Graellsia, 64(2): 329-333 (2008)

Notas / *Notes*

New distributional data on the Symphyla (Myriapoda) in Spain

M. Domínguez Camacho[1]

About 15 years after the publication of the last information on the distribution of the Symphyla in Spain (Domínguez, 1992; Mas & Serra, 1993), new data on eight species are provided. The 148 examined specimens come from two field trips performed in Barcelona province (November 2006) and Minorca (Februar 2007), and from material donated by several researchers. Specimens from the field trips were collected from soil samples using a Kempson apparatus. Since the taxonomic features to identify the symphylan species are often difficult to assess with a light microscope (Turner & Edwards, 1974), most of the specimens were identified with a scanning electron microscope following the keys of Edwards (1959), Scheller (1978), and Domínguez (1992). Data on the distribution of the identified species are sorted by locality, with additional information about date, collectors, environment, altitude, geographic coordinates and sex (if known). Juvenile stages are indicated with the number of pairs of legs (lp). Some remarks on the taxonomic features used for the identification are explained and depicted with SEM-micrographs.

Family Scutigerellidae Bagnall, 1913

Scutigerella immaculata (Newport, 1845)

Catalonia (material donated by Antoni Serra and Eduardo Mateos): Fageda d´en Jordà, 1 adult ♀ (19.11.2004); Font Groga (Barcelona), 1 adult ♀ (13.02.1997).

REMARKS: This species is characterized by a distinctly emarginated posterior margin of the second tergite of the trunk and by the homogeneity of the setae on the second tergite (Fig. 1A). Other taxonomic features are the absence of a ventral process on the femora of the first pair of legs in the females and the presence of one elongate seta on this same area (Fig. 1B).

Family Scolopendrellidae Newport, 1845

Symphylella vulgaris (Hansen, 1903)

La Rioja (collected by Carmen Gutiérrez): Bañares (in an organic horticultural crop), 1 juvenile with 10 lp (autumn 2003); Bañares (in an organic orchard), 2 adults (winter 2003-04); Leiva (in a natural area), 1 juvenile with 8 lp (spring 2003); Tormantos (in a natural area), 1 adult (spring 2003).

Yepes (Toledo) (collected by José Carlos Simón): 5 adults (spring 2007).

Jábaga (Cuenca) (collected by María José Luciáñez, in a *Pinus nigra* forest): 1 adult (June 2005).

Minorca sampling: Mahón (southern outskirts, 61 m, 39°52'N 04°15'E, under *Ligustrum vulgare*), 8 adults, 4 juveniles with 11 lp, 2 juveniles with 10 lp (23.02.2007); Barranco d´Algendar (32-70 m, 39°58'N 03°57'E, in a forest of *Quercus ilex ilex* and *Salix* sp.), 1 adult (24.02.2007).

REMARKS: Main taxonomical features of this species are a transverse row of six setae on the first tergite of the trunk and the presence of at least one seta between inner basal seta and apical seta on the triangular appendages of the anterior tergites (Fig. 1C).

[1] Freie Universität Berlin, Systematik und Evolution der Tiere. Königin-Luise-Str. 1-3, 14195 Berlin, Germany. E-mail: mdominguez@zoosyst-berlin.de

