

B O C A G I A N A

Museu Municipal do Funchal

Madeira

20.III.1989

No. 125

SYMPHYLA (MYRIAPODA) FROM THE CANARY ISLANDS

By ULF SCHELLER * & MARCOS BAEZ **

With 1 table

RESUMO. Seis espécies de Symphyla são assinaladas das Ilhas Canárias. Pertencem a dois géneros da família Scolopendrellidae e a um género da família ScutigereUidae. Estas espécies têm geralmente uma ampla área de distribuição mas são novas para as Canárias. Duas espécies, *Symphylella isabellae* e *ScutigereUa armata*, não foram encontradas fora da Laurisilva. Mais amplamente distribuídas nas ilhas Canárias são *Symphylella vulgaris*, *Scolopendrellopsis subnuda* e *ScutigereUa immaculata*.

ABSTRACT. Six species of Symphyla are recorded from the Canary Islands. They belong to 2 genera in Scolopendrellidae and one genus in ScutigereUidae. These species generally have widespread distribution but are new to the Canaries. Two species, *Symphylella isabellae* and *ScutigereUa armata* have not been collected outside the laurisilva zone. Most widespread on the Canary Islands are *Symphylella vulgaris*, *Scolopendrellopsis subnuda* and *ScutigereUa immaculata*.

INTRODUCTION

The Canarian archipelago has seven volcanic main islands situated 90 - 380 km off the coast of southern Morocco. The climate is warm-temperate and has, as a result of strong oceanic influence, mean temperatures much below those on the adjacent African continent. The warmest and driest climate is found on Lanzarote and Fuerteventura, the islands closest to the continent. The rainfall on these eastern islands is about 140 mm/yr but increases westwards to 585 mm/yr on the most westerly island, La Palma.

* Lundsberg, S-68800 Storfors, Sweden.

** Departamento de Zoología, Facultad de Biología, Universidad de la Laguna, Tenerife, Islas Canarias, España.

The higher elevation of the western islands (Tenerife, Gran Canaria, La Palma, Gomera and Hierro) together with prevailing north winds have given rise to a very wide range of microclimates and various vegetation zones on these islands.

Prior to 1984 (Baez, 1984) no records of *Symphyla* had been published from the Canary Islands. Baez (*op. cit.*) suggested that the species involved might belong to a widespread element with species which can adapt to many different habitats.

MATERIAL AND METHODS

The material studied, 371 specimens, has been collected by Dr. M. Baez (B) from the University of La Laguna, Spain, Drs. Per Brinck and Pehr H. Henckell (B-E) and Monica Lindstam (L) from the University of Lund, Sweden, and Dr. Arne Fjellberg (F) from Tromsø Museum, Norway.

Most of the specimens were found under stones. The exceptions to this area given in the habitat descriptions below. The following abbreviations are used: ad., a specimen with the maximum number of legs; subad., a subadult specimen with 11 pairs of legs; juv., a juvenile specimen with the number of pairs of legs indicated (these numbers include the rudimentary first pair in *Symphylella*).

RESULTS

The *Symphyla* have two families, both represented on the Canary Islands, Scolopendrellidae by two genera and Scutigereidae by one genus. Six species, two from each genus, have been found, all new to the area. The keys of families, genera and species are followed by lists of the species, including Canarian and general ranges and notes on the habitat selection.

KEY TO FAMILIES OF SYMPHYLA

- Paired sense calicles with pits with smooth margins; tergites either with pointed posterior projection or reduced in size; styli at the base of the legs small or reduced; first pair of legs less than half as long as following pair; usually slow-moving with slender body Scolopendrellidae Bagnall
- Paired sense calicles with many setae around margin of pit; tergites large with rounded posterior margins; stili large; first pair of legs more than half as long as following pair; usually swift runners with stout body Scutigereidae Bagnall

KEY TO CANARIAN GENERA OF SCOLOPENDRELLIDAE

- First pair of legs vestigial, represented only by small protuberances with a few setae *Symphylella* Silvestri
- First pair of legs 3-jointed, with claws *Scolopendrellopsis* Bagnall

Genus *Symphylella* Silvestri, 1902KEY TO CANARIAN SPECIES OF *SYMPHYLELLA*

- First tergite represented by a row of 8-12 setae; cerci densely setose with setae of subequal lengths *isabellae* Grassi
- First tergite represented by a row of 6 setae; cerci with a moderate number of setae of different lengths *vulgaris* (Hansen)

***Symphylella isabellae* (Grassi, 1886)**

Canarian distribution. Gran Canaria: Los Tilos, 500-600 m., 5-6.III.1972, 4 ad. (♀ ♀) (B-E). La Palma: Los Tilos, Barranco del Agua, 850m., 2.III.1972, 2 ad., (♀ ♀) (B-E); *ibidem*, 14.III.1972, 2 ad. (♀ ♀) (B-E).

