

A catalogue of the Antarctic and sub-Antarctic Phoxocephalidae (Crustacea: Amphipoda: Gammaridea) with taxonomic, distribution and ecological data

GLORIA M. ALONSO DE PINA¹, MARTIN RAUSCHERT² & CLAUDE DE BROYER³

¹Museo Argentino de Ciencias Naturales “Bernardino Rivadavia”, Div. Invertebrados, Av. Ángel Gallardo 470, (1405) Buenos Aires, Argentina. E-mail: galonso@macn.gov.ar

²(formerly at:) Alfred-Wegener-Institut für Polar und Meeresforschung, Bremerhaven, Germany

³Royal Belgian Institute of Natural Sciences, Dpt Invertebrates (Carcinology), rue Vautier 29, B-1000 Bruxelles, Belgium. E-mail: claude.debroyer@naturalsciences.be

Table of contents

Abstract	2
Introduction	2
Material and methods	3
Catalogue	6
Suborder Gammaridea Latreille, 1802	6
Superfamily Phoxocephaloidea G.O. Sars, 1891.....	6
Family Phoxocephalidae G.O. Sars, 1891	6
<i>Cephalophoxoides kergueleni</i> (Stebbing, 1888)	6
<i>Coxophoxus coxalis</i> (K.H. Barnard, 1932)	8
<i>Fuegiphoxus abjectus</i> Barnard and Barnard, 1980	8
<i>Fuegiphoxus fuegiensis</i> (Schellenberg, 1931)	9
<i>Fuegiphoxus inutilis</i> Barnard and Barnard, 1980	10
<i>Fuegiphoxus? uncinatus</i> (Chevreux, 1912)	11
<i>Harpiniopsis aciculum</i> Ren, 1991	12
<i>Harpiniopsis wandichia</i> (J.L. Barnard, 1962)	12
<i>Heterophoxus pellusidus</i> Ren, 1991.....	13
<i>Heterophoxus trichosus</i> K.H. Barnard, 1932	13
<i>Heterophoxus videns</i> K.H. Barnard, 1930	14
<i>Leptophoxoides molaris</i> J.L. Barnard, 1962	16
<i>Linca pinita</i> Alonso de Pina, 1993	17
<i>Metharpinia iado</i> Alonso de Pina, 2003.....	17
<i>Metharpinia longirostris</i> Schellenberg, 1931	18
<i>Metharpinia protuberantis</i> Alonso de Pina, 2001.....	18
<i>Microphoxus cornutus</i> (Schellenberg, 1931)	19
<i>Palabriaphoxus latifrons</i> (Ren, 1991)	20
<i>Parafoxiphalus longicarpus</i> Alonso de Pina, 2001	20
<i>Paraphoxus? latipes</i> Ren, 1991	21
<i>Paraphoxus? pyripes</i> K.H. Barnard, 1930.....	21
<i>Parharpinia? obliqua</i> K.H. Barnard, 1932	22
<i>Parharpinia? rotundifrons</i> K.H. Barnard, 1932	23
<i>Phoxorgia sinuata</i> (K.H. Barnard, 1932).....	24
<i>Proharpinia antipoda</i> Schellenberg, 1931	25
<i>Proharpinia stephensi</i> (Schellenberg, 1931)	26

<i>Pseudfoxiphalus setosus</i> Andres, 1991	27
<i>Pseudharpinia antarctica</i> Ren, 1991	27
<i>Pseudharpinia calcariaria</i> Bushueva, 1982	28
<i>Pseudharpinia cariniceps</i> (K.H. Barnard, 1932)	28
<i>Pseudharpinia dentata</i> Schellenberg, 1931	29
<i>Pseudharpinia macrospinosa</i> Valério-Berardo and Piera, 2006	30
<i>Pseudharpinia obtusifrons</i> (Stebbing, 1888)	30
<i>Pseudharpinia vallini</i> (Dahl, 1954)	31
<i>Torridoharpinia hurleyi</i> (J.L. Barnard, 1958a)	32
Discussion	32
Acknowledgements	36
References	36

Abstract

An up-to-date catalogue of Antarctic and sub-Antarctic Phoxocephalidae is presented, including 35 species. Extensive list of bibliographical references with synonymy, detailed information on geographic and bathymetric distribution, ecological data, museum locations of type-material, remarks on taxonomic and biogeographical status, are provided for each species. The catalogue is based on taxonomic and ecological literature until 31 December 2006. Additional unpublished records of species from the Antarctic and sub-Antarctic collections held at the Alfred Wegener Institut für Polar- und Meeresforschung, Bremerhaven, and at the Museo Argentino de Ciencias Naturales “Bernardino Rivadavia”, Buenos Aires, have been included. The taxonomic status of all the Southern Ocean species has been checked. Species allocated to the genera *Paraphoxus* and *Parharpinia*, and *Fuegiphoxus uncinatus* require further study to clarify or confirm the genus allocation. Most of the Southern Ocean phoxocephalids have a wide bathymetric distribution, equally present in the Antarctic and sub-Antarctic regions. The highest species richness is found above 200 meters depth in the sub-Antarctic region. Of 35 phoxocephalid species reported, 25 are endemic to the Southern Ocean *s.l.*, 15 are endemic to the Antarctic region and 6 are endemic to the sub-Antarctic region, the latter distributed only in the Magellan province. Endemicity at genus level attains 22% for the whole Southern Ocean, with 3 genera restricted to the Magellan province and one genus to the West Antarctic, Magellan and sub-Antarctic islands provinces. Habitat and substrate preferences, dietary and burrowing behaviours are scarcely known for most of the phoxocephalid species from the Southern Ocean.

Key words: Amphipoda, Phoxocephalidae, checklist, distribution, ecological notes, Southern Ocean, Antarctic and sub-Antarctic areas

Introduction

All phoxocephalid species known from the Southern Ocean were included in the checklist elaborated by De Broyer and Jazdzewski (1993). After this publication, two new genera, several new species and some new records have been reported, *e.g.* by Andres (1991), Alonso de Pina (1993, 2001, 2003), De Broyer *et al.* (1999), De Broyer and Rauschert (1999), Gutt *et al.* (2000), and Chiesa *et al.* (2005). New unpublished additional records for many phoxocephalid species were provided by two of us (Rauschert; Alonso de Pina). De Broyer *et al.* (2007) compiled a comprehensive catalogue of gammaridean and corophiidean amphipod species of the Southern Ocean, after the present phoxocephalid list had been checked.

The catalogue herein elaborated is updated and extended for all phoxocephalid species reported in Antarctic and sub-Antarctic waters. It comprises a complete list of references, including all the known synonyms, detailed geographical distributions, bathymetrical information, ecological data, type material location and taxonomic and/or biogeographical remarks for each species. Moreover, extralimital distribution and depth are indicated when the species are also present outside the Southern Ocean.