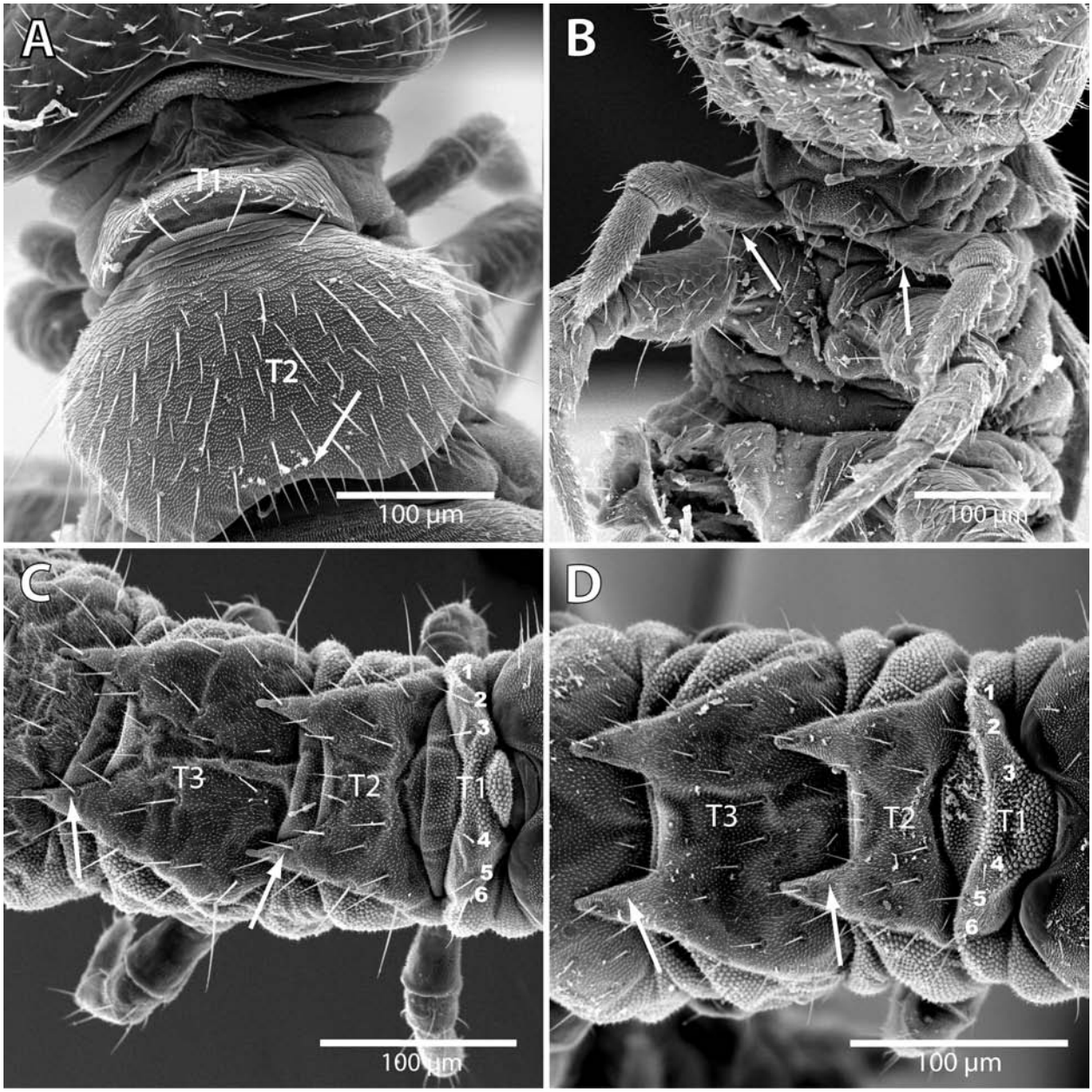

Fig. 1.— Taxonomic features of symphylan species, SEM micrographs. *Scutigerella immaculata*: A) Dorsal view on first (T1) and second (T2) tergites. The posterior margin of T2 is distinctly emarginated (arrow). B) Ventral view showing elongate setae on the inner area of either femora of the first walking legs (arrow). C) *Symphylella vulgaris*. First tergite (T1) with a transverse row of six setae (1-6). The triangular appendages of the second (T2) and third (T3) tergite bear a seta between inner basal seta and apical seta (arrows). D) *Symphylella elongata*. First tergite (T1) with a transverse row of six setae (1-6). Triangular appendages of the second (T2) and third (T3) tergite without setae on inner edge between basal and apical setae (arrows).

Fig. 1.— Caracteres taxonómicos de distintas especies de sínfilos, fotografías de microscopio electrónico de barrido. *Scutigerella immaculata*: A) Vista dorsal del primer (T1) y segundo (T2) terguito. El margen posterior de T2 está claramente emarginado (flecha). B) Vista ventral, en la que se aprecia la seda larga característica en la parte interior de cada fémur del primer par de patas (flecha). C: *Symphylella vulgaris*. Primer terguito (T1) con una fila transversal de seis sedas (1-6). Los procesos triangulares del segundo (T2) y tercer (T3) terguitos presentan una seda entre la seda basal interna y la seda apical (flecha). D: *Symphylella elongata*. Primer terguito (T1) también con una fila transversal de seis sedas (1-6). Procesos triangulares del segundo (T2) y tercer (T3) terguitos sin sedas en el borde interno entre la seda basal y apical (flecha).