Habitat. These specimens were collected under stones in laurel forest (La Palma) and in remnants of laurel forest (Gran Canaria).

General distribution. *S. isabellae* has a wide European range and has also been mentioned from Madagascar. Hilton's (1931) records from the U. S. A. and Mexico are dubious.

***Symphylella vulgaris* (Hansen, 1903)**

Canarian distribution. Tenerife: Palo Blanco, 15.IV.1985, 1 subad. 11 (♀) (B); Monte de Las Mercedes, 17.IV.1972, 1 ad. (♀), 1 juv. 10, 1 juv. 8 (F); Las Mercedes, 17.IV.1972, 2 ad. (♂ ♀), 1 subad. 11 (♀) (F); La Laguna, 25.IV.1972, 13 ad. (2 ♂ ♂, 11 ♀ ♀), 1 subad. 11 (♀), 5 juv. 9, 3 juv. 7 (F); Puerto de la Cruz, 24.IV.1972, 6 ad. (♀ ♀), 5 juv. 9, 1 juv. 7; 2 juv. stad.? (F); Las Cañadas, 9.IV.1972, 1 juv. 9 (F); El Bailadero, 5.III.1971, 1 subad. 11 (♂), 2 juv. 10, 5 juv. 8 (B-E); Realejo Alto, 400 m., 3.III.1971, 4 ad. (♀ ♀), 3 juv. 8, 1 juv. 7 (B-E); Loma de Marquez, 520 m., 3.III.1971, 1 juv. 10 (B-E); Monte de Las Mercedes, 750 m., 1.III.1971, 1 subad. 11 (♀) (B-E).

Gran Canaria: Los Tilos, 500 - 600 m., 5-6.III.1972, 3 ad. (♀ ♀), 1 juv. 10 (B-E); *ibidem*, 9.IV.1971, 1 juv. 10 (L).

La Palma: Tiguerorte, 500 m., 4.III.1972, 1 ad. (♀) (B-E).

Hierro: Barranco de la Jarilla, 450 m., 11.III.1972, 4 ad. (♀ ♀) (B-E).

Habitat. *S. vulgaris* was collected in a great variety of habitats: laurel forest, remnants of laurel forest, cultivated ground and high montane sites with subalpine scrub. Its altitudinal range is large, 400 - 2000 m.

General distribution. The species is widely distributed in Europe and Asia and in northern and tropical Africa but it is also known from many places in North America, and has been collected in Mexico and New Zealand. Its range includes also some Atlantic islands: Madeira, Azores, St. Helena.

Genus **Scolopendrellopsis** Bagnal, 1913

KEY TO CANARIAN SPECIES OF *SCOLOPENDRELLOPSIS*

- Processes of most anterior tergites more or less digitiform; cuticle of cerci glabrous, scaly *balcanica* (Remy)
 —Processes of most anterior tergites triangular; cuticle of cerci pubescent, smooth *subnuda* (Hansen)

Scolopendrellopsis balcanica (Remy, 1943)

Canarian distribution. Tenerife: Realejo Alto, 400 m., 3.III.1971, 1 subad. 11 (♀), 1 juv. 8 (B-E); Montana Chamuscada, 800 m., 1.III.1971, 1 juv. 9 (B-E).

Habitat. *S. balcanica* was collected under stones in secondary grass vegetation and in laurel forest.

General distribution. The species is earlier known only from southern Europe and Algeria. It may be circum-mediterranean and seems to have a rather narrow temperature range.