Studies on Antarctic and sub-Antarctic Phoxocephalidae

The first studies on Phoxocephalidae from Antarctic and sub-Antarctic waters were carried out by Stebbing (1888), Chevreux (1912), K.H. Barnard (1930, 1932) and Schellenberg (1926, 1931), based on material obtained through extensive expeditions that explored these areas (*H.M.S. Challenger 1873–1876*, *Deuxième Expédition Antarctique Française 1908–1910*, *“Terra Nova” Expedition 1910*, *“Discovery” 1925–1927*, *“William Scoresby” 1926–1927*, *Deutschen Tiefsee-Expedition 1898–1899*, *Schwedische “Eugenie” Expedition 1851–1853*, *Schwedische Expedition nach den Magellansländern 1895–1897*, *Schwedische Südpolar Expedition 1901–1903*, *Hamburger Magalhaensische Sammelreise 1892–1893*). J.L. Barnard (1960, 1980) and Barnard and Barnard (1980) reviewed many taxa from the Southern Ocean, confirming their specific status and/or erecting new species; moreover, some genera were created to accommodate some known species from the Antarctic and sub-Antarctic areas. Other additions by Dahl (1954), J.L. Barnard (1958b, 1962), Bushueva (1982), Ren and Huang (1991) and Alonso de Pina (2001, 2003) increased the number of known species for these regions. Andres (1991) and Alonso de Pina (1993, 2001) also contributed with the description of new genera. Lowry and Bullock (1976) compiled a checklist of all Southern Ocean Amphipoda, listing a total of 20 phoxocephalid species; later on, De Broyer and Jazdzewski (1993) also presented an inventory of all Amphipoda from the Southern Ocean, listing a total of 30 phoxocephalid species. De Broyer and Rauschert (1999) studied the diversity of amphipods of the Magellan region (Pacific coast) contributing with new phoxocephalid records of distribution for this area; their results were based on literature records and on new material collected by the *“Victor Hensen” Campaign 1994* and the *“Vidal Gormaz” CIMAR FIORD II cruise 1996*. The *“Polarstern” ANT IX/3*, *ANT XIII/3*, *ANT XV/3* cruises incremented the Antarctic distribution records. The actual checklist reports 35 species for the whole area herein considered.

Material and methods

Sources and citations

The catalogue is based on taxonomic and ecological literature checked until 31 December 2006. Additional records for some species recently identified from the collections of the Alfred Wegener Institut für Polar- und Meeresforschung, Bremerhaven (Rauschert, unpublished data) and from the Museo Argentino de Ciencias Naturales “Bernardino Rivadavia”, Buenos Aires (Alonso de Pina, unpublished data) are also incorporated in the catalogue. Taxa not identified to a specific level were not included.

References and distribution records of the checked species are given in detail, also including the geographical distribution of those species which expand outside the Southern Ocean.

In a few cases, when species were originally misidentified and revised later on to give them their accurate taxonomic status, information was asked to the appropriate museums to confirm the present geographic distribution of the revised species. For example, J.L. Barnard (1960) and Barnard and Barnard (1980) revised the material assigned to *Parharpinia fuegiensis* described by Schellenberg (1931); they concluded that Schellenberg’s material contained other species and erected the genus *Fuegiphoxus* to include *F. fuegiensis* (Schellenberg, 1931), and the new species *F. abjectus* and *F. inutilis*.

Some species from the list assigned to the genera *Paraphoxus* G.O. Sars, 1895 and *Parharpinia* Stebbing, 1899 should be allocated to new genera (Barnard & Karaman, 1991). However, the late J.L. Barnard could not conclude its extensive revision of Phoxocephalidae, in particular, the study of diagnostic morphological features devoted to the classification of a great number of species included in this family; in consequence, a question mark accompanies the doubtful genera.

The style presentation of the catalogue follows De Broyer *et al.* (2004).

Geographic scope

A complete list of phoxocephalid species recorded in the Southern Ocean is presented. The Southern Ocean is assumed here in the sense given by Deacon (1982, 1984), Mc Ginnis (1982) and De Broyer and Jażdżewski (1993), extending south of the Subtropical Front Zone (or Subtropical Convergence) to the Antarctic continent. This vast marine area has been classically divided in two zoogeographical regions, primarily on the basis of the distribution of the benthic fauna (Hedgpeth 1969, 1970; Dell, 1972; Knox & Lowry, 1977; White, 1984; De Broyer & Jażdżewski, 1993):

The Antarctic region, which extends from the coasts of the continent northwards to the Antarctic Polar Front to the north, and comprises two sub-regions or provinces: the East and West Antarctic provinces and the South Georgia district within the West Antarctic.

The sub-Antarctic region, comprising the sub-Antarctic Islands province with the Tristan da Cunha district, and the Magellan province.

The sub-Antarctic Islands province comprises different groups of islands distributed around the Antarctic continent in the marine zone between the Antarctic Polar Front and the Subtropical Front Zone entirely under the West Wind Drift influence. It includes the New Zealand sub-Antarctic islands, *i.e.* Auckland, Campbell, Antipodes, Bounty and Snares Islands (Knox, 1975, 1987; Lowry & Fenwick, 1983), Macquarie, Kerguelen, Heard and McDonald, Crozet, Prince Edward and Marion Islands as well as Tristan da Cunha and Gough Islands considered a separate district (Hedgpeth, 1969, 1970).

The Magellan province comprises the seas around the southern tip of South America, and includes the large Patagonian continental shelf, the Falkland Islands (=Islas Malvinas) and the Burdwood Bank. The northern limits chosen for this inventory are for the Chilean coast, the latitude of Cabo de Quedal, north of Isla Chiloe (41°S) and for the Argentinian side, the latitude of Península Valdés (42°S). These limits rely on hydrographical and biological boundaries (Balech, 1954, 1964; Semenov & Berman, 1977; Semenov, 1978; López Gappa & Lichtschein, 1988; Bastida *et al.*, 1992; López Gappa *et al.*, 2006). However, Lancellotti and Vasquez (1999, 2000) pointed out that the presence of a zoogeographic break near 41°S along the Chilean coast as broadly suggested in the literature, have been only seen for Echinodermata and Demospongia. Other groups, like Crustacea, indicated the existence of a transitional region (between 35° and 48°S) for the littoral and shallow sublittoral fauna, showing gradual replacement of species.

The northern limit of the Magellan province for the Argentinean sector has been a matter of many papers. According to Balech (1954) the limit between the Argentine (the north faunistic area) and the Magellan zoogeographic provinces could be established in a fringe between 42°S and 43°S. The Magellan province extends northwards to deeper areas of the shelf off Buenos Aires, where the Falkland current (=corriente de Malvinas), a branch from the sub-Antarctic Cabo de Hornos current that flows northwards affecting both coastal and off-shore areas, meets with the Brazil current at the subtropical convergence, at approximately 35°S. Balech (1964) indicated that periodical warm waters from the north flow from the littoral of Buenos Aires to northern Patagonia during spring and summer, occasionally reaching the San Jorge Gulf in a narrow strip close to the shore. The same author considered this water mass as a subtropical drift or transgression, since it was not a real current. This transgression area constituted by sub-Antarctic water, then mixed with and warmed by the Brazilian waters, occupies the inner sector of the shelf of Buenos Aires and the north Patagonian gulfs, consequently representing a transitional zone where north faunistic elements are found in summer. López Gappa and Lichtschein (1988) who dealt with the geographic distribution of bryozoans from the Argentine Sea, and Bastida *et al.* (1992) who studied the assemblages of molluscs, echinoderms and bryozoans found throughout the Argentine continental shelf, support the traditional zoogeographic division for the Argentine Sea, and, in general terms, situate the fluctuating north limit of the Magellan province at the latitude of Península Valdés.