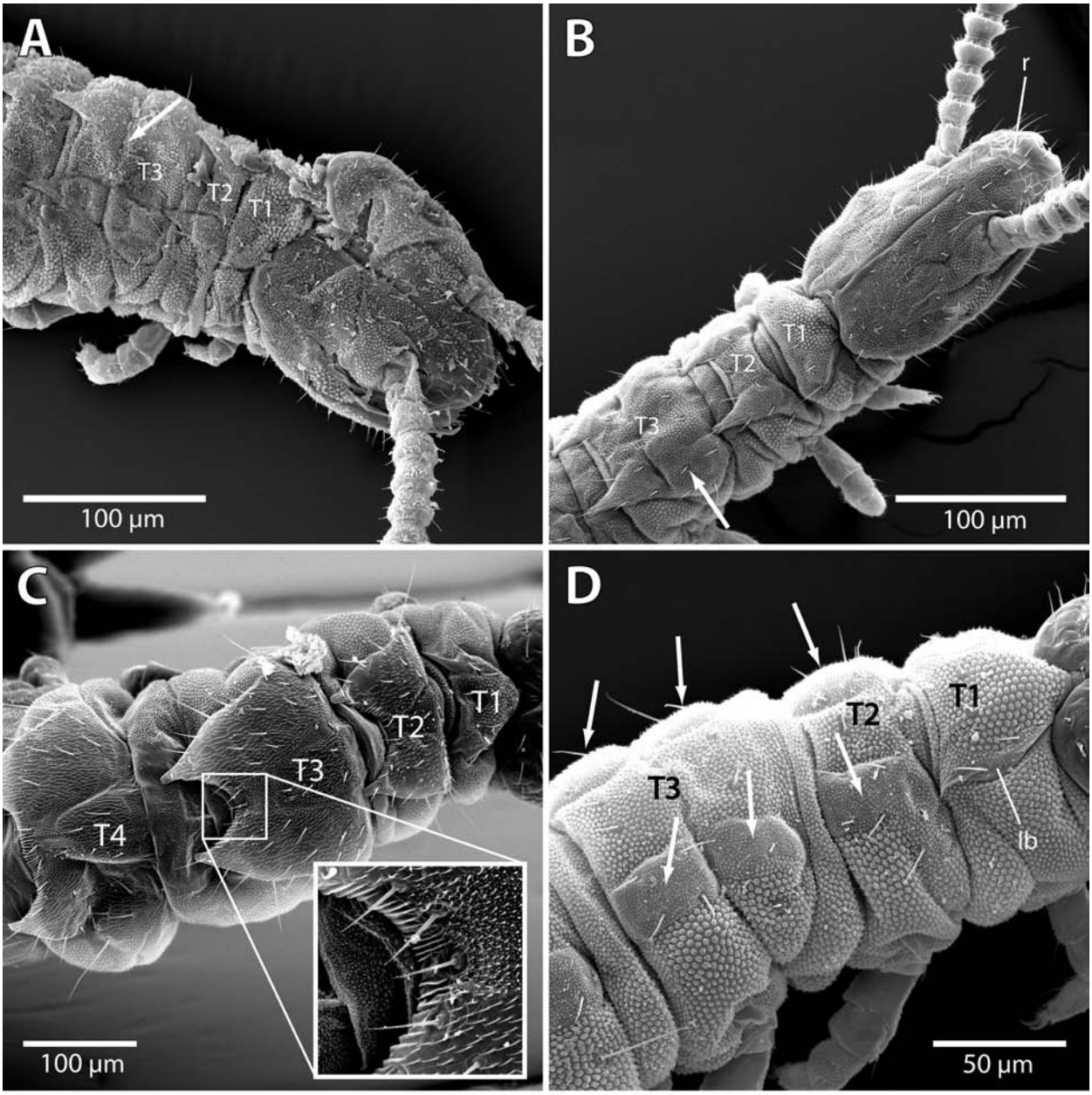

Fig. 2.— Taxonomic features of scolopendrellid species, SEM micrographs. A) *Scolopendrellopsis (Symphylellopsis) arvernorum*, showing the transverse suture (arrow) subdividing the third tergite (T3) into two subtergites. B) *Scolopendrellopsis (Symphylellopsis) subnuda*, showing the reticulate surface (r) of the anterior part of the head, and the characteristic setae on the third tergite (T3) of the trunk (arrow). C) *Scolopendrella notacantha*, showing trunk tergites 2-4 (T2-T4) bearing belts of longitudinal striae on the posterior mesial edge (inset). D) *Geophilella pyrenaica*. First tergum of the trunk is laterally delimited by two longitudinal bars (lb). Second tergite (T2) of the trunk and both subtergites of third tergite (T3) are reduced to paired oval plates (arrows).