Scolopendrellopsis subnuda (Hansen, 1903)

Canarian distribution. Tenerife: Las Arenas, 14.IV.1972, 1 subad. 11 (♀) (F); Puerto de la Cruz, 24.IV.1972, 2 ad. (♀♀); *ibidem*, 11.IV.1972, 1 juv. 10 (F); Monte de Las Mercedes, 17.IV.1972, 3 ad. (♀♀), 1 juv. 10 (F); Las Cañadas, 9.IV.1972, 3 ad. (♀♀) (F); La Laguna, 25.IV.1972, 1 ad. (♀), 2 subad. 11 (♀♀), 1 juv. 10 (F); Las Raices, 950 m., 2.III.1971, 1 ad. (♀), 1 subad. 11 (♀) (B-E); El Bailadero, 350 m., 3.III.1971, 1 ad. (♀) (B-E); Realejo Alto, 400 m., 3 ad. (♀♀), 2 subad. 11 (♀♀), 1 juv. 10, 1 juv. 8 (B-E); La Montañeta, 500 m., 2.III.1971, 1 subad. 11 (♀) (B-E); Montaña Chamuscada, 800 m., 1.III.1971, 1 ad. (♀), 1 juv. 9 (B-E).

Gran Canaria: Los Tilos, 9.IV.1971, 1 juv. 8 (L).

Hierro: Barranco de la Jarilla, 450 m., 11.III.1972, 1 subad. 11 (♀), 4 juv. 10 (B-E); El Pinar, Montaña de Los Pinillos, 1300 m., 11.III.1972, 1 subad. 11 (♀) (B-E); Lomo de Habichuela, 1100 m., 11.III.1972, 1 juv. 9, 3 juv. 8 (B-E).

La Palma: Refugio Forestal, 1350 m., 3.III.1972, 1 ad. (♀) (B-E); Barranco de Nogales, 500 m., 2.III.1972, 1 juv. 9 (B-E); Los Tilos, Barranco del Agua,

850 m., 2.III.1972, 3 ad. (1 ♂, 2 ♀ ♀), 3 subad. 11 (♀ ♀), 2 juv. 10, 1 juv. 9 (B-E); *ibidem*, 14.III.1972, 3 ad. (♀ ♀), 4 subad. 11 (♀ ♀), 2 juv. 9 (B-E).

Gomera: Monte del Cedro, 900 m., 8.III.1972, 1 juv. 9 (B-E); *ibidem*, 1000 m., 9.III.1972, 1 ad. (♀) (B-E); *ibidem*, 1100 m., 8.III.1972, 1 ad. (♀) (B-E).

Habitat. *S. subnuda* has been collected under stones in a great variety of habitats: xerophytic, cultivated ground, laurel forest, pine forest and subalpine, and from 350 m to 2000 m.

General distribution. The species is common from northern Europe to north western Africa but has also been collected in the U. S. A. and on some distant islands as Madeira, Azores, Reunion and Hawaii.

Genus *Scutigerella* Ryder, 1882

KEY TO CANARIAN SPECIES OF *SCUTIGERELLA*

— Femur of first pair of legs with a conspicuous sternal process *armata* Hansen

— Femur of first pair of legs without a conspicuous sternal process *immaculata* (Newport)

Scutigerella armata Hansen, 1903

Canarian distribution. La Palma: Cumbre Nueva, 850 m., 3.III.1972, 1 ad. (♀) (B-E); Tiguerorte, 500m., 4.III.1972, 1 ad. (♀) (B-E).

Habitat. The species has been collected only in places with laurel forest or remnants of it.

General distribution. The species has seldom been met with. It was described by Hansen (1903) from Algeria and has later been found in material from there by Aubry & Masson (1952a, 1952b, 1953) and has recently been reported from eastern Spain (Mas, 1985).

Scutigerella immaculata (Newport, 1845)

Canarian distribution. Tenerife: La Laguna, 9.III.1986, 2 ad (♀ ♀) (B), 12.II.1986, 1 ad. (♀), 1 juv. 10 (B); *ibidem*, 25.IV.1972, 8 ad. (2 ♂ ♂, 6 ♀ ♀), 3 juv. 9 (F); Valle Jimenez, 24.X.1986, 12 ad. (5 ♂ ♂, 7 ♀ ♀), 2 subad. (1 ♂, 1 ♀) (B); Cumbres de Erjos, 30.IV.1985, 1 ad. (♀) (B); Punta Hidalgo, 30.III.1987, 2 subad. (♀ ♀) (B); Monte Aguirre, 11.VI.1985, 1 ad. (♀) (B); Barranco del Agua (Guimar), 28.V.1985, 3 juv. 10 (B); Barranco del Agua (Santiago del Teide), 3.III.1971, 13 ad. (1 ♂, 10 ♀ ♀, 2 sex?), 1 juv. 9, 5 juv. 7 (B-E); Aguamansa, 1000 m., 2.III.1971, 5 ad. (1 ♂, 4 ♀ ♀) (B-E); *ibidem*, 7.IV.1972, 1 ad. (♀) (F); *ibidem*, 22.III.1987, 2 ad. (♀ ♀) (B); Vuel-