Systematics

Barnard and Drummond (1978) diagnosed the phoxocephalids from Australia and grouped all the world species into nine subfamilies; their phylogenic system was an untested scheme of evolutionary pattern. Later

on, Barnard and Karaman (1991) repeated more or less the same subfamily scheme where some genera could belong, according to the keys, to more than one subfamily; they updated the taxonomic world list of species and questioned the generic allocation of some taxa. This first approach was a starting point of a hypothetical classification; J.L. Barnard was aware about the necessity of reorganizing all the phoxocephalid species under a modern phylogenetic classification, based on cladistic analyses. Many genera needed to be redefined, some species urgently had to be removed to other known or new genera, and the on-going discovery of new taxa from all over the world also required the subfamily realignment. In this sense, Jarrett and Bousfield (1994a, b) reassessed, on the basis of phyletic studies, the allocation of North and South America phoxocephalids, erecting a new subfamily and keeping the other known units to where they removed some of J.L. Barnard original subfamilial taxa. Further attempts of cladistical analyses (Taylor & Poore, 2001) have failed to support the monophyly of any of these subfamilies or their genera. Therefore, the relationships of the phoxocephalid taxa have to be re-evaluated through the understanding of their morphological characters and character-states.

We consider that the species included in the present checklist would have to be treated without taking into account any subfamilial division, until an iterative process of testing and improving upon the pertinent characters is reassessed following cladistic analyses.

Distribution records

Antarctic place names are given in English. Sub-Antarctic place names are given in the language of the region, *i.e.* in Spanish for the Magellan region (*e.g.* Estrecho de Magallanes instead of Magellan Strait), or in French for the French sub-Antarctic Islands (*e.g.* Passe Royale at Iles Kerguelen instead of Royal Sound at Kerguelen Islands). Geographical place names are given in their modern form whenever possible, followed by the original name (in square brackets) if different.

The geographic information sources were for the Antarctic place names (see <http://www.scarmarbin.be/SearchGazetteer.php>): SCAR ENEA Composite Gazetteer of Antarctica for the place names south of 60°S (www.pnra.it/SCAR_GAZE), Alberts (1995), USGS Geographic Names Information System – Antarctica (www.wayhoo.com, <http://geonames.usgs.gov/antform.html>), and, for the sub-Antarctic place names: Delépine (1973) for the French sub-Antarctic Islands (“Terres Australes”). Geographic coordinates between square brackets have been extracted from appropriate gazetteers, when original coordinates were missing.

For sampling station records, expeditions or ship name and cruises are cited as often as possible, with station number, and details on bottom types (habitats) and collecting gears. In case of occurrence outside the Southern Ocean *s.l.*, the extralimital distribution records and depth range have been added.

Type material location

The type material of species is deposited in the cited museums and scientific institutions. A question mark indicates that it was not possible to locate the type specimen(s).

Abbreviations

(app.): appendix (indicates species that appear in a list at the end of a paper).

(approx.): approximately (used with geographic coordinates of a sampling site around a known city).

(coll.): collector (name of the collector followed by the year of sampling).

(eco): ecology (indicates marine ecology publications mentioning occurrence of species).

(unpubl.): unpublished (indicates unpublished distribution records).

The following abbreviations for author names have been used:

AOW: A.O. Walker; **AS**: A. Schellenberg; **B&B**: J.L. Barnard and C.M. Barnard; **BS&L**: D. Bellan-Santini and M. Ledoyer; **CC**: C. Chilton; **CDB**: C. De Broyer; **DBS**: D. Bellan-Santini; **DEH**: D.E. Hurley; **EC**: E. Chevreux; **ED**: E. Dahl; **EG**: E. González; **FP**: F.E. Píera; **GEN**: G.E. Nicholls; **GMA**: G.M. Alonso de Pina; **HGA**: H.G. Andres; **HSL**: H.S. Lenihan; **ICH**: I. Chiesa; **IVB**: I.V. Bushueva; **JG**: J. Gutt; **JLB**: J.L.

Barnard; **JSO**: J.S. Oliver; **KHB**: K.H. Barnard; **KJ**: K. Jażdżewski; **KS**: K. Stephensen; **M&D**: T. Monod and R. Dollfus; **MHT**: M.H. Thurston; **MLB**: M.L. Branch; **MR**: M. Rauschert; **R&H**: X. Ren and L. Huang; **TRS**: T.R.R. Stebbing; **VB**: M.T. Valério-Berardo; **YW**: Y. Wakabara.

Abbreviations for museum and scientific institution names that have been used are listed in Table 1.

TABLE 1. Abbreviations for museum and scientific institution denominations.

CMNZ, Christchurch	Canterbury Museum, University of Canterbury, Christchurch, New Zealand
IOQ, Qingdao	Institute of Oceanology, Academia Sinica at Qingdao [Tsingtao], China
LGOC, New York	Lamont-Doherty Geological Observatory, Columbia University, New York, USA
MACN, Buenos Aires	Museo Argentino de Ciencias Naturales “Bernardino Rivadavia”, Buenos Aires, Argentina
MNHN, Paris	Muséum National d’Histoire Naturelle, Paris, France
MNRJ	Museu Nacional, Universidade Federal do Rio de Janeiro, Brazil
MZUSP, São Paulo	Museu de Zoologia, Universidade de São Paulo, Brazil
NHM, London	Natural History Museum, London, United Kingdom
NRS, Stockholm	Naturistoriska Riksmuseet [Swedish Museum of Natural History], Stockholm, Sweden
ZIN, St. Petersburg	Zoological Institute of Russian Academy of Sciences, St. Petersburg, Russia
ZMH, Hamburg	Zoologisches Museum, Hamburg Universität, Germany

Zoogeographic and bathymetric codes

Each species listed is given geographic and bathymetric codes summarizing its distribution:

E: for East Antarctic province.

W: for West Antarctic province.

G: for the South Georgia district (within the West Antarctic province).

S: for sub-Antarctic Islands province.

T: for Tristan da Cunha district (within the sub-Antarctic Islands province).

M: for Magellan province.

Deep sea species (*i.e.* occurring deeper than 500 m in the Antarctic region or deeper than 200 m in the sub-Antarctic region, see below) have been included in the appropriate biogeographic provinces.

+: means that the species is also distributed outside the Antarctic and/or sub-Antarctic region(s).

++: indicates the species is cosmopolitan or at least widely distributed in two other oceans.

Ba: bathyal (200-3000 m in the sub-Antarctic region or 500-3000 m in the Antarctic region).

Ab: abyssal (occurring below 3000 m).

The mention **+Ba** or **Ab+** is used when a species also occurs above the upper limits of the bathymetric zone.

Catalogue

Suborder Gammaridea Latreille, 1802

Superfamily Phoxocephaloidea G.O. Sars, 1891

Family Phoxocephalidae G.O. Sars, 1891

Cephalophoxoides kergueleni (Stebbing, 1888)

Stebbing, 1888: 816–819, pl. 55 (as *Phoxus kergueleni* on plate). (*Phoxocephalus kergueleni*).

