

***Parapionosyllis cabezali*, a new species of Exogoninae
(Polychaeta: Syllidae) from Spain**

Julio Parapar, Guillermo San Martín, and Juan Moreira

(JP) Departamento de Biología Animal, Biología Vegetal e Ecología, Facultad de Ciencias, Universidad da Coruña, Campus da Zapateira, E-15071 A Coruña, Spain;
(GSM) Laboratorio de Biología Marina e Invertebrados. Departamento de Biología, Unidad de Zoología, Facultad de Ciencias, Universidad Autónoma de Madrid, Canto Blanco, E-28049 Madrid, Spain; (JM) Departamento de Ecología e Biología Animal, Facultad de Ciencias, Universidade de Vigo, E-36200, Vigo, Spain

Abstract.—*Parapionosyllis cabezali*, a new species of Exogoninae (Polychaeta: Syllidae) from the Atlantic coast of Spain, is described. This new species is characterised by the shape of the simple and compound setae, small dorso-ventral gradation in the length of the blades, and by the presence along the body of two types of parapodial glands, which open dorsally separately from each other.

Campoy (1982) identified three specimens collected in Punta Endata, Guipúzcoa, NE Atlantic, Spain, as *Parapionosyllis* cf. *gestans* (Pierantoni, 1903). Subsequently, during a study of the taxonomy and ecology of the sublittoral soft bottom benthic polychaetous annelids in the Ría de Ferrol and Ría de Baiona, both located on the Atlantic coast of NW Spain, more specimens of this species were collected and reported by Parapar (1991), Parapar et al. (1994) and Moreira (1999). Examination by SEM of several specimens collected in the Ría de Baiona (NW Spain) has provided evidence that these organisms represent a new species. The specimens are characterized by the shape and dorso-ventral gradation in the length of the compound setal blades and by the presence along the body of two types of parapodial glands. In this paper, we describe and discuss this new species. The diagnosis of the genus was provided by Fauvel (1923) and San Martín (1984).

Materials and Methods

The type specimens (holotype and paratypes) were collected by the junior author (JM) in littoral soft bottom areas of the Ría de Baiona (Galicia, NW Spain) at 9–12 m depth. Additional specimens were collected in Galicia, in the Ría de Ferrol. Samples were taken both by means of a naturalist rectangular dredge and a Van Veen dredge in Dec 1995 in the case of the type series and in 1987 and 1989 in the Ría de Ferrol. Samples with the letters VD denote sampling for the vertical distribution of animals in the sediment. In this study, samples were taken by scuba diving and by pushing a 50

cm corer into the sediment. Animals taken from the sediment were fixed in 10% buffered formalin and preserved in 70% ethanol. Body and setae measurements provided in the description refer to the holotype, the width was measured across the proventriculus and excludes cirri, parapodia and setae. Observations, drawings, and measurements were obtained using a microscope with interference contrast optics (Nomarsky). Drawings were made with the aid of a drawing tube. The SEM micrographs were taken at the Servicio Interdepartamental de Investigación of the Universidad Autónoma de Madrid, Spain. The types are de-

posited in the Museo Nacional de Ciencias Naturales de Madrid, Spain.

Family Syllidae Grube, 1850

Subfamily Exogoninae Rioja, 1925

Genus *Parapionosyllis* Fauvel, 1923

Parapionosyllis cabezali, new species

Figs. 1, 2

Parapionosyllis cf. *gestans*.—Campoy, 1982: 267–269, fig. 18.—Parapar et al., 1994: 96–97, fig. 2.—Moreira, 1999: 319–323, fig. 26. [Not *Parapionosyllis gestans* Pierantoni, 1903].

Material examined.—Ría de Baiona (Galicia, NW Spain). Holotype and 23 paratypes. Sta. 8, Dec 1995, coarse sand, 12 m (10 specimens); Sta. 9, Dec 1995, medium sand, 10 m (10); Sta. 12, Dec 1995, coarse sand, 9 m (4).