Fig. 2.— Caracteres taxonómicos de distintas especies de escolopendrélidos, fotografías de microscopio electrónico de barrido. A) *Scolopendrellopsis (Symphylellopsis) arvernorum* con la sutura transversal (flecha) que subdivide el tercer terguito (T3) en dos subterguitos. B) *Scolopendrellopsis (Symphylellopsis) subnuda*, que muestra la reticulación (r) de la parte anterior de la cabeza y la seda característica en el tercer terguito del tronco (flecha). C) *Scolopendrella notacantha*, cuyos terguitos troncales 2-4 (T2-T4) presentan una estriación longitudinal en el borde posterior (detalle ampliado). D) *Geophilella pyrenaica*. El primer tergo del tronco está delimitado lateralmente por dos barras longitudinales (lb). El segundo terguito (T2) y los dos subterguitos del tercer terguito (T3) están reducidos a placas ovales pares (flechas).

Symphylella elongata Scheller, 1952

Catalonia (donated by Antoni Serra and Eduardo Mateos): Canyamars (Dosrius), 1 adult (15.03.2005).

REMARKS: This species also has a transverse row of six setae on the first tergite of the trunk, but it differs from *S. vulgaris* in the absence of setae on the inner edge between inner basal and apical setae on the triangular appendages of the anterior tergites (Fig. 1D).

Scolopendrellopsis (Scolopendrellopsis) microcolpa (Muhr, 1881)

La Rioja (collected by Carmen Gutiérrez): San Torcuato (in a conventional orchard), 1 juvenile with 11 lp (spring 2003). The only specimen found was identified by light microscopy.

REMARKS: The subgenus *Scolopendrellopsis* Bagnall, 1913 differs from the subgenus *Symphylellopsis* Ribaut, 1931 in the shape of the triangular appendages, which are broader than long in the former and more or less digitiform and longer than broad in the latter. The presence of a seta inserted between inner basal and apical setae is diagnostic of this species.

Scolopendrellopsis (Symphylellopsis) arvernorum Ribaut, 1931

Jábaga (Cuenca) (collected by María José Luciáñez, in a *Pinus nigra* forest): 5 adults, 1 juvenile with 10 lp (June 2005).

Fragas do Eume (A Coruña) (collected by Francisco Paños): 3 adults, 1 juvenile with 9 lp, 4 juveniles with 8 lp (July 2006).

REMARKS: This species differs from all other *Scolopendrellopsis* species known so far in the transverse division of the third trunk tergite into anterior and posterior subtergites (Fig. 2A). This feature is difficult to discern with a light microscope, since the border of the subtergites (or scuta) is often diffuse (personal observation).

Scolopendrellopsis (Symphylellopsis) subnuda (Hansen, 1903)

La Rioja (collected by Carmen Gutiérrez): Bañares (in a natural area), 2 adults, 1 juvenile with 10 lp (spring 2003); Bañares (in a conventional orchard), 1 juvenile with 11 lp (spring 2003); Bañares (in a natural area), 1 adult, 5 juveniles with 10 lp, 2 juveniles with 9 lp, 2 juveniles with 8 lp (autumn 2003), 1 juvenile with 10 lp (winter 2003-04); Bañares (in an organic orchard), 1 juvenile with 10 lp (autumn 2003); Leiva (in an organic orchard), 1 adult, 1 juvenile with 11 lp, 2 juveniles with 10 lp, 1 juvenile with 9 lp (spring 2003); Leiva (in an organic horticultural crop), 1 juvenile with 10 lp, 1 juvenile with 8 lp (autumn 2003); Leiva (in a conventional orchard), 1 juvenile with 10 lp (winter 2003-04); Leiva (in an organic orchard), 1 juvenile with 9 lp (winter 2003-04); San Torcuato (in a conventional orchard), 1 juvenile with 9 lp (spring 2003), 1 juvenile with 11 lp, 1 juvenile with 8 lp (autumn 2003); Tormantos (in a natural area), 1 juvenile with 10 lp (autumn 2003).

Yepes (Toledo) (collected by José Carlos Simón): 3 adults (spring 2007).

