen joined by pedicel of narrowed first abdominal somite ..... 4
2. – Pedipalpi leglike (Fig. 1) .... **Opiliones (1 species)**
  - ..... *Galanomma microphthalmum* Juberthie, 1970
  - Pedipalpi with terminal pincers (Fig. 2) ..... 3
3. – Abdomen divided in a broad meso- and a small metasoma with terminal stingbearing telson (Fig. 4) ..... **Scorpiones (2 species)**
  - reddish brown to dark brown, pincers slender and thin metasoma *Centruroides exsul* (MEISE, 1933)
  - yellow with brownish cellular pattern, pincers and metasoma robust .....  
*Hadruroides maculatus galapagoensis* MAURY, 1974
  - Abdomen undivided (Fig. 2) .....  
..... **Pseudoscorpiones (18 species)**
4. – Abdomen unsegmented (Fig. 3) .....  
..... **Araneae (ca. 150 species)**
  - Abdomen segmented (Figs 6-8) ..... 5
5. – Abdomen with short telson (Fig. 8) .....  
..... **Schizomida (1 species)**  
*Stenochrus portoricensis* CHAMBERLIN, 1922

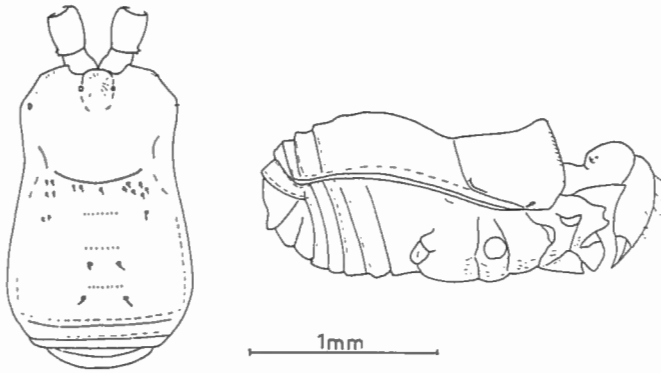


Fig. 1. - Opiliones. *Galanomma microphthalmum* JUBERTHIE, 1970.

- Abdomen without telson ..... 6
- 6. - Pedipalpi large, powerful and spinous; first pair of legs extremely long with subsegmentation of tarsi and tibiae (Fig. 7) ..... **Amblypygi (1 species)**  
*Charinus insularis* BANKS, 1902
- Pedipalpi leglike; chelicerae very powerful projecting forward; coxae and trochanters of fourth pair of legs with cuplike appendages (Fig. 6) .....  
.....**Solifugae (1 species)**  
*Neocleobis solitarius* (BANKS, 1902)

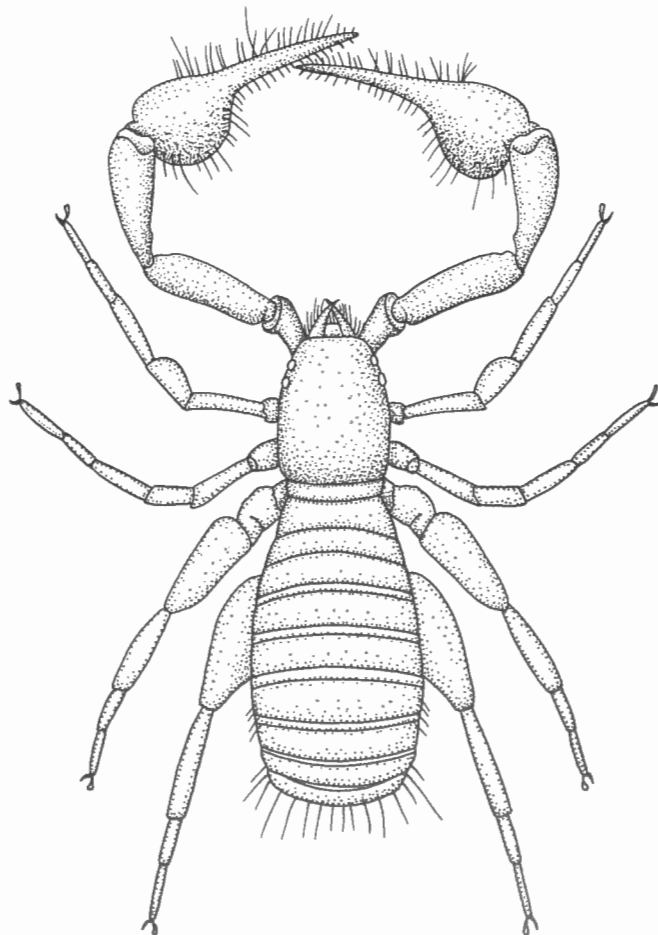


Fig. 2. - Pseudoscorpiones species. 2 mm.

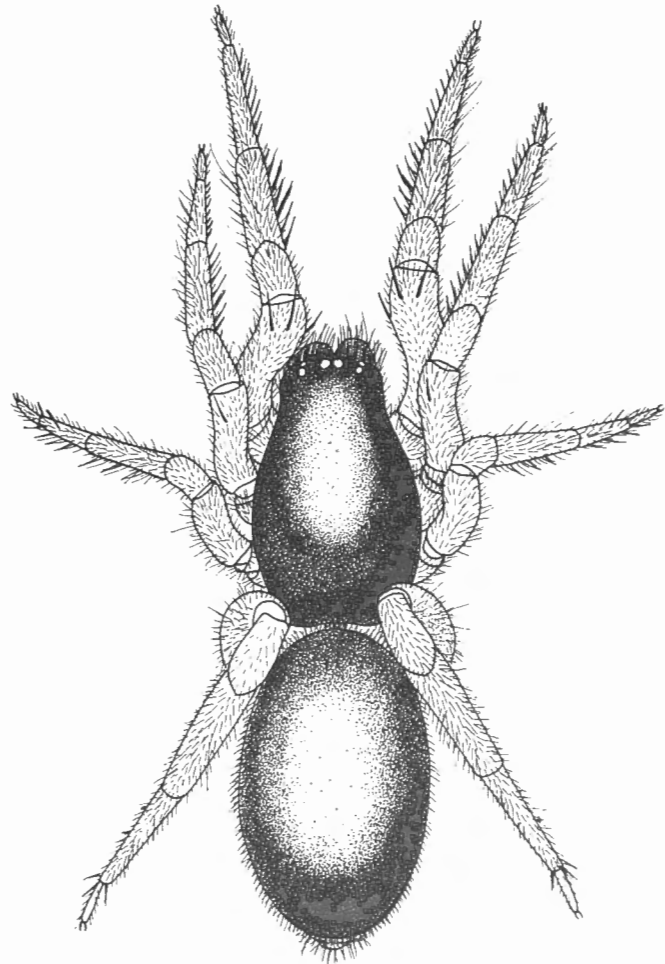


Fig. 3. - Araneae. *Ariadna tarsalis* (BANKS, 1902). 9 mm.