Additional material.—Ría de Ferrol (Galicia, NW Spain), 39 specimens. Sta. 1, Jul 1987, muddy sand, 15 m (1 specimen). Sta. 3, Jun 1987, muddy sand, 11 m (1). Sta. 10, May 1987, muddy sand, 18 m (2). Sta. 11, Jul 1987, muddy sand, 20 m (1). Sta. 13, May 1987, coarse sand, 14 m (2). Sta. 15VD, Aug 1989, 20–25 cm in sediment depth, 17 m (1). Sta. 17, Jul 1987, very coarse sand, 25 m (1). Sta. 22, Oct 1987, very coarse sand, 20 m (1). Sta. 22VD, Aug 1989, 0–5 cm in sediment depth, 20 m (8). Sta. 22VD, Aug 1989, 5–10 cm in sediment depth (6). Sta. 22VD, Aug 1989, 10–15 cm in sediment depth (1). Sta. 22VD, Aug 1989, 15–20 cm in sediment depth (2). Sta. 26, Aug 1987, very coarse sand, 15 m (5). Sta. 37VD, Aug 1989, 0–5 cm in sediment depth, 15 m (7). Ensenada de Baiona (Galicia, NW Spain), 704 specimens. Sta. 8, Dec 1995, coarse sand, 12 m (327 specimens). Sta. 9, Dec 1995, medium sand, 10 m (120). Sta. 12, Dec 1995, coarse sand, 9 m (236). Sta. 13, Dec 1995, medium sand, 8 m (18). Sta. 14, Dec 1995, medium sand, 9 m (3).

Description.—Body relatively long and thin, with well marked segments. Holotype

3.36 mm long, 0.24 mm wide with 39 segments. Prostomium semicircular to pentagonal (Figs. 1A, 2A); four eyes in an open trapezoidal arrangement and two very small anterior eyespots; eyes disappear soon after fixation in alcohol. Antennae bottle or nine-pin shaped, relatively long; median antenna somewhat longer than the lateral ones, approximately of the same length as the prostomium and palps together; lateral antennae inserted ahead of anterior eyes; median antenna between posterior eyes, near the posterior margin of the prostomium. Palps robust, equal to or slightly longer than the prostomium, fused at bases but separated in the anterior one-half; a slight junction suture occasionally observed. Tentacular segment distinct but shorter and narrower than the following segments; a pair of tentacular cirri similar in shape to antennae but approximately one-half the length of the lateral ones. Two ciliated nuchal organs (Fig. 2A, B) deeply imbedded between the posterior margin of the prostomium and the anterior margin of the tentacular segment.

Anterior dorsal cirri short and oval, with slightly enlarged bases (Figs. 1A, 2A); progressively more elongated and slender; slightly longer than the parapodial lobes; posterior dorsal cirri thinner and longer than anterior ones (Fig. 1B). Two types of parapodial glands (Fig. 1A, B); the smaller ones beginning in the most anterior segments, including the first setiger, with granular content, and the larger ones with fibrillar material, located near the central body line and starting from the proventricular segments. These parapodial glands open dorsally near the dorsal cirri, separate from each other; each pore is provided with a mobile, digitiform papilla which ejects the products of these glands (Fig. 2C, D). Both types of glands are dark red in colour. Parapodial lobes short and conical, ending in a small rounded papilla (Fig. 1C). Ventral cirri digitiform, long and slender, shorter than the parapodial lobes or similar in length.