Barcelona sampling: Collserola Park (Barcelona, 366-445 m, 41°25'N 02°06'E), 4 adults (24.11.2006); Berga (near to the Queralt Sanctuary, about 1185 m, 42°06'N 01°49'E, *Fagus sylvatica*-woodland), 1 adult, 1 juvenile with 10 lp (26.11.2006).

Minorca sampling: Mahón (southern outskirts, 61 m, 39°52'N 04°15'E, under *Ligustrum vulgare*), 25 adults, 6 juveniles with 11 lp, 2 juveniles with 10 lp, 1 juvenile with 9 lp, 1 juvenile with 8 lp (23.02.2007); San Luis (51 m, 39°50'N 04°15'E, under *Quercus ilex ilex*), 1 juvenile with 11 lp (26.02.2007); Barranco d´Algendar (32-70 m, 39°58'N 03°57'E, in a forest of *Quercus ilex ilex* and *Salix* sp.), 8 adults, 2 juveniles with 11 lp, 1 juvenile with 10 lp, 1 juvenile with 8 lp (24.02.2007); Monte del Toro (about 300 m, 39°59'N 04°06'E, under *Pinus halepensis*), 2 adults, 1 juvenile with 8 lp (25.02.2007).

REMARKS: This species is easily confused with *Scolopendrellopsis (Symphylellopsis) selgae* Domínguez, 1985, which is very common in Spain as well. The two species differ in the morphology of the first tergite and in the chaetotaxy: *Scolopendrellopsis (Symphylellopsis) subnuda* has a smaller and trapezoidal first tergite and one more pair of setae on the third tergite of the trunk. The reticulate surface of the anterior dorsal part of the head is also characteristic for this species only (Fig. 2B).

Scolopendrella notacantha Gervais, 1839

Catalonia (donated by Antoni Serra and Eduardo Mateos): Castellsapera, 1 adult (24.02.2007); Serra de l'Obac, 1 adult (13.03.2003); Sant Llorenç Munt, 1 adult (June 1997).

REMARKS: This species is recognized by the semi-circular posterior margin of the clearly-demarcated tergites as it bears belts of longitudinal striae (Fig. 2C).

Geophilella pyrenaica Ribaut, 1913

La Rioja (collected by Carmen Gutiérrez): Leiva (in a natural area), 2 adults, 2 juveniles with 10 lp, 1 juvenile with 8 lp (spring 2003).

As Fragas do Eume (A Coruña) (collected by Francisco Paños): 3 adults, 1 juvenile with 10 lp, 2 juveniles with 9 lp, 1 juvenile with 8 lp (July 2006).

REMARKS: Representatives of *Geophilella* are the only scolopendrellids with no triangular appendages on the tergites. All tergites are reduced to paired oval plaques bearing few setae, except for the first tergite which forms paired lon-

gitudinal bars bordering the sub-trapezoidal tergum laterally (Fig. 2D).

ACKNOWLEDGEMENTS

The author is grateful for the generous supply of specimens. Antoni Serra and David Carreras helped with valuable recommendations on sampling sites in Barcelona and Minorca. Discussion with María Teresa Domínguez and Ulf Scheller aided the identification. Scientific support by José Carlos Simón, Markus Koch and Thomas Bartolomaeus is also acknowledged. This work was supported by the Fundación "la Caixa", the DAAD (German Academic Exchange Service) and the Freie Universität Berlin.

References

DOMÍNGUEZ, M. T., 1992. *Symphyla y Pauropoda (Myriapoda) de suelos de España II*. Tesis Doctoral. Universidad Complutense de Madrid. Madrid. 411 pp.

EDWARDS, C. A., 1959. Keys to the genera of the Symphyla. *Journal of the Linnean Society of London (Zoology)*, 44: 164-169.

MAS, A. & SERRA, A., 1993. Contribución al conocimiento de los sínfilos del nordeste de la Península Ibérica. Descripción de *Scutigerella jupaui* n. sp. y *Parviapiciella* n. Gen. (Symphyla, Myriapoda). *Historia Animalium*, 2: 27-35.

SCHELLER, U., 1978. The Pauropoda and Symphyla of the Geneva Museum V. A review of the Swiss Scolopendrellidae (Myriapoda, Symphyla). *Revue Suisse du Zoologie*, 85: 247-263.

TURNER, R. H. & EDWARDS, C. A., 1974. Scanning electron microscope studies of Symphyla. *Symposia of the Zoological Society of London*, 32: 135-142.

Recibido, 19-III-2008
Aceptado, 23-X-2008
Publicado, 29-XII-2008