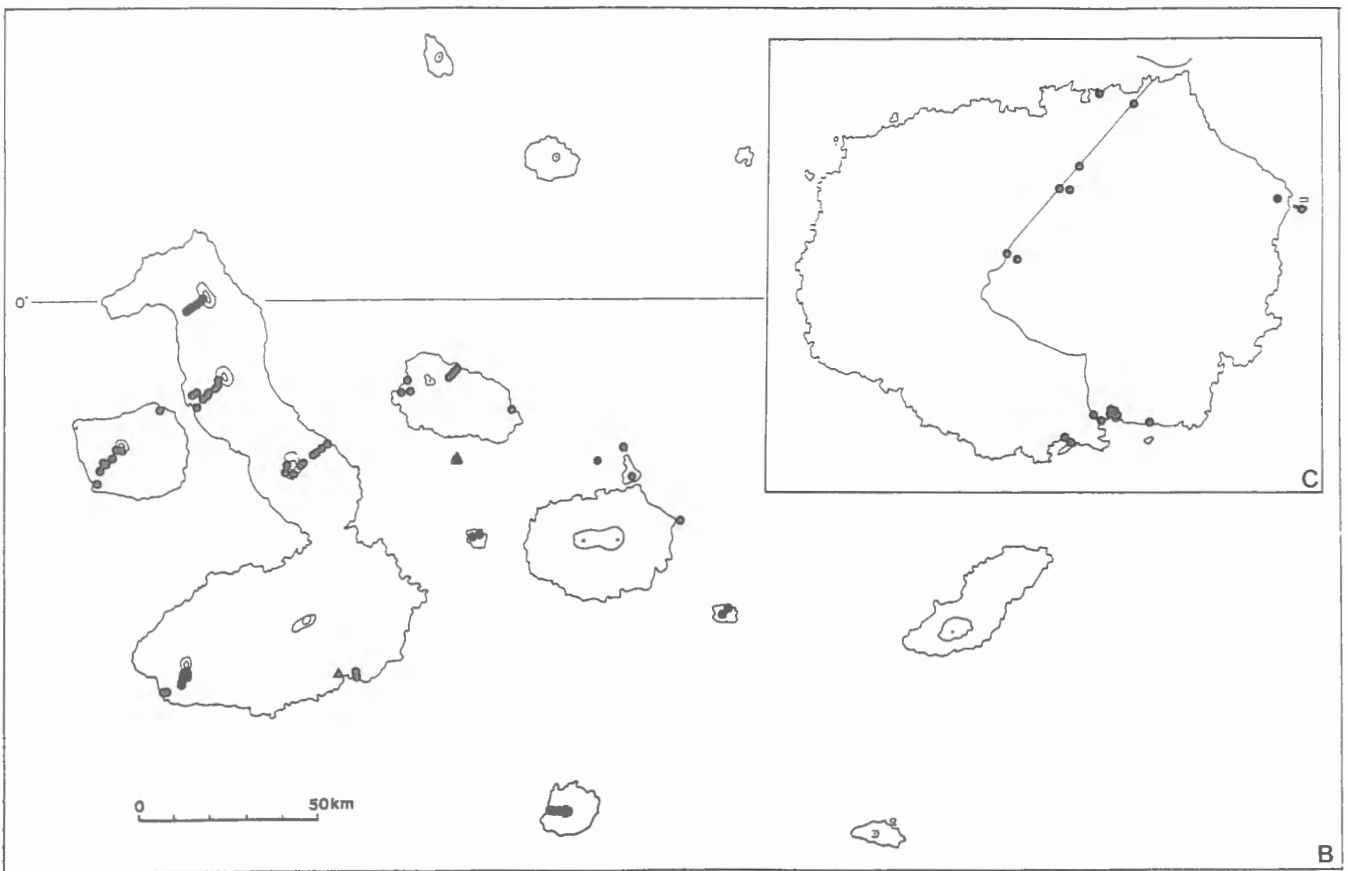
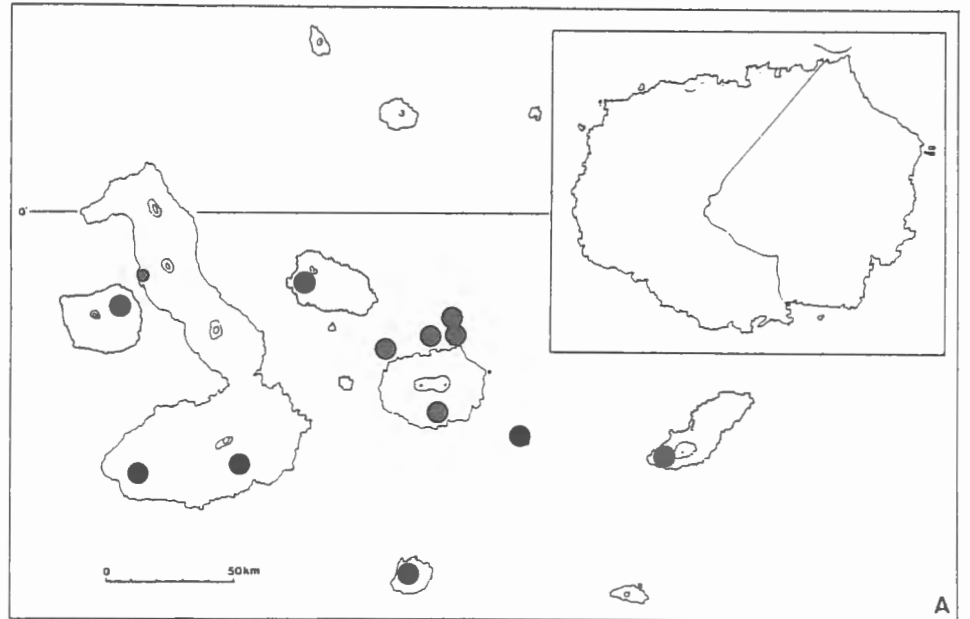
**SCORPIONES**

Family **Buthidae**

*Centruroides exsul* (MEISE, 1934)  
(Fig. 4, Map 1)

*Centruroides luctifer* MARX, 1889:210. Nomen Nudum.  
*Androctonus americanus* MARX, 1889:209.  
? *Androctonus americanus*: BUTLER, 1877:75.  
*Centrurus princeps*: BANKS, 1902:68; KRAEPELIN, 1899:95.  
*Rhopalurus testaceus exsul*: MEISE, 1934:25.  
*Centruroides exsul*: MELLO-LEITAO, 1945:255; ROTH & CRAIG, 1970:119; KINZELBACH, 1973:2; SISSOM & FRANCKE, 1983:1; SISSOM & LOURENÇO, 1987:22.

**Literature:** Known from Floreana (BUTLER, 1877, misidentified as *Androctonus americus* Linnaeus); + Española and San Cristóbal (V) (BANKS, 1902, misidentified as *Centrurus princeps* KARSCH, 1879); + Pinta, Santa Cruz (ROTH & CRAIG, 1970) + Marchena (SISSOM & LOURENÇO, 1987).



Map 1. — Distribution of *Centruroides exsul* (MEISE, 1933) (Scorpiones). A. Literature data. B. Data of examined specimens. C. Detail of Isla Santa Cruz.

**Localities :** **Española:** Seven localities: Punto Sevallos in the supralittoral zone (5m) (B88; 1sp; III); along the old American army road (10m) (B88, 1sp, III); littoral zone of Bahía Manzanilla (P92, 1sp, IV-V); supralittoral zone (B91, 1sp, IV) and dry arid zone of the second Caleta west of Bahía Gardner (B91, 2sp, IV); one along the Playa Blanca of Bahía Gardner (B91, 1sp, IV) and one at an altitude of 100 m (B91, P92, 3sp, IV). **Fernandina:** One locality at Cabo Hammond along the small beach (B88, 1sp, II). **Marchena:** In the dry arid zone of Playa Negra (B88, 3sp, III). **Pinta:** Eight localities. In the coastal evergreen shrub zone of Cabo Ibbetson (P92, 2sp, III); at 40 m alt. in the *Bursera* forest (P92, 1sp, III), at 200 m alt. in the Transition zone (P92, 2sp, III); in the evergreen forest at 540 m of altitude (J74, 1sp, II); in the eastern part of the island at the altitudes of 300 (B86, 1sp, III) and 360 m (B86, 8sp, III); in the southwestern part of the island under rocks along the beach (B86, 1sp, III) and in the dry season deciduous forest at 200 m alt. (B86, 3sp,

III). **Rábida:** At 250 m alt., in the Palo Santo wood along the northwestern coast (P91, 2sp, VI). **Santiago:** One locality at the Mina de Sal (50 m alt.) (J74, 1sp, III). **Santa Cruz:** One locality at 150 m alt. at the northern side of the island along the road to Puerto Ayora (P92, 2sp, IV-V).

**Distribution:** Española, Fernandina\*, Floreana, Marchena, Pinta, San Cristóbal, Santa Cruz and Santiago\*. This species seems to be confined to the low dry arid zone, except for Pinta where it was found up to 540 m altitude in an evergreen forest.

Endemic to the archipelago.

#### Family Vejovidae

#### *Hadruides galapagoensis* MAURY, 1974 (Map 2)

*Vejovis galapagoensis* MARX, 1889:211. Nomen Nudum.  
*Hadruides lunatus*: BANKS, 1902:68; BANKS, 1924:95; BANKS, 1931:271; ROEWER, 1943:236; MELLO-LEITAN, 1945:120; ROTH & CRAIG, 1970:119; KINZELBACH, 1973:4.  
*Hadruides maculatus galapagoensis* MAURY, 1974:19.

**Literature:** Known from Isabela Volcán Darwin, Santiago, Santa Fé and Fernandina (III-V) (BANKS, 1902); + Baltra, Daphne Mayor, Eden (IV) (BANKS, 1924) + Floreana, Pinzón, Plaza Sud, Santa Cruz, (ROTH & CRAIG, 1970; KINZELBACH, 1973; MAURY, 1974) + Isabela Cerro Azul (LOURENÇO, 1995).

**Localities :** **Baltra:** *Bursera graveolens* forset, AZ at alt. 30 m (P89; 2sp; I). **Daphne:** Crater floor, alt. 50 m (B88; 8sp; III); rim of caldera, alt. 120 m (B88; 3sp; III). **Fernandina:** Punta Espinosa (B88; 5sp; III); Cabo Hammond, along beach (B91, H91; 14sp; V); Southwestern flank: Cerro Verde, alt. 170 m (B88, H91; 3sp; II, V); alt. 400 m (B91; 2sp; V); alt. 1000 m (B91; 1sp; V); alt. 1320 m, near fumarool (B91; 2sp; V); alt. 1380 m (B88; 1sp; II). **Floreana:** Western flank: Black beach in littoral zone (B88, P89, B91; 11sp; II-IV) and dry arid zone (P89, B91; 10sp; III-IV); alt. 100 m, dry season deciduous steppe forest (B88, P89, B91; 111sp; II-IV); alt. 150 m, finca Cruz (B91; 23sp; IV); alt. 200 m, deciduous forest (B88, B91; 68sp; II, IV); transition zone some 5.5 km East of Black Beach, alt. 250 m (P89; 4sp; III); alt. 350 m, *Scalesia*-wood east of Cerro Pajas (P89; 2sp; III); alt. 640 m, top of Cerro Pajas (B91; 1sp; IV). **Isabela Beagle Crater:** From sealevel to rim of crater (B82, B88; 4sp; II-III). **Isabela Cerro Azul:** Southwestern flank. Caleta Iguana (B86; 4sp; II); alt. 200 m (B86; 1sp; II); alt. 1200 m (B86; 1sp; II); alt. 1300 m (B91; 1sp; V); alt. 1400 m (B91; 1sp; V); alt. 1450 m (B86; 5sp; II); alt. 1480 m (B91; 1sp; V); alt. 1530 m (B86; 2sp; II). **Isabela Sierra Negra:** Lagunas de Villamil (F75; 2sp; -); Cueva de la Cadena, 2k m W of Villamil (P85; VII); Dry arid zone some 1.5 km WNW of Villamil (P89; 1sp; III). **Isabela Volcán**