Della Valle, 1893: 742. (*Phoxocephalus kergueleni*).

Stebbing, 1906: 135. (*Phoxocephalus kergueleni*).

Not Chilton, 1909: 618–619. (*Phoxocephalus kerguelen*=*Phoxocephalus regium*).
 Schellenberg, 1926: 195. (*Phoxocephalus kergueleni*).
 Monod and Dollfus, 1932: 73. (*Phoxocephalus kergueleni*).
 Barnard J.L., 1958b: 118. (*Phoxocephalus kergueleni*).
 Barnard J.L., 1960: 293, 294, 299, 300, 301. (*Phoxocephalus kergueleni*).
 Barnard J.L., 1964: 3, 21–22, fig. 17. (*Phoxocephalus kergueleni*).
 Barnard J.L., 1967: 3, 4, 5, 135, 137, 138, fig. 67. (*Phoxocephalus kergueleni*).
 Mills, 1972: 74, table 1. (*Phoxocephalus kergueleni*).
 Bellan-Santini and Ledoyer, 1974: 639, 640, 694. (*Phoxocephalus kergueleni*).
 Lowry and Bullock, 1976: 128. (*Phoxocephalus kergueleni*).
 Gurjanova, 1977: 81.
 Barnard and Drummond, 1978: 427, 431, 441–442. (*Phoxocephalus kergueleni*).
 Barnard and Barnard, 1990: 30.
 Barnard and Karaman, 1991: 603.
 De Broyer and Jazdzewski, 1993: 83.

Distribution:

W + S + M + (+Ba)

Iles Kerguelen: *H.M.S. Challenger 1873–1876*, off Baie de Recques [Cumberland Bay], [48°48'S 69°02'E], 216 m (TRS 88); *Deutschen Tiefsee-Expedition 1898–1899*, [49°15'S 69°10'E], shallow littoral (AS 26); Baie des Swains, [49°37'S 69°42'E] (M&D 32); Golfe du Morbihan, Anse Joliette, [49°27'S 69°54'E], 10–54 m (BS&L 74).

Magellan Area: *Magellan “Victor Hensen” Campaign 1994*, Estrecho Laredo, sta. 813, 52°57.5'S 70°41'W, 90 m (gear: small dredge); sta. 958, 52°58'S 70°41.1'W, 111 m (gear: small dredge); sta. 966, 52°57.9'S 70°46.9'W, 13 m (gear: small dredge); Estrecho Bahía Voces, sta. 884, 53°42.6'S 70°57.5'W, 51 m (gear: small dredge); sta. 875, 53°42.1'S 70°56.5'W, 240 m (gear: Agassiz trawl); Canal Beagle, Francia, sta. 1084, 54°55.3'S 69°019.9'W, 268 m (gear: light meter); Canal Beagle, Romanche, sta. 1083, 54°53.1'S 69°30.5'W, 62 m (gear: small dredge); Canal Beagle, Garibaldi, sta. 1045, 54°51.8'S 69°55.6'W, 186 m (gear: small dredge); Canal Beagle, Punta Yámana, sta. 1124, 54°58.9'S 69°02.1'W, 202 m (gear: small dredge); Canal Beagle, Yendegaia, sta. 1140, 54°54.9'S 68°39.1'W, 310 m (gear: small dredge); Bahía Oglander, sta. 1152, 55°09.1'S 67°01.7'W, 15 m (gear: small dredge); Rada Picton, sta. 1156, 55°05.3'S 66°45.4'W, 27 m (gear: small dredge); Isla Picton, sta. 1192, 55°06.7'S 67°01.6'W, 40 m (gear: small dredge); Isla Wollaston, sta. 1204, 55°38.4'S 67°12.4'W, 40 m (gear: small dredge); SE Isla Picton, sta. 1221, 55°07.6'S 66°44.6'W, 33 m (gear: small dredge); C. Brecknock (W), I., sta. 1291, 54°31.4'S 72°05.9'W, 484 m (gear: small dredge); *Crucero CIMAR FIORD 3 (“Vidal Gormaz” Cruise)*, Estrecho de Magallanes, Paso Ancho, sta. 5, 53°3.6'S 70°32.8'W, 88 m; sta. 6, 53°16.5'S 70°41.2'W, 177 m; Estrecho de Magallanes, Bahía Snug, sta. 8, 53°51.8'S 71°32'W, 260 m; G. Xaultegua, sta. 16, 53°8.65'S 73°4.7'W, 411 m; Canal Beagle, Puerto Williams, sta. 41, 54°53.8'S 67°34.5'W, 35 m; Isla Lennox, Paso Richmond, sta. 42, 55°11.5'S 66°46.3'W, 52 m; Bahía Parry, sta. 51, 54°34.9'S 69°19.6'W, 177 m; Seno Almirantazgo, sta. 52, 54°24.5'S 69°11.3'W, 110 m (MR unpubl.).

South Shetland Islands: “*Polarstern*” *ANT XV/3 48*, King George Island, sta. 325, 62°21.9'S 58°42.6'W, 805 m (gear: multiboxcorer); sta. 326, 62°20.1'S 58°38.8'W, 606 m (gear: multiboxcorer) (MR unpubl.).

Depth range: 10–805 m.

Type-locality: Iles Kerguelen: *H.M.S. Challenger 1873–1876*, off Baie de Recques [Cumberland Bay], [48°48'S 69°02'E], 216 m (TRS 88).

Ecology: Collected from sandy bottoms.

Extralimital distribution: “*Vema*” 15, Panama Basin, Gulf of Panama, sta. 37, 7°25'N 79°23'W, 1749 m (gear: Menzies trawl) (JLB 64); *Velero IV*, California, Cedros Trench, sta. 7229, 27°54'25"N 115°40'00"W, 1720–1748 m; sta. 7231, 27°24'00"N 115°12'15"W, 2398–2475 m; sta. 7358, 27°35'45"N 115°08'30"W, 1095–1205 m; sta. 7364, 30°14'44"N 116°46'45"W, 2673–2770 m (gear: Menzies trawl) (JLB 67).

Extralimital depth range: 1095–2770 m.

Type material location: NHM, London.

Remarks: *Cephalophoxoides kergueleni* was described and illustrated in detail by Stebbing (1888) from the Kerguelen Islands, and it is characterized by a stout gnathopod 2 with palmar corner extended into a protuberance-like-tooth. Bellan-Santini and Ledoyer (1974) also found this species in Kerguelen Islands and noted a small difference in the inner ramus length of uropod 3.

Cephalophoxoides kergueleni presents a new record in the Magellan area and in the South Shetland Islands (Rauschert, unpubl.). Outside the Southern Ocean, J.L. Barnard (1964, 1967) reported this taxon in the deep bathyal zone of the Pacific Ocean, where he found that specimens from two stations displayed dissimilar palmar angle gnathopod 2 and uropod 2 with respect to the species described by Stebbing (1888). The identity of this deep Pacific material should be carefully checked.

Coxophoxus coxalis (K.H. Barnard, 1932)

Barnard K.H., 1932: 17, 97–99, fig. 48. (*Phoxocephalus coxalis*).

Barnard J.L., 1958b: 118. (*Phoxocephalus coxalis*).