tas de Taganana, 7.II.1985, 1 ad. (♀), 1 subad. (♀), 1 juv. 9 (B); Las Aguas, 5.XII.1986, 1 ad. (♀) (B); Palo Blanco, 15.V.1985, 2 juv. 10 (B); Monte de Las Mercedes, 1.III.1971, 2 ad. (♀), 1 juv. 10 (B-E), 17.IV.1972, 3 ad. (♀♀) (F); Las Mercedes, 17.IV.1972, 3 ad. (♀♀) (F); Las Arenas, 14.IV.1972, 1 juv. 10 (F); Puerto de la Cruz, 11.IV.1972, 2 juv. 10 (F); El Bailadero, 350 m., 5.III.1971, 14 ad. (6 ♂♂, 8 ♀♀), 5 subad. 11 (1 ♂, 4 ♀♀), 2 juv. 10, 2 juv. 9, 5 juv. 8 (B-E); Realejo Alto, 2.III.1971, 10 ad. (1 ♂, 9 ♀♀), 3 juv. 10, 8 juv. 9, 9 juv. 8 (B-E); El Lomo de Marquez, 520 m., 3.III.1971, 1 subad. 11 (♀) (B-E); Montaña del Termino, 750 m., 4.III.1971, 1 ad. (♂) (B-E); Montaña Chamuscada, 800 m., 1.III.1971, 3 ad. (♀♀), 1 juv. 8 (B-E); La Montañeta, 500 m., 1 ad. (♂), 3 juv. 10, 4 juv. 9, 6 juv. 8 (B-E); San Miguel de Geneto, 700 m., 2.III.1971, 12 ad. (2 ♂♂, 9 ♀♀, 1 sex?), 5 juv. 10, 3 juv. 9, 6 juv. 8 (B-E).

Gomera: Monte del Cedro, 850 m., 8.III.1972, 2 ad. (1 ♂, 1 ♀), 1 juv. 9 (B-E); *ibidem*, 1000 m., 9.III.1972, 1 ad. (♀), 1 juv. 9 (B-E); *ibidem*, 1100 m., 8.III.1972, 1 ad. (♀) (B-E); Montaña de los Saquios, 500 - 600 m., 9.III.1972, 3 ad. (1 ♂, 2 ♀♀) (B-E).

La Palma: Cumbre Nueva, 8.III.1987, 1 ad. (♀) (B); Cubo La Galga, 7.III.1987, 6 ad. (4 ♀♀, 2 sex?) (B); Refugio Forestal, 1350 m., 3.III.1972, 2 ad. (♀♀), 1 subad. 11 (♀) (B-E); Barranco de Nogales, 500 m., 2.III.1972, 1 ad. (♀) (B-E); Tiguerorte, 500 m., 4.III.1972, 3 ad. (♂♂) (B-E).

Gran Canaria: Los Tilos, 500 - 600 m., 9.IV.1971, 1 juv. 10, 1 juv. 9, 1 juv. 8 (L); Valleseco, 7.III.1972, 6 ad. (♀♀) (B-E).

Hierro: Barranco de la Jarilla, 450 m., 11.III.1972, 3 ad. (1 ♂, 2 ♀♀), 1 juv. 9, 1 juv. 8 (B-E); El Pinar, Montaña de los Pinillos, 1300 m., 11.III.1972, 1 juv. stad.? (B-E); Loma de Habichuela, 1100 m., 11.III.1972, 1 ad. (♂) (B-E).

Habitat. *S. immaculata* was collected under stones in the littoral and xerophytic zones, in cultivated ground and laurel forests.

General distribution. There are numerous reports of the species from most European countries and North America, and it is also found in Africa and South America. Since the taxonomy of the *immaculata* group is unclear and no modern estimation of the range has been made we know very little of the true range of the species. This group may have a widespread distribution but *S. immaculata* in the proper sense is probably less widespread (or at least more scattered) than most workers have supposed.

ECOLOGICAL NOTES AND CANARIAN RANGES

The Canarian terrestrial environment can be divided into the following ecological zones:

- a. Littoral zone. The beach proper and coastal areas with halophytic vegetation.
- b. Xerophytic zone. Slopes up to 400 - 700 m. Characterized by a hot and dry Mediterranean climate; the vegetation consists of succulents and heath with trees.
- c. Cultivated land.
- d. Laurisilva zone. Evergreen forests up to about 1300 m. dominated by laurel; mainly on the N-NW slopes (now extensively destroyed by man).
- e. Pine forest zone. Open savanna-like forest up to about 2000 m., dominated by the endemic *Pinus canariensis*.
- f. Subalpine zone. Montane heath and at higher altitudes at about 3000 m. subalpine herbs only; climate subcontinental.