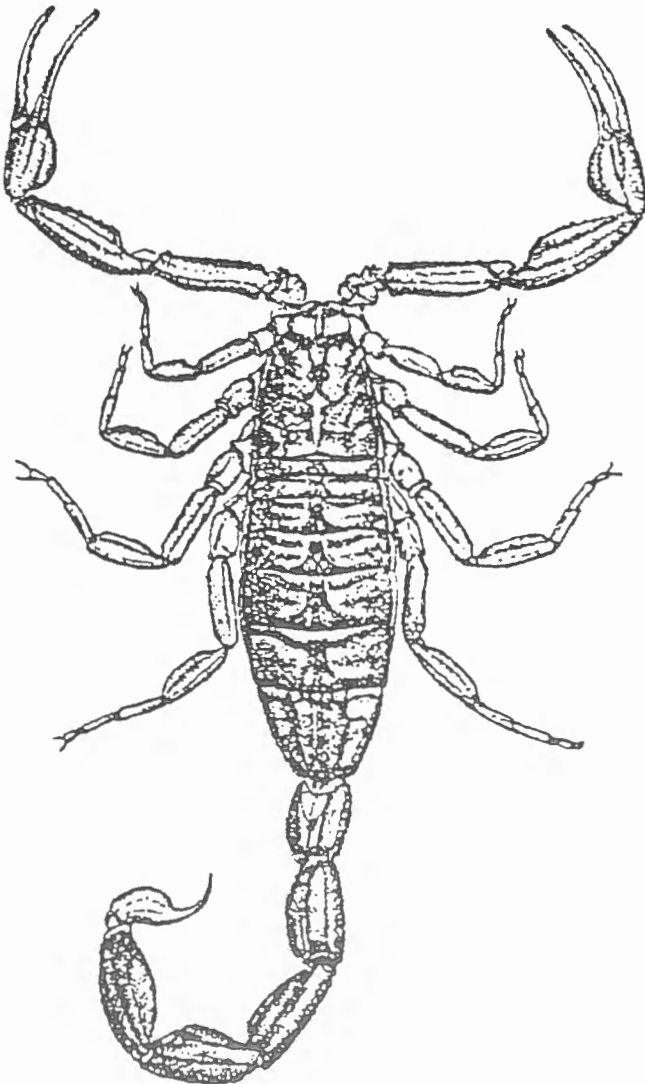
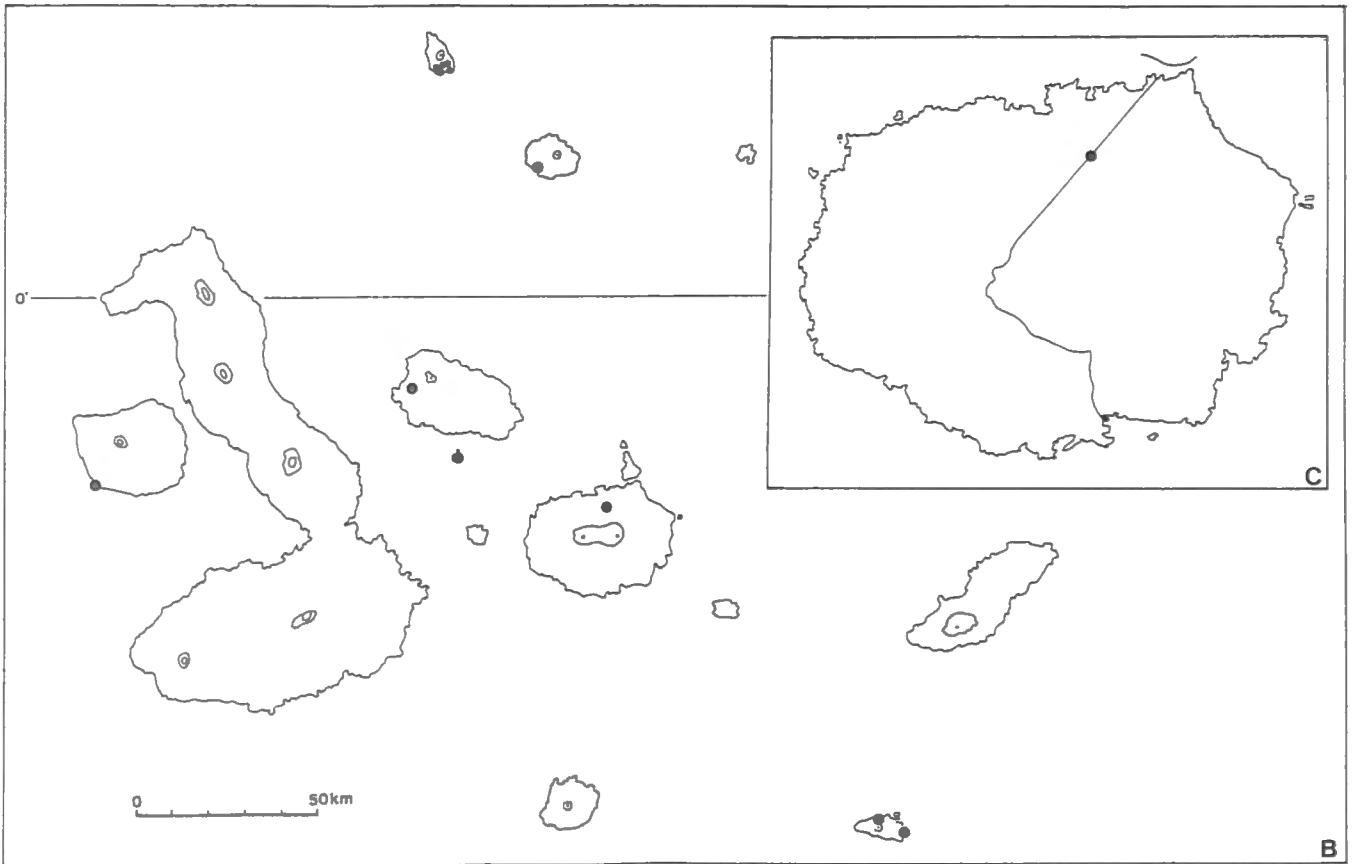
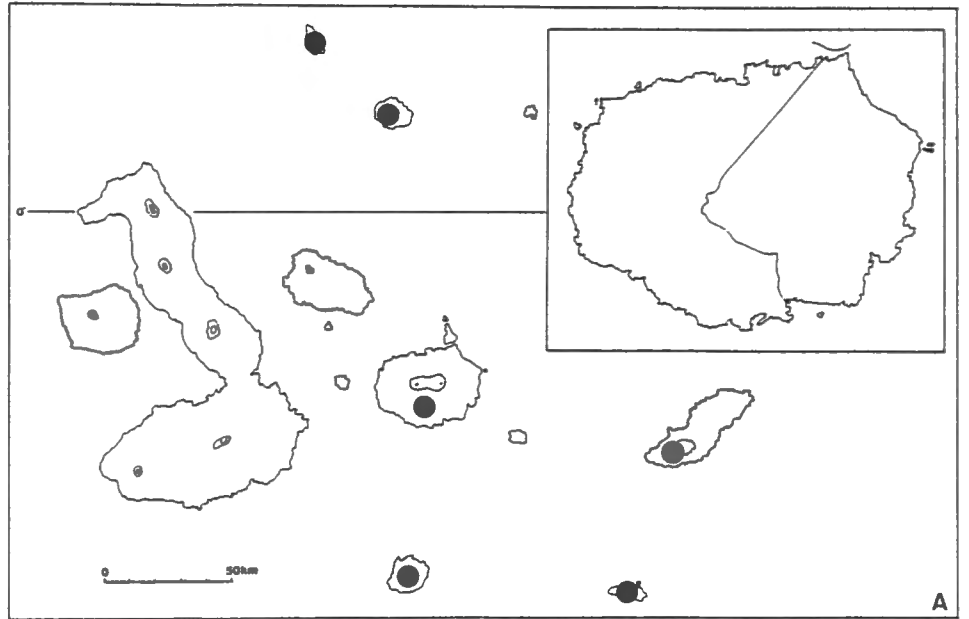


Fig. 4. — Scorpiones. *Centruroides exsul* (MEISE, 1933). 50 mm.



Map 2. – Distribution of *Hadruroides galapagoensis* MAURY, 1974 (Scorpiones). A. Literature data. B. Data of examined specimens. C. Detail of Isla Santa Cruz.

**Alcedo:** Northeastern slope and crater rim. DAZ near coast, alt. 5 m (B91, P91; 3sp; VI); *Bursera graveolens*-wood, alt. 200 m (B86; 2sp; III-IV); alt. 400 m (B86; 1sp; III-IV); alt. 600 m (B86; 4sp; III-IV); alt. 800 m (B82, B86, P91; 6sp; III-IV, VI); alt. 900 m (B82, B86; 4sp; III-IV); alt. 1000 m, NE crater rim (B86, P91; 3sp; III-IV, VI); alt. 1060 m, SE crater rim (B86, B91; 8sp; IV, VI); alt. 900 m, Geyser inside crater (B86; 6sp; IV); beneath sulfur areas inside crater (J74; 2sp; III).