Barnard J.L., 1960: 181, 293, 294. (*Phoxocephalus coxalis*).

Barnard J.L., 1966: 84.

Barnard J.L., 1969: 415. (*Phoxocephalus coxalis*).

Thurston, 1974a: app. C. (*Phoxocephalus coxalis*).

Lowry and Bullock, 1976: 125.

Gurjanova, 1977: 69, pl. 1.

Barnard and Drummond, 1978: 530.

Barnard and Barnard, 1990: 37.

Barnard and Karaman, 1991: 606.

De Broyer and Jażdżewski, 1993: 83.

Distribution:

G

South Georgia: “William Scoresby” 1926–1927, sta. WS 53, from 53°42’S 37°12’W to 53°29’S 37°13’W, 0–5 m (gear: pelagic tow-net) (KHB 32).

Depth range: 0–5 m (pelagic).

Type-locality: South Georgia: “William Scoresby” 1926–1927, sta. WS 53, from 53°42’S 37°12’W to 53°29’S 37°13’W, 0–5 m (gear: pelagic tow-net) (KHB 32).

Ecology: Pelagic.

Type material location: NHM, London.

Remarks: J.L. Barnard (1966) erected the genus *Coxophoxus* to which he assigned the species *Phoxocephalus coxalis* K.H. Barnard, 1932 on the basis of a slender basis on peraeopod 5. The genus contains two species, the one checked herein from South Georgia, and *Coxophoxus hidalgo* J.L. Barnard, 1966 from southern California. They can be distinguished from each other by the second article of peraeopod 5 much more thinner in *Coxophoxus coxalis*.

Fuegiphoxus abjectus Barnard and Barnard, 1980

Schellenberg, 1931: 78. (*Parharpinia fuegiensis*, in part).

Barnard J.L., 1960: 273. (*Paraphoxus fuegiensis*, in part).

Barnard and Barnard, 1980: 862–867, figs. 5–6.

Barnard and Barnard, 1990: 50.

Barnard and Karaman, 1991: 610.

Gonzalez, 1991: 61.

De Broyer and Jażdżewski, 1993: 83.

De Broyer and Rauschert, 1999: 286.

Distribution:

M

Magellan Area: *Schwedische Expedition nach den Magellansländern 1895–1897*, Bahía Inutil, 53°30'S 69°45'W, 36–55 m (bottom: shell debris) (AS 31) (revised by JLB 60, B&B 80).

Depth range: 36–55 m.

Type-locality: Magellan Area: *Schwedische Expedition nach den Magellansländern 1895–1897*, Bahía Inutil, 53°30'S 69°45'W, 36–55 m (bottom: shell debris) (AS 31) (revised by JLB 60, B&B 80).

Ecology: Collected from bottom with shells.

Type material location: NRS, Stockholm.

Remarks: See remarks under *Fuegiphoxus fuegiensis*.

***Fuegiphoxus fuegiensis* (Schellenberg, 1931)**

Schellenberg, 1931: 78–80, fig. 40. (*Parharpinia fuegiensis*, in part).

Stephensen, 1949: 5–6. (*Parharpinia fuegiensis*).

Barnard J.L., 1958a: 146 (by implication). (*Paraphoxus fuegiensis*).

Barnard J.L., 1958b: 118. (*Paraphoxus fuegiensis*).

Barnard J.L., 1960: 186, 195, 271–273, 282, 290, pl. 42, figs. A–R. (*Paraphoxus fuegiensis*, in part).

Sanderson, 1973: 43. (*Parharpinia fuegiensis*).

Thurston, 1974a: app. C. (*Parharpinia fuegiensis*).

Lowry and Bullock, 1976: 126. (*Paraphoxus feugiensis* sic, in part).

Barnard and Drummond, 1978: 18, 32, 134, 144, 145. (*Wildus? fuegiensis*, in part).

Barnard and Barnard, 1980: 853–858, figs. 1–3 (in part).

Barnard and Barnard, 1990: 50.

Barnard and Karaman, 1991: 610.

Gonzalez, 1991: 61.

De Broyer and Jążdżewski, 1993: 83.

De Broyer and Rauschert, 1999: 286.

Alonso de Pina, 2003: 1052–1054, figs. 13–14.

Chiesa *et al.*, 2005: 169, 170, 171, fig. 2C, table 2.

Distribution:

W + G + M + T (+Ba)

Drake Passage: “*Polarstern*” ANT XV/3 48, Drake Passage, sta. 336, 61°26.5'S 58°07.4'W, 1031 m (gear: Agassiz trawl) (MR unpubl.).

Magellan Area: *Schwedische Expedition nach den Magellansländern 1895–1897*, Ultima Esperanza, 2 km west from 51°40'S 72°40'W, 13–18 m (bottom: clay, algae, stones); Puerto Esperanza, 54°08'S 71°01'W, 11–18 m (bottom: rocks, algae) (revised by JLB 60, B&B 80); Puerto Condor, 54°00'S 70°08'W, 90 m (bottom: rocks, ascidians, sponges) (revised by JLB 60, B&B 80); Punta Arenas, 54°55'S 67°25'W, low tide (bottom: sand, stones), (revised by JLB 60, B&B 80); Puerto Madryn, [42°46'S 65°02'W], 4–9 m (bottom: sand, clay) (revised by JLB 60, B&B 80); Isla Navarino, 54°55'S 67°25'W, 18 m (bottom: algae); *Hamburger Magalhaensischen Sammelreise 1892–1893*, Estecho de Magallanes, [54°00'S 71°00'W], surface; Punta Arenas, 54°55'S 67°25'W, beach (bottom: kelp holdfast); Ushuaia beach, [54°48'S 68°18'W], low intertidal (AS 31); Chubut, Golfo Nuevo, Bahía Nueva, Golfito beach, 42°46'S 65°02'W, 8–10 m (GMA 03); *Crucero San José I 1984*, Golfo San José, 42°20'S 64°20'W, 7 m, 10 m, 80 m (GMA 03); Santa Cruz province, Ría Deseado, 47°45'S, 65°55'W, mid-intertidal (bottom: sandy and muddy beach) (coll. Martin 2003) (GMA unpubl.); Monte León, approx. 50°01'S 68°32'W, mid-intertidal, (bottom: rocks) (coll. Schwindt 2006) (GMA unpubl.); Península Ushuaia, 54°51'S 68°19'W, 5–10 m (gear: Van Veen grab); Isla Gable, 54°54'S 67°21'W, 15–20 m (gear: dredge); Isla Lucas, 54°50'S 68°19'W, 17 m (gear: Snapper grab); Cabo San Pío, 55°03'S 66°37'W, 30–55 m (gear: dredge) (ICH *et al.* 05); *Magellan “Victor Hensen” Campaign 1994*, Estrecho Laredo, sta. 805, 52°57.9'S 70°47.2'W, 14 m (gear: Agassiz trawl); sta. 813, 52°57.5'S 70°41'W, 90 m (gear: small dredge); sta. 958, 52°58'S 70°41.1'W, 111 m (gear: small dredge); sta. 963, 52°57.9'S 70°43.5'W, 38 m