The zonal distribution of the symphylian species is outlined in Table 1. *Symphylella isabellae* and *Scutigereella armata* have been found only in the laurel forests or its remnants as has *Scolopendrellopsis balcanica*.

Tabl. I. — Geographic and ecological distribution of the Canarian Symphyla

	HIERRO	COMERA	LA PALMA	TENERIFE	GRAN CANARIA	FUERTEVENTURA	LANZAROTE		Littoral zone	Xerophytic zone	Cultivated zone	Laurel forest (or remnants)	Pine forest	Subalpine zone
<i>Symphylella isabellae</i>	-	-	X	-	X	-	-		-	-	-	X	-	-
<i>Symphylella vulgaris</i>	X	-	X	X	X	-	-		-	X	-	X	-	X
<i>Scolopendrellopsis balcanica</i> ..	-	-	-	X	-	-	-		-	-	X	X	-	-
<i>Scolopendrellopsis subnuda</i> ...	X	X	X	X	X	-	-		-	X	X	X	X	X
<i>Scutigereella armata</i>	-	-	X	-	-	-	-		-	-	-	X	-	-
<i>Scutigereella immaculata</i>	X	X	X	X	X	-	-		X	X	X	X	-	-

This latter species has also been found in cultivated land. The three remaining species have a more pronounced ecological tolerance and are therefore the most widespread on the Canarian Islands.

In the same table the known Canarian range is shown for all the six species. Two species, *Scolopendrellopsis balcanica* and *Scutigereella armata*, have both restricted ranges occurring on one single island each. One species, *Symphylella isabellae*, is restricted to two islands. The three remaining species are common and widespread on the western islands (*Symphylella vulgaris* has not been found on Gomera but probably it is there too).

Until now no symphylans have been collected from the eastern islands, Fuerteventura and Lanzarote. These islands are the warmest and driest without forests and montane zones but symphylans may occur there in places with a humid microclimate.

All the species are present in the laurisilva. These forests seem to present the environmental conditions most suitable for symphylans on the Canary Islands.

GENERAL DISTRIBUTION PATTERNS

All the species have more or less wide extra-Canarian ranges. Two of them, however, *Scolopendrellopsis balcanica* and *Scutigerebella armata*, seem to be restricted to the south-western part of the West Palaearctic. Of the remaining species *Scutigerebella immaculata* and *Symphylella vulgaris* may be subcosmopolitan, *Scolopendrellopsis subnuda* is probably at least Holarctic and *Symphylella isabellae* is widely distributed at least in the West Palaearctic. The ranges of the latter four may have been strongly influenced by human activities. This picture of the Canarian species as a part of a widely distributed element is underlined also by the fact that they are morphologically identical to the continental populations. It is also known that some species as *Scolopendrellopsis subnuda*, *Symphylella vulgaris* and *Scutigerebella immaculata* have been introduced in other volcanic islands, e.g. the Azores, Madeira, St. Helena and Hawaii.

REFERENCES

Aubry, J. & C. Masson:

- 1952a. Contribution à la faune endogée du Sahara. Symphyles. — Bull. Mus. Hist. nat., Paris, Ser. 2, 24:368-370.
- 1952b. Contribution à la faune endogée de l'Algérie. Symphyles. — Bull. Mus. Hist. nat., Paris, Ser. 2, 24:468-473.
- 1953. Contribution à l'étude de la faune endogée du Maroc. Symphyles. — Bull. Soc. Sci. nat. Maroc, 32:227-234.

Baez, M.:

- 1984. Los Artrópodos. IN: Fauna (marina y terrestre) del Archipiélago Canario, pp: 101-254. Edirca. Las Palmas.

Hansen, H. J.:

- 1903. The genera and species of the order Symphyla. — Q. Jl. microsc. Sci., n. Ser., 47:1-101.

Hilton, W. A.:

- 1931. Symphyla from North America. — Ann. ent. Soc. Am., 24:537-553.

Mas, A.:

- 1985. Contribució al coneixement dels sinfils (Symphyla, Myriapoda) del Nord-Est Ibèric. Tesi de Llicenciatura, Universitat de Barcelona, Facultat de Biologia.