**Isabela Volcán Darwin:** Southwestern slope. Alt. 200 m (B88; 2sp; III); alt. 500 m (B88; 5sp; III); alt. 600 m (B88; 1sp; III); alt. 800 m (B88; 5sp; III); alt. 900 m (B88; 2sp; III); alt. 1000 m (B88; 2sp; III); lava tunnel at 1200 m alt. (B88; 2sp; III); alt. 1300 m (B88; 4sp; III); Tagus Cove, alt. 100 m, tourist trail (P92; 1sp; V); 2 km NE of Tagus Cove, alt. 40 m (P92; 2sp; V); 3 km NE of Tagus Cove, alt. 300 m (P92; 1sp; V). **Isabela Volcán Wolf:** Southwestern slope. Alt. 125 m (B88; 4sp; III); alt. 350 m (B88; 1sp; V); alt. 400 m (B88; 5sp; III); alt. 600 m (B88; 1sp; III); alt. 825 m (B88; 1sp; III); alt. 1425 m (B88; 5sp; III); alt. 1625 m (B88; 5sp; III); alt. 1700 m, top (B88; 5sp; III). **Pinzon:** Playa Escondida, DAZ, alt. 10 m (B91; 3sp; VI); rim of main crater, alt. 300 m (B86; 7sp; III); caldera "La Central, alt. 300 m (F75, B91; 3sp; VI); floor of main crater, alt. 125 m (B86; 48sp; III). **Rábida:** Along beach of laguna (B86, P91; 11sp; III, VI); northwestern coast, AZ, alt. 40 m (P91; 1sp; VI); northwestern coast, *Bursera* forest, alt. 250 m (P91; 5sp; VI). **Santa Cruz:** Surroundings of the CDRS (F75, P89; 18sp; II-V); Barranco near CDRS, alt. 20 m (B86, B91, H91; 29sp; III-V); coastal area of Bahía Tortuga (B86, B91, P91; 34sp; III-VI); Playa Bachas, near laguna (B88; 1sp; III). Northern flank of island: alt. 50 m (B88; 4sp; II-III); alt. 150 m (B86, P92; 26sp; III-V); alt. 250 m (B88; 1sp; III-IV); alt. 300 m (B88, P92; 75sp; II-V); alt. 500 m (P92; 1sp; III); alt. 560 m (P91; 1sp; VI). Southern flank: Puerto Ayora (P92; 1sp; II); Laguna Andrés (P92; 7sp; IV); alt. 50m, DAZ (B86; 2sp; III); Cerro Colorado (F75; 1sp; V). **Santa Fé:** Northeastern coast, alt. 5 m (F75, B86, P89, B91; 25sp; III-IV); *Scalesia*-litter at 30 m alt. (P89; 7sp; IV). **Santiago:** Puerto Egas, alt. 10 m (B82; 1sp; IV); Mina de Sal, alt. 10 m (B86; 1sp; III), alt. 50 m (J74, B86; 13sp; III); Playa Espumila (J74, B86, B88, H91; 6sp; III), AZ (P91; 1sp; VI); Northern slope: Puerto Nuevo, DAZ (B86; 7sp; III); alt. 100 m (B86; 5sp; III); alt. 300 m (B86; 3sp; III); alt. 400 m (B86; 22sp; III); Bahía Sullivan, AZ (P92; 1sp; III). **Seymour Norte:** *Bursera graveolens*-forest, alt. 10 m (P89; 1sp; I); alt. 15 m (P89; 1sp; I). **South Plaza:** (P92; 2sp; V).

**Distribution:** Baltra, Daphne mayor, Eden, Fernandina, Floreana, Isabela (Beagle Crater\*, Cerro Azul, Sierra Negra\*, Volcán Alcedo\*, Volcán Darwin, Volcán Wolf\*), Pinzón, Plaza Sud, Rábida\*, Santiago, Santa Cruz, Santa Fé, Seymour Norte\*.

This species seems to be absent on the Northern islands Pinta, Marchena and Genovesa and the Southwestern island Española (cfr. *Centruroides exsul*).

It can be found from the coastal arid zone up to the arid

topzone of the Isabela volcanoes, but seems to be absent in the Transition, *Scalesia*, *Miconia* and pampa zones of Santa Cruz, the Sierra Negra volcano of Isabela, Santiago and San Cristóbal.

## SOLIFUGAE

### Family Ammotrechidae

#### *Neocleobis solitarius* (BANKS, 1902)

(Fig. 5, Map 3)

*Ammotrecha solitaria* BANKS, 1902:69; BANKS, 1924.

*Neocleobis solitarius*: ROEWER, 1934:593; MUMA, 1970:127.

**Literature:** Known from Isabela Volcán Cerro Azul (BANKS, 1902); †Genovesa and Daphne (BANKS, 1924); †Floreana, Santa Cruz (MUMA, 1970); + Pinta, San Cristóbal and Wolf (ROTH & CRAIG, 1970).

**Localities:** **Española:** Bahía Manzanilla, LZ (P92; 1sp; IV-V); *Prosopis* grove behind beach (P85; 2sp; VI). **Fernandina:** Cabo Hammond, LZ and SLZ (B91; 2sp; V). **Floreana:** Punta Cormorant, eastern shore of laguna, alt. 2 m (B91; 2sp; IV), alt. 10 m, white sand dunes (B91; 2sp; IV), DAZ along tourist trail (P92; 1sp; IV); Post Office Bay, DAZ, alt. 10 m (F75; 1sp; V). **Genovesa:** Sandy beach at Bahía Darwin, alt. 5 m (B88, P92; 3sp; III); along barranco of Bahía Darwin, bare lava with *Opuntia*'s, alt. 20 m (P92; 28sp; III); Lago Arcturus, inner platform, alt. 60 m (B88; 2sp; III). **Isabela Volcán Cerro Azul:** Alt. 1530 m, ash field with xerophytic nanophyllous evergreen steppe scrub (B86; 1sp; II); alt. 1510 m, inner crater (B91; 2sp; V).

**Isabela Volcán Alcedo:** Northeastern slope, DAZ near coast, alt. 5 m (B86, B91; 2sp; II-IV). **Marchena:** Playa Negra, DAZ along coast, alt. 5 m (B88; 2sp; III), alt. 25 m (B88, P92; 12sp; III); Punta Mejia, DAZ (B88; 2sp; III); Punto Espejo, DAZ (P92; 10sp; III). **Pinta:** Cabo Ibbetson, SLZ (F75, B86, P92; 12sp; II, VI); Playa Ibbetson, *Bursera*-forest, alt. 40 m (P92; 7sp; III); Alt. 25 m (B86; 3sp; III); Transition zone, alt. 200 m (P92; 7sp; III); Alt. 400 m, evergreen forest (B86; 1sp; III); Southwestern part of island, beach, alt. 2 m (B86; 5sp; III), low savannah with open tree vegetation (B86; 1sp; III). **Pinzon:** Rim of main crater, alt. 300 m (B86; 1sp; III). **Rábida:** Near lagoon (B86; 1sp; III). **Santiago:** caleta Bucanero, alt. 30 m (B82; 2sp; IV); Puerto Nuevo, between lava blocks near beach, alt. 2 m (B86; 1sp; III); northeastern slope, alt. 100 m (B86; 1sp; III), alt. 400 m (B86; 3sp; III), alt. 500 m (B86; 1sp; III). **San Cristóbal:** Puerto Grande (F75; 5sp; VI); Puerto Baquerizo Moreno (H91; 4sp). **Santa Cruz:** Coastal area of Bahía Tortuga (F75, B86, P89, B91, H91; 13sp; I, III-VI). **Santa Fé:** Northeastern coast of island, alt. 5 m (B86, H91; 6sp; III); DAZ vegetation, alt. 75 m (H91).