(gear: small dredge); Estrecho Bahía Voces, sta. 875, 53°42.1'S 70°56.5'W, 240 m (gear: Agassiz trawl); sta. 887, 53°42.2'S 70°57.2'W, 100 m (gear: small dredge); Estrecho Gente Grande, Laredo Bay, sta. 924, 52°56.8'S 70°18.6'W, 17 m (gear: small dredge); Canal Beagle, Italia, sta. 1119, 54°56'S 69°014.3'W, 208 m (gear: small dredge); Bahía Oglander, sta. 1152, 55°09.1'S 67°01.7'W, 15 m (small dredge); Rada Picton, sta. 1156, 55°05.3'S 66°45.4'W, 27 m (gear: small dredge); Isla Picton, sta. 1192, 55°06.7'S 67°01.6'W, 40 m (gear: small dredge); Isla Wollaston, sta. 1204, 55°38.4'S 67°12.4'W, 40 m (gear: small dredge); SE Isla Picton, sta. 1221, 55°07.6'S 66°44.6'W, 33 m (gear: small dredge); sta. 1223, 55°07.4'S 66°44.6'W, 35 m (gear: Agassiz trawl); *Crucero CIMAR FIORD 3* ("Vidal Gormaz" Cruise), Estrecho de Magallanes, Posesión, sta. 2, 52°19.4'S 69°12.2'W, 40 m; Estrecho de Magallanes (Primera Angostura), sta. 3, 52°38.6'S 69°46.48'W, 24 m; Estrecho de Magallanes, Paso Ancho, sta. 5, 53°3.6'S 70°32.8'W, 88 m; Estrecho de Magallanes, Bahía Snug, sta. 8, 53°51.8'S 71°32'W, 260 m; Canal Ballenero, sta. 36, 54°55.7'S 70°42.3'W, 120 m; Canal Beagle, Puerto Williams, sta. 41, 54°53.8'S 67°34.5'W, 35 m; Isla Lennox, Paso Richmond, sta. 42, 55°11.5'S 66°46.3'W, 52 m (MR unpubl.).

South Georgia: *Schwedische Südpolar Expedition 1901–1903*, Boiler Bay, 54°22'S 36°28'W, 22 m (bottom: stones and algae) (AS 31) (revised by JLB 60, B&B 80).

South Shetland Islands: Half Moon Bay, Half Moon Island, 62°36'S 59°55'W, stomach content fish (coll. Ageitos 1966) (GMA unpubl.).

Tristan da Cunha: *Norwegian Scientific Expedition*, Tristan da Cunha Island, sta. 68, [37°15'S 12°30'W], 0 m (KS 49).

Depth range: 0–1031 m.

Type-locality: Magellan Area: *Schwedische Expedition nach den Magellansländern 1895–1897*, Puerto Esperanza, 54°08'S 71°01'W, 11–18 m (bottom: rocks, algae) (AS 31) (revised by JLB 60, B&B 80; lectotype designed by B&B 80).

Ecology: Collected from bottoms with clay, sand, stones, rocks, algae, ascidians, sponges, kelp holdfasts.

Type material location: NRS, Stockholm.

Remarks: Barnard and Barnard (1980), who revised extensively *Parharpinia fuegiensis* Schellenberg, 1931 from the NRS, Stockholm collections, noticed that the specimens were mixed with two other undescribed species. They erected the genus *Fuegiphoxus* based on some morphological characters related to antenna 2, mouthparts, gnathopods, peraeopods and uropods; thus, they redescribed *F. fuegiensis* and described the new taxa *F. abjectus* and *F. inutilis*. These species can basically be separated from each other by the combination of some features such as setal formula on peduncle article 4 and the number of robust setae on article 5 antenna 2; setation of propodus peraeopods 3 and 4; shape of epimera, and length of uropod 3. *Fuegiphoxus abjectus* also is characterized by an atypical antenna 1 in males, very stout. *Fuegiphoxus inutilis* shows the epimera 1 and 2 with posteroventral tooth, a character not found in the other species mentioned above.

Fuegiphoxus fuegiensis extends its range of distribution in the Magellan area along the Argentinean littoral (Chiesa *et al.*, 2005; Alonso de Pina, unpubl.) as well as in the Chilean side (Rauschert, unpubl.). It was also recorded for the first time in the Drake Passage (Rauschert, unpubl.) and it is a new record for the South Shetland Islands (Alonso de Pina, unpubl.).

Geographical information about the species mentioned above was provided by the NRS, Stockholm. Syn-type No. 811 was identified as *Parharpinia fuegiensis* from Chile, Valparaiso, but according to JLB 60 and B&B 80, the specimens from this locality belonged to *Phoxorgia sinuata*.

***Fuegiphoxus inutilis* Barnard and Barnard, 1980**

Schellenberg, 1931: 78. (*Parharpinia fuegiensis*, in part).

Barnard J.L., 1960: 273, pl. 42, figs. S-T. (*Paraphoxus fuegiensis*, in part).

Barnard and Drummond, 1978: 144. (*Wildus? fuegiensis*, in part).
 Barnard and Barnard, 1980: 858–862, figs. 3(in part)-4.
 Barnard and Barnard, 1990: 50.
 Barnard and Karaman, 1991: 610.
 De Broyer and Jążdżewski, 1993: 83.

Distribution:

G

South Georgia: *Schwedische Südpolar Expedition 1901–1903*, Cumberland Bay, outer half of May-Bay, 54°17'S 36°28'W, 75 m (bottom: clay, algae); mouth of Cumberland Bay, 54°11'S 36°18'W, 252–310 m (bottom: gray clay with small stones); Grytviken, [54°17'S 36°30'W], 22 m (AS 31) (revised by JLB 60, B&B 80).

Depth range: 22–310 m.

Type-locality: South Georgia: *Schwedische Südpolar Expedition 1901–1903*, mouth of Cumberland Bay, 54°11'S 36°18'W, 252–310 m (bottom: gray clay with small stones) (AS 31) (revised by JLB 60, B&B 80).

Ecology: Collected from bottoms with clay, small stones, algae.

Type material location: NRS, Stockholm.

Remarks: See remarks under *Fuegiphoxus fuegiensis*.

***Fuegiphoxus? uncinatus* (Chevreux, 1912)**

Chevreux, 1912: 211. (*Pontharpinia uncinata*).
 Chevreux, 1913: 82, 100–104, figs. 10–12. (*Pontharpinia uncinata*).
 Barnard J.L., 1958a: 146 (by implication). (*Paraphoxus uncinatus*).
 Barnard J.L., 1958b: 118. (*Paraphoxus uncinata*).
 Barnard J.L., 1960: 186, 195, 283. (*Paraphoxus uncinatus*).
 Thurston, 1974a: app. C. (*Pontharpinia uncinata*).
 Lowry and Bullock, 1976: 128. (*Paraphoxus uncinatus*).
 Barnard and Drummond, 1978: 32, 146. (*Pontharpinia uncinata*).
 Barnard and Barnard, 1980: 867. (*Fuegiphoxus? uncinatus*).
 Barnard and Barnard, 1990: 50. (*Fuegiphoxus? uncinata*).
 Wakabara *et al.*, 1990: 2, 5, 7.
 Barnard and Karaman, 1991: 610. (*Fuegiphoxus? uncinata*).
 De Broyer and Jążdżewski, 1993: 83. (*?Fuegiphoxus uncinatus*).