Most anterior parapodia have about nine compound setae; six or seven in the re-

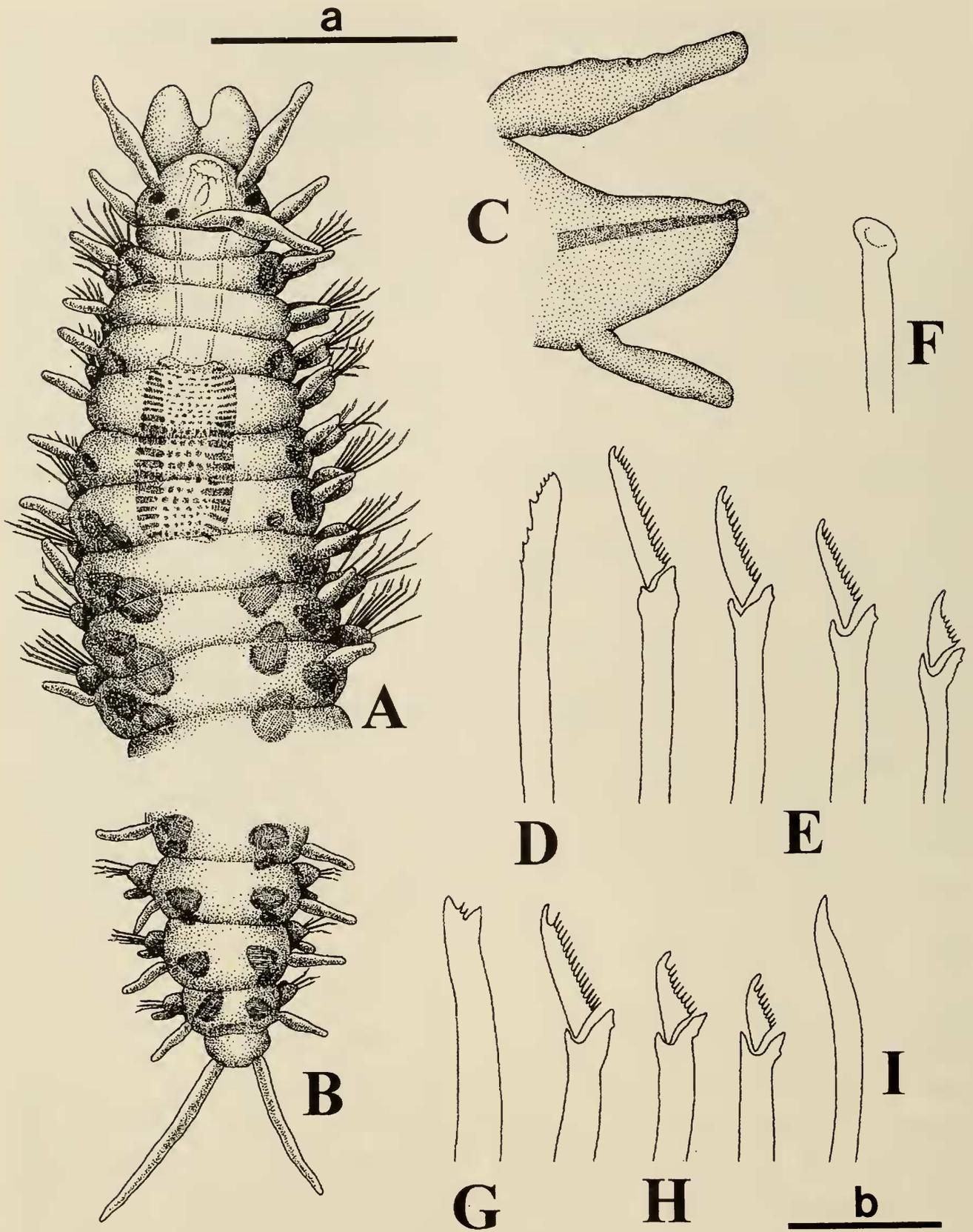


Fig. 1. *Parapionosyllis cabezali*, new species. Holotype. A, anterior end and midbody, dorsal view; B, posterior end, dorsal view; C, parapodium of midbody, posterior view; D, anterior dorsal simple seta; E, anterior compound setae; F, aciculum; G, posterior dorsal simple seta; H, posterior compound setae; I, posterior ventral simple seta. Scale bar a: 0.25 mm for A, B and 60 μ m for C; scale bar b: 25 μ m for D to I.