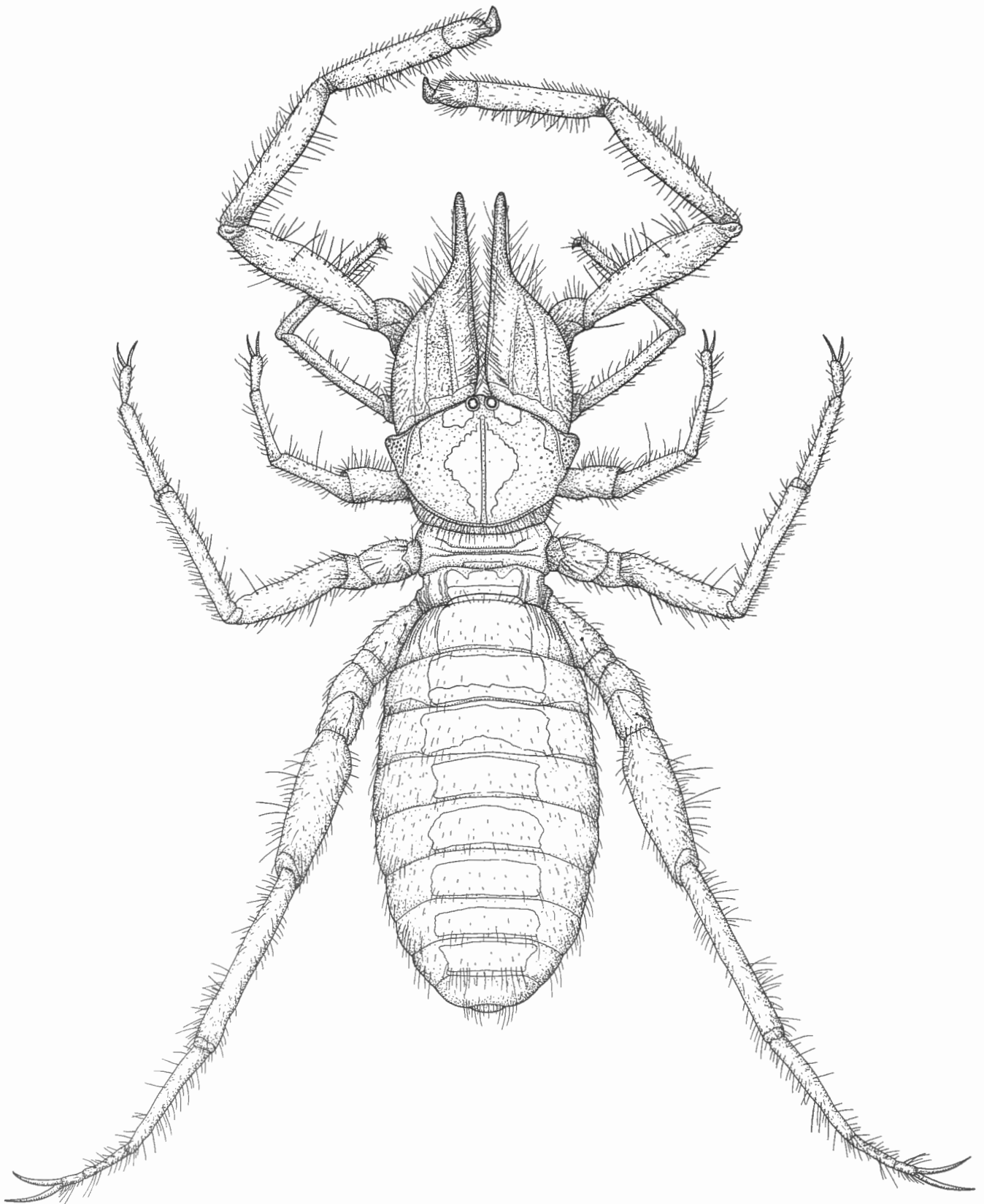
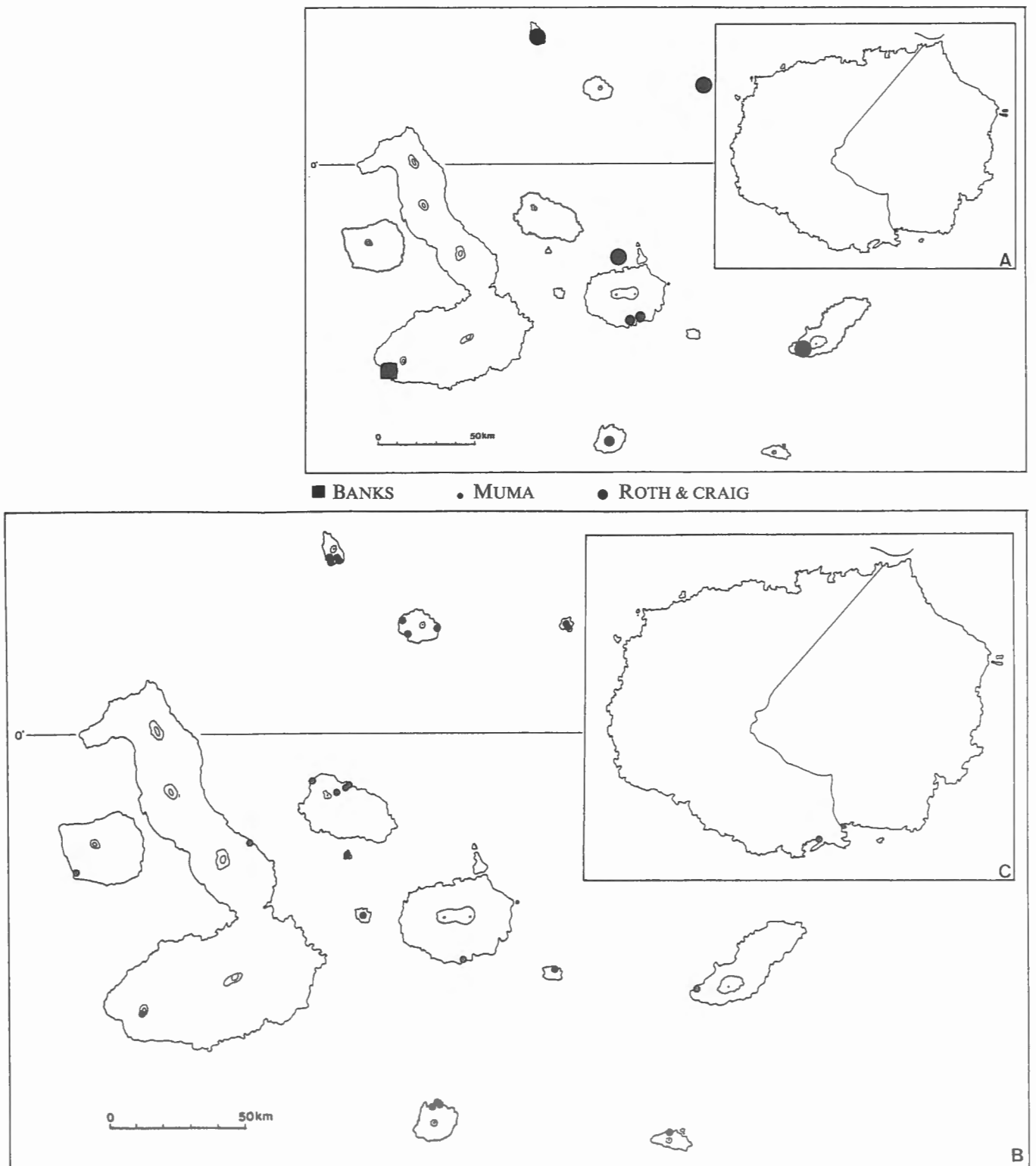


Fig. 5. – Solifugae. *Neocleobis solitarius* (BANKS, 1902). 24 mm.



Map 3. – Distribution of *Neocleobis solitarius* (BANKS, 1902) (Solifugae). A. Literature data. B. Data of examined specimens. C. Detail of Isla Santa Cruz.



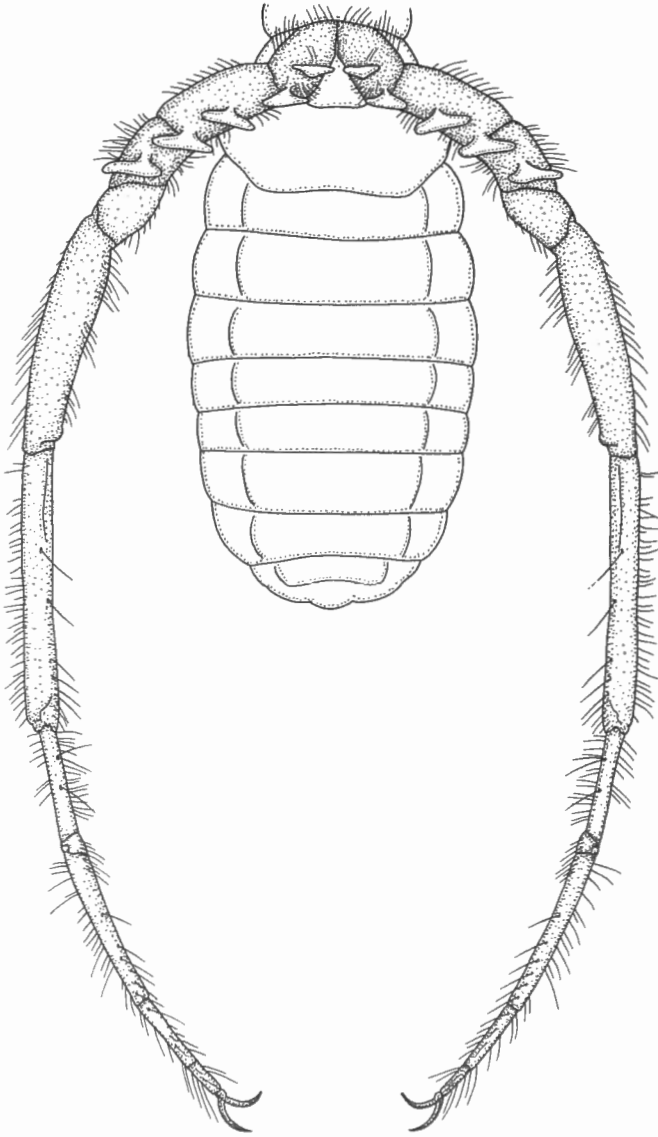


Fig. 6. – Solifugae. *Neocleobis solitarius* (BANKS, 1902). 24 mm.

**Distribution:** Daphne mayor, Española\*, Fernandina\*, Floreana, Genovesa, Isabela (Cerro Azul, Volcán Alcedo\*), Marchena\*, Pinta, Pinzón\*, Rábida\*, San Cristóbal, Santa Cruz, Santa Fé\*, Santiago\* and Wolf. This species is widespread through the archipelago but seems to be confined to the dry zones of all islands where it occurs.

Endemic to the archipelago.

## AMBLYPYGI

### Family Charontidae

#### *Charinus insularis* BANKS, 1902

(Fig. 7, Map 4)

**Literature:** Known from Fernandina, Isabela, San Cristóbal and Española (III,V) (BANKS, 1902); + Santa Cruz and Isabela Volcán Sierra Negra (ROTH & CRAIG, 1970; Stockton, 1976). It is cited from several caves (PECK & PECK, 1986; PECK & KUKALOVA-PECK, 1986; HERNÁNDEZ at al., 1992) of Santa Cruz (Cueva de Iguana, Pto Ayora; Cueva da la Señora Colombia, Bellavista; Cueva del Chato; Cuevita de las Cyatheas; Cueva Finca Kastdalen, Bellavista; Cueva de Kübler, Pto Ayora; Cuevas Gallardo, Bellavista; Cueva Finca Vargas, Sta Rosa; Cueva de los tres entradas, el Camote; Cueva de Cerro Banderas, cuevitas al suroeste de C. Banderas, Cueva de Elena, Sta Rosa; Cueva del Cascajo, Bellavista) and Isabela Volcán Sierra Negra (Cueva de Sucre, Sto Tomás; Cueva de la Cadena, Pto Villamil).