Distribution:

W + M (+Ba)

Drake Passage: “*Polarstern*” ANT XV/3 48, Drake Passage, sta. 356, 62°00.3'S 59°14.9'W, 130 m (gear: multiboxcorer) (MR unpubl.).

Magellan Area: *Magellan “Victor Hensen” Campaign 1994*, Estrecho Bahía Voces, sta. 884, 53°42.6'S 70°57.5'W, 51 m (gear: small dredge); Canal Beagle, Garibaldi, sta. 1040, 54°51'S 69°55.7'W, 30 m (gear: small dredge); Paso Goree, sta. 1165, 55°18.6'S 67°08.5'W, 42 m (gear: multiboxcorer); C. Brecknock (E), I. Sidney, sta. 1287, 54°45.5'S 71°44.4'W, 33 m (gear: small dredge); *Crucero CIMAR FIORD 3* (“*Vidal Gormaz*” Cruise), Estrecho de Magallanes, Paso Ancho, sta. 5, 53°3.6'S 70°32.8'W, 88 m; Canal Beagle, Puerto Williams, sta. 41, 54°53.8'S 67°34.5'W, 35 m (MR unpubl.).

Palmer Archipelago: *Deuxième Expédition Antarctique Française 1908–1910*, Neumayer Channel [Roosen Channel], Port Lockroy, [64°49'S 63°30'W], 60–70 m (gear: dredge) (EC 13).

South Shetland Islands: 62°58'07”S 57°08'01”W, 88 m (fish stomach content) (YW *et al.* 90).

Weddell Sea: “*Polarstern*” ANT XIII/3, Kapp Norvegia, sta. 25, 71°23.10'S 14°19.70'W, 628 m (gear: multiboxcorer) (MR unpubl.).

Depth range: 30–628 m.

Type-locality: Palmer Archipelago: *Deuxième Expédition Antarctique Française 1908–1910*, Neumayer Channel [Roosen Channel], Port Lockroy, [64°49'S 63°30'W], 60–70 m (gear: dredge) (EC 13).

Ecology: Collected from sandy bottoms.

Type material location: MNHN, Paris.

Remarks: On the basis of the original description and illustrations by Chevreux (1913), the species was provisionally assigned to the genus *Fuegiphoxus* by Barnard and Barnard (1980). Many features such as setal formulas on articles 4 and 5 of antenna 2, fine details of mouthparts, setal formulas of epimera, lateral and ventral setae of urosomite 1 and setation of uropods require an exhaustive study for confirmation.

Fuegiphoxus? uncinatus was recently recorded in the Magellan area and also extended its distribution in the West Antarctic province since it was recorded in the Drake Passage and Weddell Sea (Rauschert, unpubl.).

Harpiniopsis aciculum Ren, 1991

Ren, 1991 in Ren and Huang, 1991: 189, 271, 297, 312–313, fig. 53.

De Broyer and Jazdzewski, 1993: 83.

Distribution:

W (+Ba)

Bransfield Strait: 62°51.6'S 58°07.5'W, 654 m (bottom: sand, mud) (R&H 91).

Drake Passage: “*Polarstern*” ANT XV/3 48, Drake Passage, sta. 341, 61°34.5'S 58°07'W, 429 m (gear: multiboxcorer) (MR unpubl.).

South Shetland Islands: King George Island, 62°19.4'S 58°43.4'W, 461 m (bottom: mud); 62°15.8'S 58°45.9'W, 510 m (bottom: sand, mud); 62°10.8'S 58°20'W, 520 m (bottom: mud) (R&H 91); “*Polarstern*” ANT XV/3 48, sta. 325, 62°21.9'S 58°42.6'W, 805 m (gear: multiboxcorer); sta. 326, 62°20.1'S 58°38.8'W, 606 m (gear: multiboxcorer) (MR unpubl.).

Depth range: 429–805 m.

Type-locality: Bransfield Strait: 62°51.6'S 58°07.5'W, 654 m (bottom: sand, mud) (R&H 91).

Ecology: Collected from mud and sandy bottom.

Type material location: IOQ, Qingdao.

Remarks: *Harpiniopsis aciculum* was described and figured by Ren and Huang (1991); the species is closely related to *H. petulans* J.L. Barnard, 1966 from which it can be distinguished by the lateral lobe of head, the shape of epimeron 3 posteroventral corner and the length of cleft on telson.

Recently, Rauschert (unpubl. data) identified this taxon from South Shetland Islands, thus extending its geographical distribution in the area, and recorded the species for the first time from the Drake Passage.

Harpiniopsis wandichia (J.L. Barnard, 1962)

Barnard J.L., 1960: 326 (key), 339, 341–342, 345 (key), pl. 74, table 14.

Barnard J.L., 1962: 3, 4, 12, 14, 50, fig. 39. (*Harpinia wandichia*).

Barnard J.L., 1969: 414 (by implication). (*Pseudharpinia wandichia*).

Lowry and Bullock, 1976: 130. (*Pseudharpinia wandichia*).

Barnard and Drummond, 1978: 535.

Barnard and Barnard, 1990: 61.

Barnard and Karaman, 1991: 613. (*Harpiniopsis wandichia*=*Harpiniopsis* sp.D).

De Broyer and Jazdzewski, 1993: 83.

Distribution:

W (Ba)

Valdivia Basin: “*Vema*” 14, slope of South Sandwich Trench, sta. 49, 56°43'S 27°41'W, 2747 m (gear: small beam trawl) (JLB 62).

Depth range: 2747 m.

Type-locality: Valdivia Basin: “Vema” 14, slope of South Sandwich Trench, sta. 49, 56°43’S 27°41’W, 2747 m (gear: small beam trawl) (JLB 62).

Ecology: Collected from benthos. Other data unknown.

Type material location: LGOC, New York.

Remarks: Barnard and Drummond (1978) transferred the species to *Harpiniopsis* Stephensen, 1925; the latter genus and *Harpinia* Boeck, 1876 differ basically on the ensiform process of article 1 on antenna 2, which is weak or absent in the first taxon and strong in the second.

Harpiniopsis wandichia, as well as *Harpiniopsis aciculum*, is distributed in the West Antarctic, although *H. wandichia* is deep bathyal/abyssal. The genus comprises about 28 known species, but only these two taxa are found in Antarctic waters.

***Heterophoxus pellusidus* Ren, 1991**

Ren, 1991 in Ren and Huang, 1991: 189, 273–274, 297, 313–315, fig. 54.

De Broyer and Jażdżewski, 1993: 83.

Distribution:

W (+Ba)

Palmer Archipelago: 63°30’S 62°31’W, 180 m (bottom: sand) (R&H 91).

South Shetland Islands: 62°44.9’S 61°02.6’W, 128 m (bottom: mud); King George Island: 62°12.2’S 58°55’W, 110 m (bottom: mud); 62°10.8’S 58°20’W, 520 m (bottom: mud), 860 m (bottom: sand) (R&H 91).

Depth range: 110–860 m.

Type-locality: South Shetland Islands: 62°44.9’S 61°02.6’W, 128 m (bottom: mud) (R&H 91).