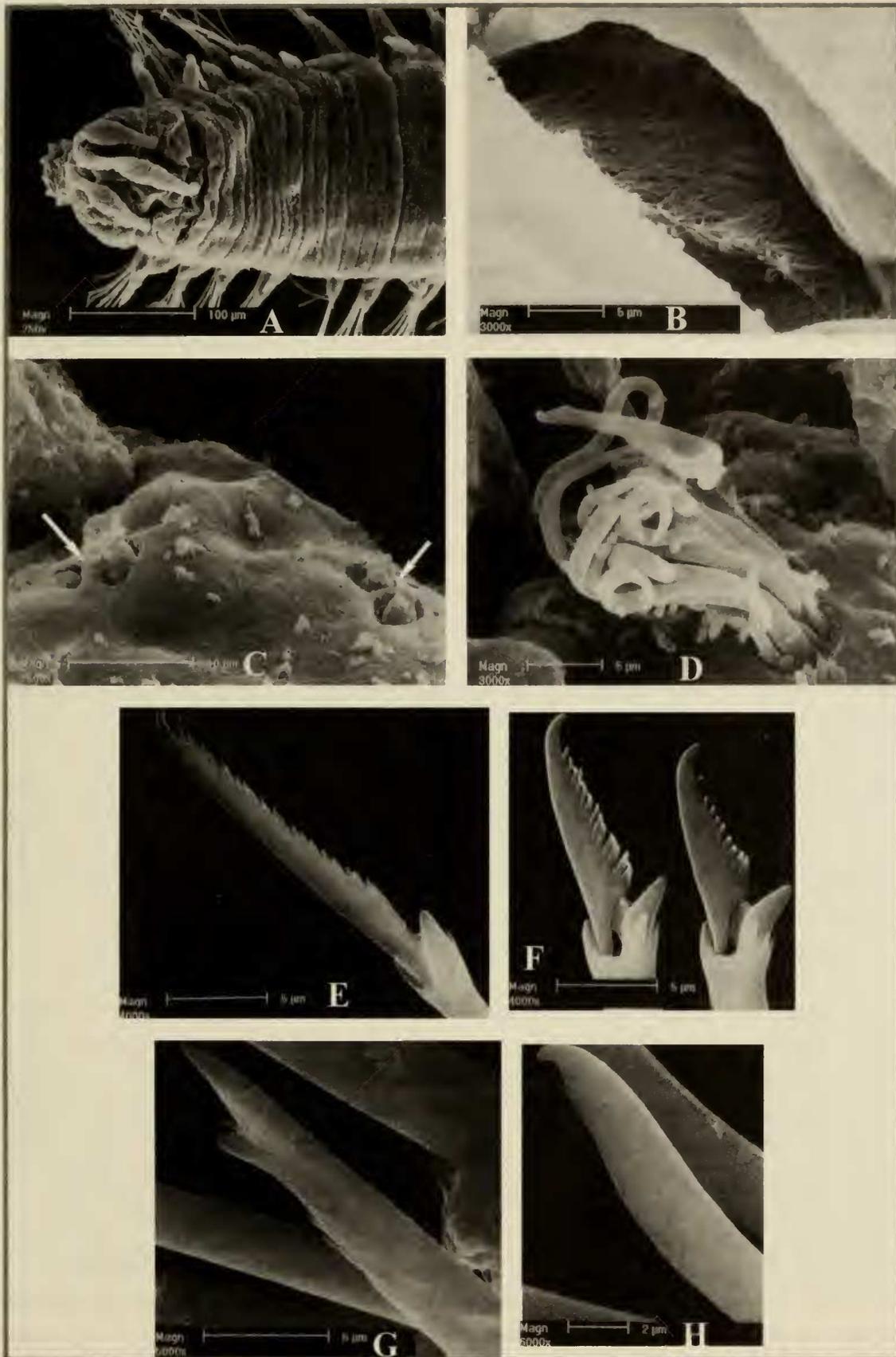


Fig. 2. *Parapionosyllis cabezali*, new species. SEM micrographs. A, anterior end, dorsal view; B, detail of a nuchal organ opening; C, parapodial glands pores and papillae (arrows); D, detail of fibrillar material protruding from a parapodial gland; E, long bladed, dorsal compound seta from anterior parapodium; F, mid-length and short compound setae from midbody; G, posterior dorsal simple seta; H, posterior ventral simple seta.