**Localities:** **Española:** All findings under stones. Bahía Manzanilla, alt. 5 m (P92; 2sp; IV); alt. 50 m (B91; 2sp; IV); alt. 100 m (B91, P92; 5sp; IV); alt. 130 m (B91; 2sp; IV); alt. 175 m (B88; 2sp; IV). **Fernandina:** Southwestern slope. Cerro Verde, alt. 170 m (B88; 6sp; II); alt. 400 m (B91; 5sp; V); alt. 430 m (B91; 1sp; V). **Isabela Cerro Azul:** Southwestern slope. Alt. 200 m (B91; 1sp; V); alt. 680 m, pampa (P91; 1sp; V). **Isabela Sierra Negra:** Under stones: Alt. ca. 400 m, La Torre near Sto Tomás (F75; 1sp; V). In caves: Cueva de la Cadena, 2 km W of Villamil (P85; 1sp; VII); Cueva de Sucre, 2 km NE of Sto Tomás, alt. 360 m (P85; VII). **Isabela Volcán Darwin:** Western slope. Alt. 50 m, between lava boulders (B82; 3sp; II); alt. 400 m (B88; 1sp; III). **Isabela Volcán Wolf:** Western flank. Alt. 600 m (B88; 1sp; II); alt. 1000 m (B88; 1sp; III). **Pinzón:** Northeastern slope. Alt. 50 m (B86; 1sp; III); alt. 300 m, rim of main crater (B86; 1sp; III); alt. 300 m, caldera “La Central” (F75; 1sp; VI). **Santiago:** Northeastern slope. Alt. 100 m (B86; 1sp; III); alt. 300 m (B86; 1sp; III); alt. 700 m, highland (B86; 1sp; III); Mina de Sal, alt. 50 m (B86; 1sp; III). **San Cristóbal:** 1 km E of El Junco, *Miconia*-ravine, alt. 550 m (P89; 1sp; II). **Santa Cruz:** Under stones: southern flank, alt. 140 m, Transition zone S of Bellavista (P89; 3sp; I); in fissure near the Barranco near the CDRS (L65; 4sp). In caves: Cueva Andrés, alt. 10 m (B86; 1sp; II); Cueva Iguana, 8 km N of Puerto Ayora (P85; V); Cueva 2 km S of El Chato, Transition zone, alt. 110 m (P85; VII); Cueva Gallardo (Bellavista 2), alt. 310 m (P85; 14sp; V, VII); Cueva Sra Colombia, Bellavista, alt. 280 m (P85; 1sp; VI); Cuevas Finca Kastdalen, 2 km NE of Bellavista, alt. 300 m (P85; 1sp; VI); Cuevas de Vargas, 5 km NE of Santa Rosa, alt. 500 m (P85; 2sp; V); Cuevita al Sur Oeste de Cerro Banderas, alt. 600 m (P85; 4sp; VI); Cueva de Cerro Banderas, 4 km NE of Santa Rosa, alt. 620 m (P85; 5sp; VI); Cueva Tres Entradas, 2 km NE of El Camote,

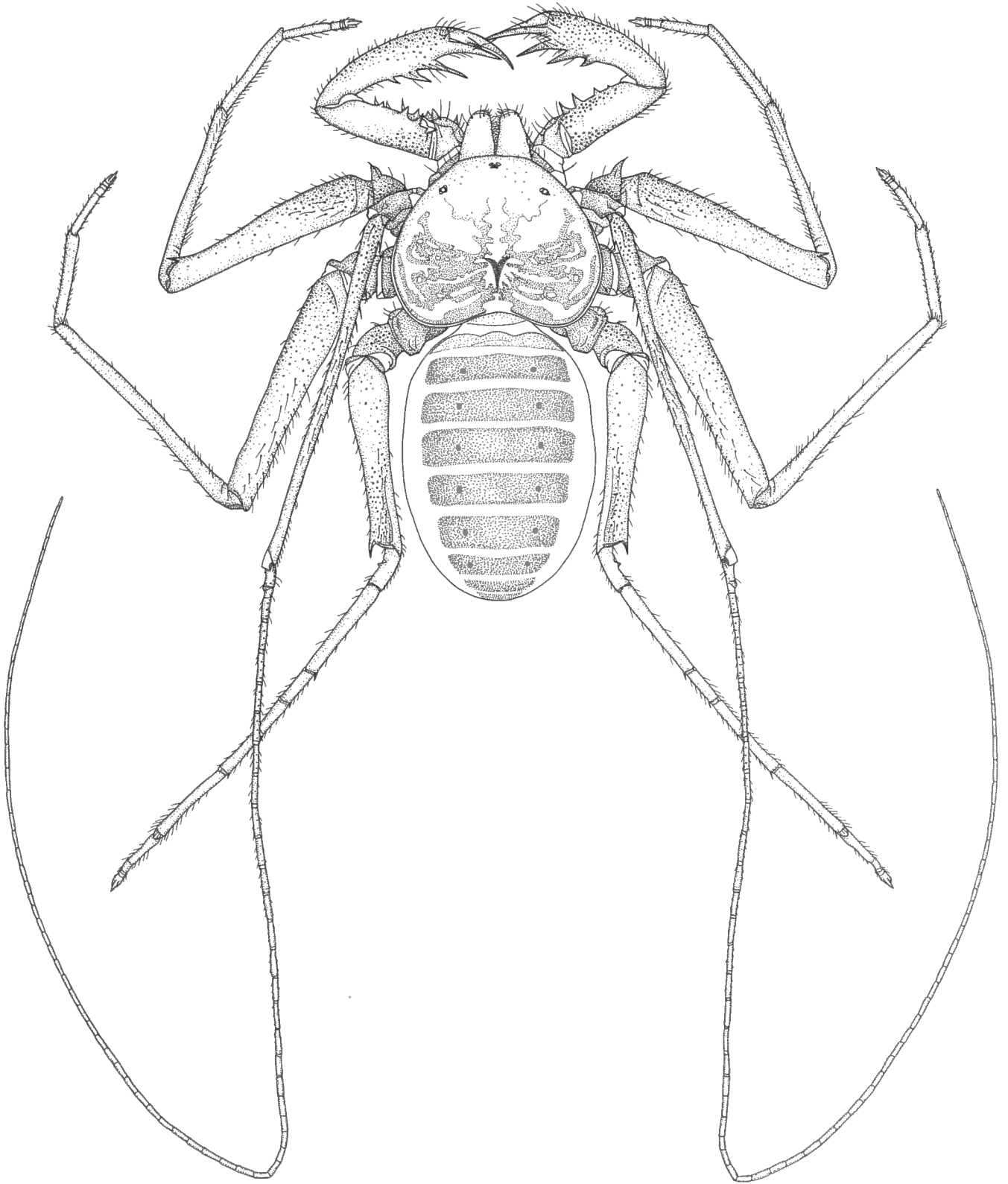
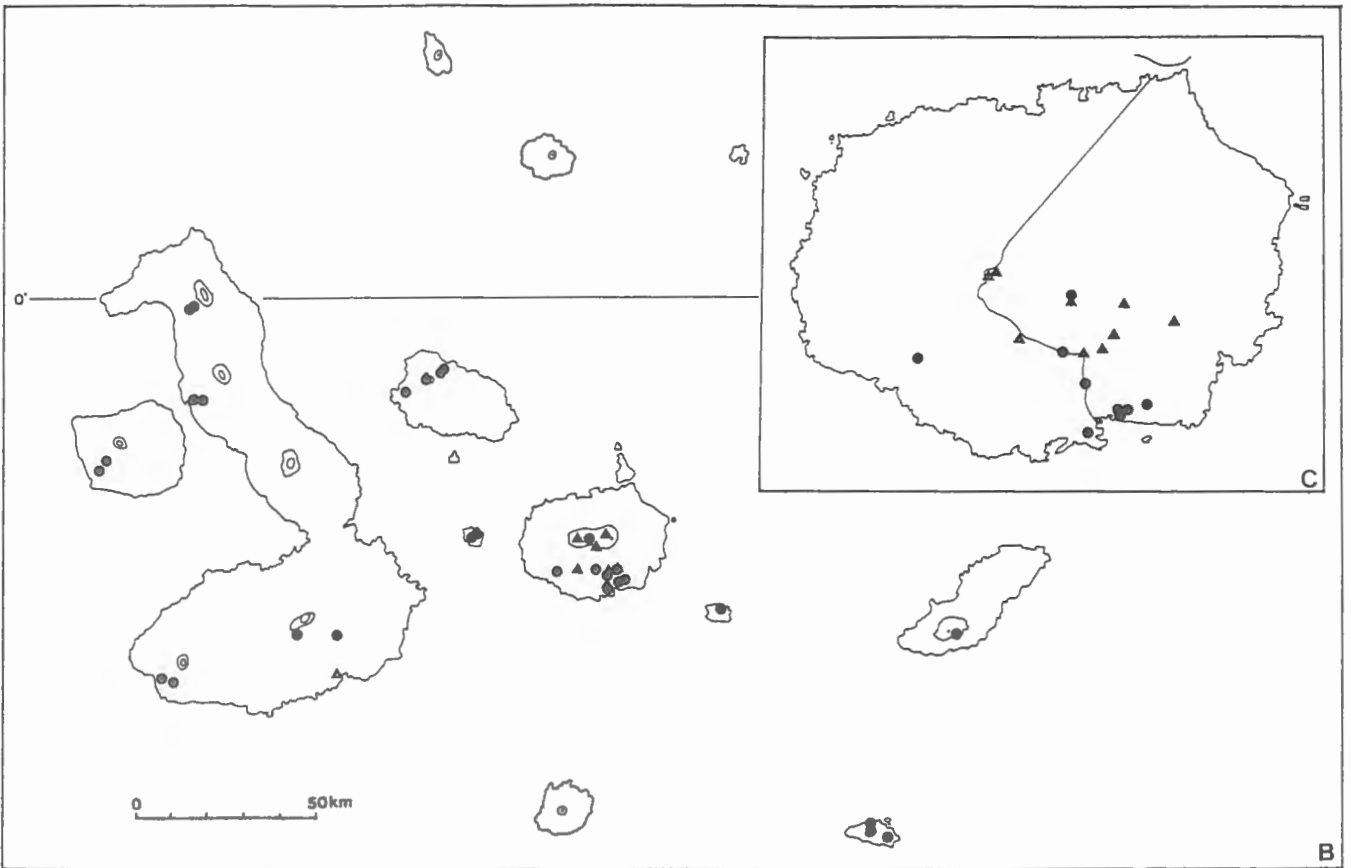
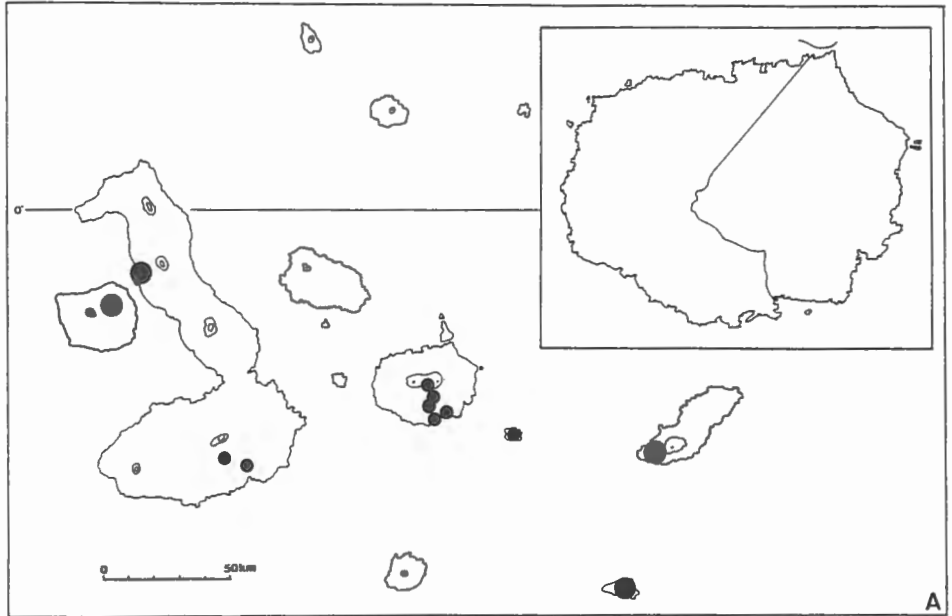


Fig. 7. – *Amblypygi Charinus insularis* BANKS, 1902. 10 mm.



Map 4. – Distribution of *Charinus insularis* BANKS, 1902 (Amblypygi). A. Literature data. B. Data of examined specimens. C. Detail of Isla Santa Cruz (the small triangles indicate caves).

alt. 670 m (P85; 3sp; VI); Cueva de las Cyatheas, alt. 700 m (P85; 2sp; VI).

**Distribution:** Española, Fernandina, Isabela (Cerro Azul\*, Volcán Sierra Negra, Volcán Darwin, Volcán Wolf\*), Pinzón\*, San Cristóbal, Santa Cruz and Santiago\*.

This species seems to be absent on the Northern islands Pinta, Marchena, Genovesa and the Southeastern island Floreana. It is not only found in caves and crevasses but also under loose rocks and stones from the arid zone up to the pampa zone.

Endemic to the archipelago.

## SCHIZOMIDA

### Family Schizomidae

*Stenochrus portoricensis* CHAMBERLIN, 1922  
(Fig. 8, Map 5)

**Literature:** This species is very widespread on the mainland and has been found in the U.S.A., Mexico, Bermuda, Belize, Guatemala, Honduras, Nicaragua, Cuba, Dominica, Jamaica, Puerto Rico, Virgin Islands, Colombia, Ecuador (ROWLAND & REDELL, 1980; REDELL & COKENDOLPHER, 1986).

From the Galápagos, it was known from the Culture zone (in plantage) and caves (Cuevas de Bellavista n° 1 & 2 = Cuevas Gallardo, Cueva Finca Kastdalen and Cueva Sra Colombia) nearby Bellavista, Santa Cruz (REDELL

& COKENDOLPHER, 1986; PECK & PECK, 1986; PECK & KUKALOVA-PECK, 1986; HERNANDEZ et al., 1992).

**Localities since 1982 (examined):** San Cristóbal: 1 km W of El Progreso, coffee plantation, alt. 300 m (P89; 3 ♀; II). Santa Cruz: Cueva Bellavista n° 1 (Cueva Gallardo), alt. 210 m (P91; 2 ♀; VI); Finca Vilema, CZ Bellavista, alt. 230 m (P92; 4 ♀; IV); CZ Bellavista, alt. 350 m (P92; 4 ♀; II-III); Horneman farm, CZ Bellavista, alt. 250 m (L65; 32 ♀, 3j).

**Distribution:** San Cristóbal\* and Santa Cruz.

This species is confined to the Cultivated zones of the inhabited islands with highest human population. It has clearly been introduced with culture plants.

## OPILIONES

### Family Gonyleptidae

*Galanomma microphthalmum* JUBERTHIE, 1970  
(Fig. 1, Map 6)

This species is described from Santa Cruz in 1970, from a small cave (Cueva del caballo) at an altitude of 700 m and a crevice (10 m depth) situated not far from the CDRS. It has been cited since by PECK & PECK, 1986, PECK & KUKALOVA-PECK, 1986 and HERNÁNDEZ et al., 1992 from a number of caves: Cuevas de la Finca Kastdalen, Bellavista; Cueva de la Finca Vargas, Sta Rosa, Cueva and Cuevitas de Cerro Banderas.

**Distribution:** A very rare species confined to some caves of Santa Cruz. Endemic to the archipelago.

Hernández et al. cite unidentified *Galanomma* opiliones from caves of Santiago (Cueva del crater de Sal, Puerto Egas; Cueva del campamento Central, highland) and from the Poso de los Gemelos of Santa Cruz.

## PSEUDOSCORPIONES

Specieslist and distribution after BEIER 1976 & 1978.

*Apolpium longidigitatum* (ELLINGSEN, 1910): Isla Santa Cruz, in crevices near Bahía Tortuga and CDRS (II, XII) (BEIER, 1976). Islas Santa Fé, San Cristóbal (Playa Ochova) and Pinzón (V, VI, VIII) (BEIER, 1978). This species is known from Venezuela, Aruba and Antillen.

*Atemnus insularis* BANKS, 1902: Isla Isabela (I, II) (BANKS, 1902; ROTH & CRAIG, 1970).

*Chelanops nigrimanus* BANKS, 1902: Isla Isabela (III) (BANKS, 1902; ROTH & CRAIG, 1970).

*Galapagodinus franzi* BEIER, 1978: Islas Santiago (at Jaboncillos) and Pinzón (IV, VI) (BEIER, 1978).