maining anterior parapodia. Anterior dorsal compound setae with thick shafts and heterogomph articulation (Fig. 1E); median and ventral shafts with hemigomph articulation (Fig. 2E, F). Shafts apparently smooth but having a few subdistal spines. Blades unidentate with spines on the margin and a longer sub-distal spine more evident on more dorsal and anterior setae. Dorso-ventral gradation in blade length; blades of the dorsal-most compound setae about 25 μm in most anterior setigers, 20 μm in the median ones and 15 μm in posterior-most ones; with moderately long spines on the margin; blades progressively shorter towards the ventral part of the parapodium (Fig. 1E, H), 10 μm in the ventral most seta with shorter spines on the margin. Solitary dorsal simple seta on each post-proventricular parapodium, slightly thicker than the shafts of compound setae, provided with various spines on the margin, one of which thicker and longer (Fig. 1D); most posterior dorsal simple setae have fewer spines on margin but are provided with a larger subdistal spine (Figs. 1G, 2G). Solitary ventral simple setae sigmoid, unidentate, apparently smooth (Fig. 1I) but provided with a few minute subdistal spines (Fig. 2H). Solitary aciculum per parapodium, relatively thick and with a rounded, enlarged and apparently hollow tip (Fig. 1F).

Pharynx relatively long and thin, extending through five or six segments (Fig. 1A); pharyngeal tooth located near the anterior margin; anterior end of pharynx surrounded by 10 papillae (Fig. 2A). Proventriculus shorter than the pharynx, extending through three or four segments, with about 22 rows of muscle cells. Pygidium small, semicircular, with two long and thin anal cirri, longer than the antennae (Fig. 1B). Mature males provided with natatory capillary setae and sperm packets in each segment between setigers 11 and 27; females carry eggs ventrally.

Ecology.—*Parapionosyllis cabezali*, was found in Punta Endata in sublittoral muddy sand (70 m depth), in the Ría de Ferrol in

sublittoral muddy sand, coarse sand and very coarse sand (11–25 m depth) with organic matter content between 0.12% and 0.20% and reaching 20 cm depth in sediment. In the Ría de Baiona this species was found in sublittoral medium sand and coarse sand (8–12 m depth).

Remarks.—Campoy (1982) and, more recently, Parapar et al. (1994) reported this species as *Parapionosyllis* cf. *gestans* (Pierantoni, 1903), due to its similarity to *P. gestans* [as described by Fauvel (1923) and Cognetti (1965)]. A more detailed study of the specimens revealed two main differences between the species. *P. cabezali* shows a moderate dorso-ventral gradation in the length of the blades of the compound setae, while in *P. gestans* all blades are similar in length (Cognetti 1965). Unlike Campoy (1982), we consider the setae illustrated to be an accurate representation of the complete set of setae in each parapodium. In the same figure, the author provides detailed sketches of the setae of three other species (*Parapionosyllis minuta*, *Parapionosyllis elegans* and *Parapionosyllis labronica*), drawing the same number of setae for all of them and showing the variation in the size of the blades where it exists. Also, all specimens of *P. cabezali* had numerous and conspicuous parapodial glands, of two kinds and different in size, which are not described in the Mediterranean species. Perkins (1981) also report the presence of paired parapodial glands in specimens of *Parapionosyllis longocirrata* (Webster & Benedict 1884) from the Atlantic coast of the United States, but this species differs from *P. cabezali* in that it has much larger dorsal cirri, in the shape and spinulation of the anterior dorsal simple setae and in the length of the dorsal-most compound setae blades (15 μm in *P. longocirrata* and 25 μm in *P. cabezali*). *Parapionosyllis brevicirra* Day, 1954, a species also present in the Atlantic coast of the Iberian Peninsula (Parapar et al. 1994) and western Mediterranean Sea, occasionally shows granular and fibrillar inclusions in the dorsal part of

the parapodia (San Martín 1984), but this well known species has much longer dorsal compound setae blades (45 μm) than *P. cabezali*. The type-series of *P. gestans* (Pierantoni, 1903) was apparently lost, and it was not possible to examine any type specimens of this species. San Martín (1984) recorded 12 described species of *Parapionosyllis* and provided a key for identification in which *P. gestans* (Pierantoni, 1903) was distinguished from *P. cf. gestans* of Campoy (1982).