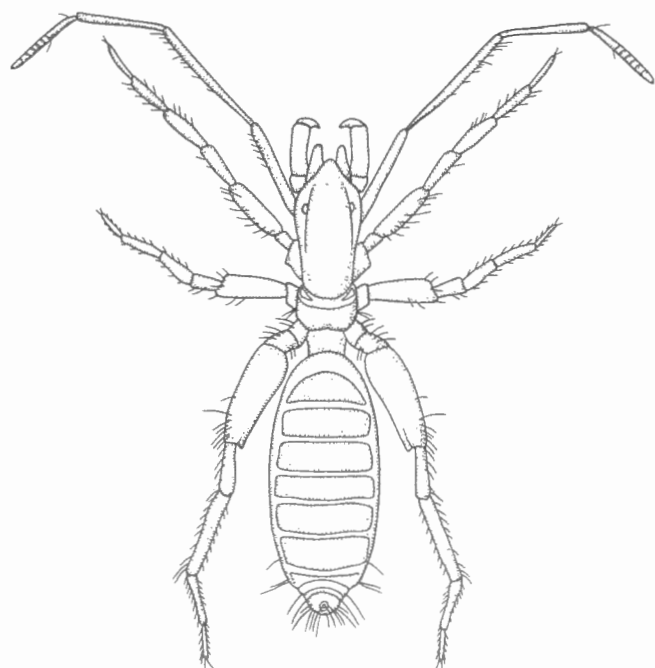
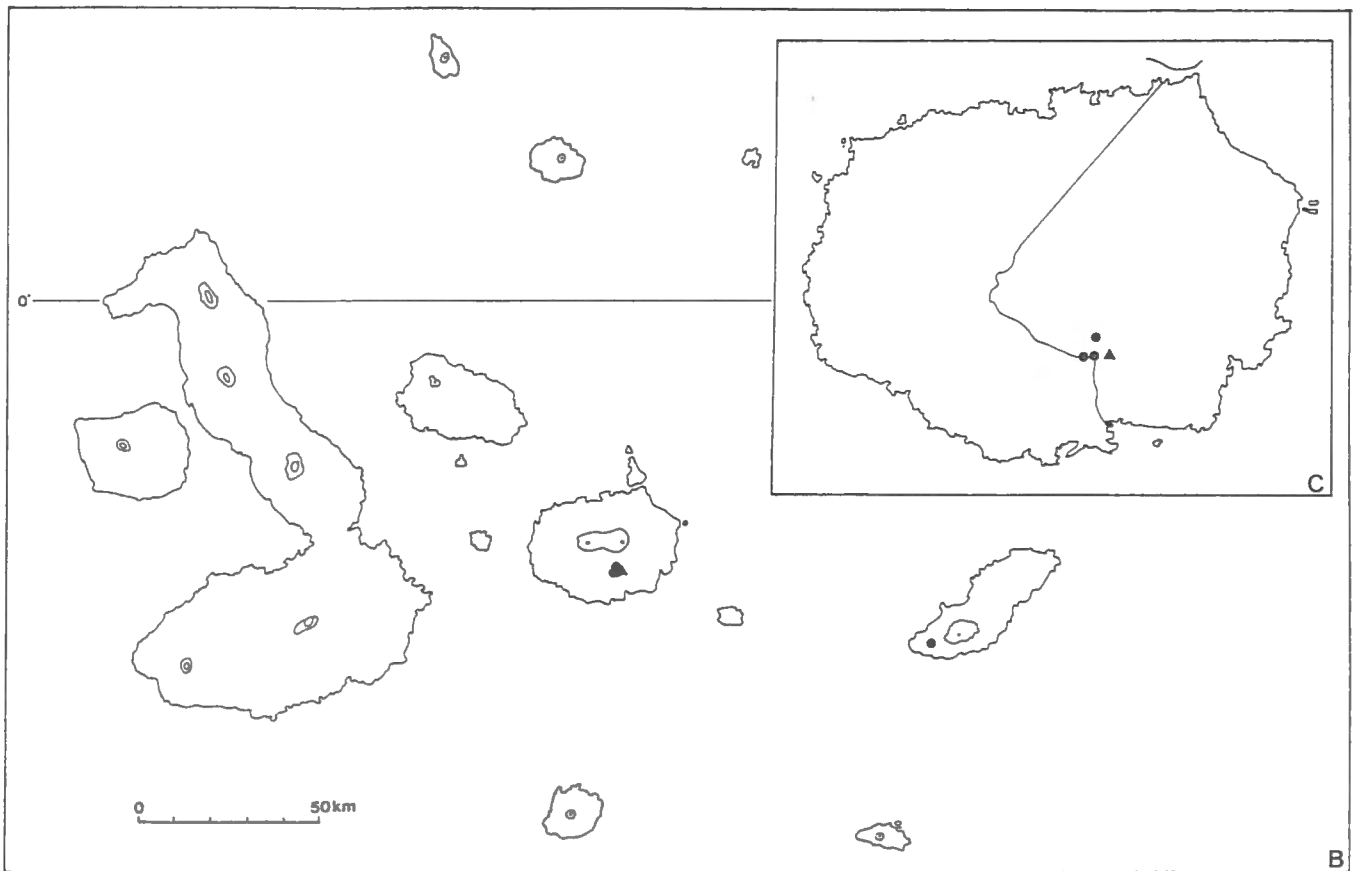
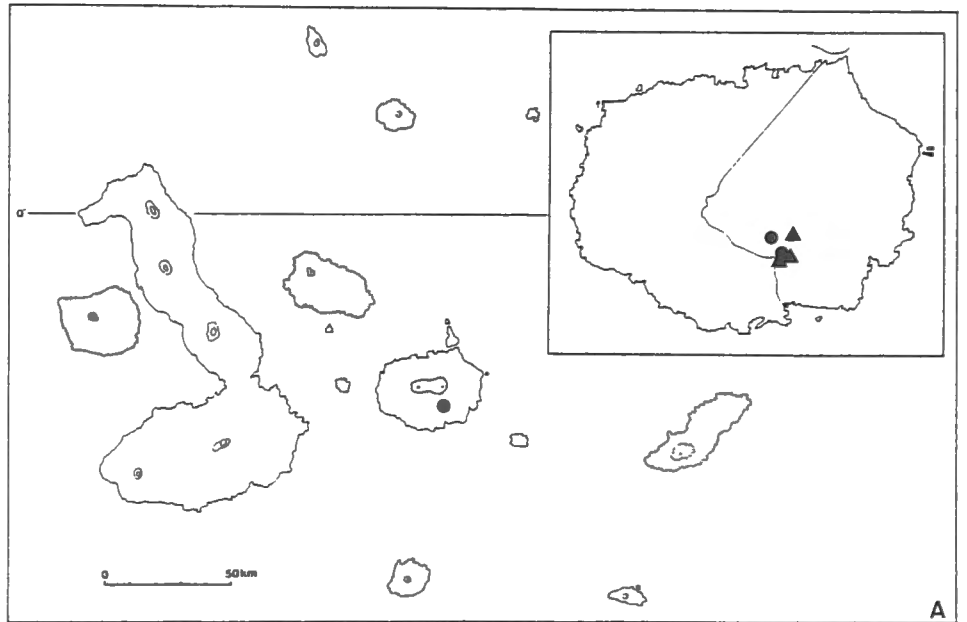
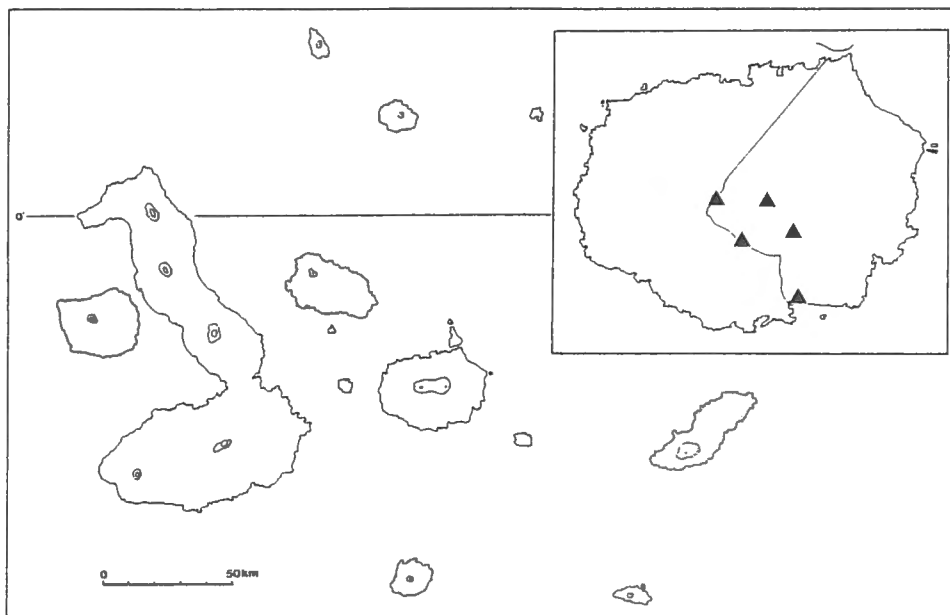


Fig. 8. — Schizomida. *Stenochrus portoricensis* CHAMBERLIN, 1922. 4 mm.



Map 5. — Distribution of *Stenochrus portoricensis* CHAMBERLIN, 1922 (Schizomida). A. Literature data. B. Data of examined specimens. C. Detail of Isla Santa Cruz (the small triangles indicate caves).



Map 6. – Distribution of *Galanomma microphthalmum* JUBERTHIE, 1970 (Opiliones). Literature data (the small triangles indicate caves).

*Ideobisium simile* BALZAN, 1891: Isla Santa Cruz, in crevices near Bahía Tortuga and CDRS (II, XII) (BEIER, 1976).

This species is known from Venezuela.

*Lechytiya chthoniiformis* (BALZAN, 1890): Isla Santa Cruz, in crevices near Bahía Tortuga and CDRS (I, II) (BEIER, 1976).

This species is very widespread in South-America.

*Neocheiridium corticum* (BALZAN, 1890): Isla Santa Cruz, in crevices near Bahía Tortuga and CDRS (I, II) (BEIER, 1976).

Widespread in South-America (Argentina, Paraguay).

*Neocheiridium galapagoense* BEIER, 1978: Isla Pinzón (VI) (BEIER, 1978).

*Parachernes darwiniensis darwiniensis* BEIER, 1978: Isla Isabela, Sierra Negra, in Jaboncillo wood near Sto Thomas (V) (BEIER, 1978).

*Parachernes darwiniensis maculosus* BEIER, 1978: Islas Pinzón (near 400 m alt.) and Santiago (at Jaboncillo) (IV, VI) (BEIER, 1978).

*Parachernes franzi* BEIER, 1978: Islas Pinta (*Scalesia* wood near top), Marchena (Palo Santo wood) and Isabela, Sierra Negra at 900 and 1000 m of altitude (fern sedge zone) (V, VI) (BEIER, 1978).

*Parachernes galapagensis* BEIER, 1976: Islas Santa Cruz (in crevice near Bahía Tortuga) and Isabela, Sierra Negra (under bark in humid forest at 17 km from coast, alt. 250 m) (II, XI, XII) (BEIER, 1976).

*Pseudochthonius galapagensis* BEIER, 1976: Isla Santa Cruz, crevices at Bahía Tortuga and near CDRS (II, XII) (BEIER, 1976).

*Rhopalochernes insulanus* BEIER, 1978: Isla Isabela, Sierra Negra, in the fern sedge zone at 900 and 1000 m of altitude (V) (BEIER, 1978).

*Serianus galapagoensis* BEIER, 1978: Islas Santa Fé (coastal vegetation) and Pinzón, near rim of crater (V, VI) (BEIER, 1978).

*Serianus pusillimus* BEIER, 1959: Isla Pinta, arid zone (VI) (BEIER, 1978). This species is known from Ecuador.

*Stenolpium insulanum* BEIER, 1978: Isla San Cristóbal (Playa Ochova) (V) (BEIER, 1978).

*Tyrannochthonius albidus* (BEIER, 1976):

*Morikawia albida* BEIER, 1976.

Isla Santa Cruz, entrance of cave near top of island (II) (BEIER, 1976). Isla Santa Cruz, near Sta Marta (VI) (BEIER, 1978).

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