Distribution.—*Parapionosyllis cabezali* seems to be distributed along the Iberian Atlantic coast, from Basque Country (Campoy 1982, Aguirrezabalaga 1984), Galicia (NW Spain) in the Ría de Ferrol (Parapar et al. 1994) and Ría de Baiona (Moreira 1999) to Punta Umbría (Huelva, SW Spain) (Rodríguez & Viéitez 1992), although it has not been reported in Portugal.

Etymology.—The species is named in fond memory and honour of the late Luis Cabezal Gómez, lecturer in the Escuela Politécnica Superior de Lugo (Universidade de Santiago, Spain), brother-in-law of the first author, in recognition of his love for nature and friendship.

Acknowledgments

This paper was partially supported by the projects “Aplicacións morfofuncionais da quetotaxia de anélidos acuáticos de Galicia” (XUGA10305B98) and “Fauna Ibérica IV” (PB950235) supported by the Xunta de Galicia and Comisión Interministerial de Ciencia y Tecnología respectively. The drawings were made by J. Corbera, illustrator for the project “Fauna Ibérica”, and the SEM micrographs were taken by E. Salva-

dor of the Servicio Interdepartamental de Investigación (U.A.M., Spain).

Literature Cited

- Aguirrezabalaga, F. 1984. Contribución al conocimiento de los Anélidos Poliquetos de la costa de Guipúzcoa.—*Munibe* 36:119–130.
- Campoy, A. 1982. Fauna de los Anélidos Poliquetos de la Península Ibérica.—*Publicaciones de Biología de la Universidad de Navarra, Serie Zoológica* 7(1–2):1–781.
- Cognetti, G. 1965. Sillidi mesopsammici delle secche della Meloria (Livorno).—*Archivio Zoologico Italiano* 50:65–72.
- Fauvel, P. 1923. Polychètes errantes. Faune de France, 5. Paul Lechevalier, Paris, 488 pp.
- Moreira, J. 1999. Anélidos Poliquetos de sustratos blandos infralitorales de la Ensenada de Baiona (Galicia). Unpublished M.S. thesis, University of Vigo, Vigo (Spain), 510 pp.
- Parapar, J. 1991. Anélidos poliquetos bentónicos de la Ría de Ferrol (Galicia). Unpublished Ph.D. thesis, University of Santiago, Santiago de Compostela (Spain), 1104 pp.
- , G. San Martín, C. Besteiro & V. Urgorri, 1994. Aspectos sistemáticos y ecológicos de las subfamilias Eusyllinae y Exogoninae (Polychaeta, Syllidae) en la Ría de Ferrol (Galicia, NO España).—*Boletín de la Real Sociedad Española de Historia Natural, Sección Biología* 91(1–4):91–101.
- Perkins, T. H. 1981. Syllidae (Polychaeta), principally from Florida, with descriptions of a new genus and twenty-one new species.—*Proceedings of the Biological Society of Washington* 93:1080–1171.
- Pierantoni, P. 1903. La gestazione esterna.—*Archivio Zoologico* 1(3–4):231–252.
- Rodríguez, C. V. & J. M. Viéitez. 1992. Macrofauna bentónica de los primeros metros del piso infralitoral de la costa de Punta Umbría (Huelva).—*Boletín del Instituto Español de Oceanografía* 8(2):327–338.
- San Martín, G. 1984. Estudio biogeográfico, faunístico y sistemático de los poliquetos de la familia Sillidos (Syllidae: Polychaeta) en Baleares.—*Universidad Complutense, Madrid, Tesis Doctorales*, 187/84, 529 pp.