Ecology: Collected from muddy and sandy bottoms.

Type material location: IOQ, Qingdao.

Remarks: This species, only reported by Ren and Huang (1991), is distinguished from the other known species of the genus by the following characters combined: shape of the epimeron 3 posteroventral angle which has a long and curved tooth, and the length of the posterior lobe of the basis on pereopod 7 which reaches the distal margin of the merus.

***Heterophoxus trichosus* K.H. Barnard, 1932**

Barnard K.H., 1932: 13, 100–101, fig. 50.

Stephensen, 1947: 38.

Barnard J.L., 1958b: 117.

Barnard J.L., 1960: 319, 320.

Thurston, 1974a: app. C.

Lowry and Bullock, 1976: 125–126.

Barnard and Drummond, 1978: 533.

Barnard and Barnard, 1990: 62.

Barnard and Karaman, 1991: 613.

Ren and Huang, 1991: 274, 314, 315.

?Rauschert, 1991: 22, 23, 38, 40.

Jażdżewski *et al.*, 1992: 465, 469.

De Broyer and Jażdżewski, 1993: 83–84.

Distribution:

W

Bransfield Strait: “Discovery” 1925–1927, sta. 175, 63°17’S 59°48’W, 200 m (bottom: mud, stones, gravel; gear: large heavy dredge) (KHB 32).

South Shetland Islands: Deception Island, [62°57'S 60°38'W] (KS 47); King George Island, 62°11'–14'S 58°52'–58'W, 30 m (bottom: mud, pebble; gear: SCUBA); 10–15 m (bottom: sand; gear: dredge) (?MR 91); Admiralty Bay, 62°00'S 58°30'W, 5–30 m (gear: SCUBA, Tvärminne sampler) (KJ *et al.* 92).

Depth range: 5–200 m.

Type-locality: Bransfield Strait: “Discovery” 1925–1927, sta. 175, 63°17'S 59°48'W, 200 m (bottom: mud, stones, gravel; gear: large heavy dredge) (KHB 32).

Ecology: Collected from mud, sand, stones, gravel.

Type material location: NHM, London.

Remarks: See remarks under *Heterophoxus videns*.

***Heterophoxus videns* K.H. Barnard, 1930**

Barnard K.H., 1930: 311, 312, 334–335, 449, fig. 11.

Walker, 1907: 17. (*Harpinia obtusifrons*).

Chilton, 1912: 477. (*Harpinia obtusifrons*).

Schellenberg, 1931: 74–75, fig. 37b, 38.

Barnard K.H., 1932: 7, 12, 14, 16, 100.

Schellenberg, 1935: 232.

Nicholls, 1938: 7, 46, 131, fig. 24.

Hurley, 1954: 587.

Barnard J.L., 1958b: 117.

Barnard J.L., 1960: 318, 319.

Bellan-Santini, 1972a: 158, 159, 227–229, pl. 35.

Bellan-Santini, 1972b: 699.

Arnaud, 1974: 562, table 20 (eco).

Andres, 1975: 92, 96, 97.

Thurston, 1974a: 2, 21–23, 117, 133, app. A, B, C.

Thurston, 1974b: 9, 66.

Lowry and Bullock, 1976: 126.

Barnard and Drummond, 1978: 533.

Lowry, 1982: 320.

Oliver *et al.*, 1982: 182, 183, fig. 1, tables 1, 2 (eco).

Barnard and Barnard, 1990: 62.

Wakabara *et al.*, 1990: 2, 5, 7.

Andres, 1990: 135, fig. 265.

Barnard and Karaman, 1991: 613.

Ren and Huang, 1991: 274, 314, 315.

Gonzalez, 1991: 61.

Wakabara *et al.*, 1991: 73, 74.

Rauschert, 1991: 21, 38, 40.

Jażdżewski *et al.*, 1992: 465, 469.

Lenihan, 1992: 319, table 2 (eco).

De Broyer and Jażdżewski, 1993: 84.

Lenihan, 1995: 233, 234, 235, 237, 238, 239, 240, 241, 242, 243, 245, 246, 247, 249, 253, figs. 2, 4, 7, tables 1, 2, 3 (eco).

Wakabara and Serejo, 1998: 578.

De Broyer *et al.*, 1999: 167.

De Broyer and Rauschert, 1999: 286.

Valério-Berardo *et al.*, 2000: 122, 123, 124 (eco).

Dauby *et al.*, 2001: 75, 79, fig. 4 (eco).

Chiesa *et al.*, 2005: 170, 171, fig. 2C, table 2.

Distribution:

E + W + G + M + (+Ba)

Adélie Coast: “Aurora” Cruise 1912–1914, Commonwealth Bay, Boat Harbour, 67°00’S 142°36’E, 5–45 m (GEN 38); Géologie Archipelago, between Marégraphie Island, [66°40’S 140°00’E] and NW Carrel Island, [66°40’S 142°01’E], sta. TA-D1, 15 m (bottom: sand, pebble, rock; gear: Charcot dredge); sta. TA-D4, 15 m (bottom: rock); sta. TA-B1, 15 m (bottom: callus; gear: small dredge); S of Pétrels Island, sta. TA-D14, 8–10 m (bottom: block; gear: Charcot dredge); Géologie Archipelago, sta. TA-B12, 66°39’S 139°55’E, 6 m (DBS 72a); fish stomach content (DBS 72b).

Bransfield Strait: 62°09’15’’S 58°28’30’’W, 17–40 m; 64°45’S 64°05’W, 40 m (fish stomach content) (YW *et al.* 90).

Drake Passage: “Polarstern” ANT XV/3 48, Drake Passage, sta. 336, 61°26.5’S 58°07.4’W, 1031 m (gear: Agassiz trawl); sta. 356, 62°00.3’S 59°14.9’W, 130 m (gear: multiboxcorer) (MR unpubl.).

Falkland Islands: *Schwedische Südpolar Expedition 1901–1903*, Port Louis, 51°33’S 58°09’W, 2–8 m (bottom: mud, shells, gravel, rock, algae) (AS 31).

Magellan Area: *Schwedische Expedition nach den Magellansländern 1895–1897*, Punta Arenas, 53°10’S 70°54’W, 13–14 m (bottom: sand, algae); Tribuna Bank, [52°38’S 70°07’W]; Magellan Sound, [54°S 71°W], 5–7 m; ‘Katanushuaia’, [channel between Hoste and Navarino islands, 54°50’S 68°20’W], 18–22 m (bottom: shells, stones, algae); Puerto Eugenia, 54°56’S 67°20’W, 18–27 m (bottom: clay, algae); Puerto Toro, 55°05’S 67°06’W, 36–45 m; Bahía Ushuaia, 54°49’S 68°18’W, 18 m (bottom: brownish clay); *Hamburger Magalhaensische Sammelreise 1892–1893*, 48°S 64°W; Ushuaia, [54°49’S 68°18’W], intertidal (AS 31); Estrecho de Magallanes, [54°00’S 71°00’W] (HGA 75); Bahía Golondrina, 54°49’–50’S 68°16’–17’W, 30 m (gear: Snapper grab) (ICH *et al.* 05); *Magellan “Victor Hensen” Campaign 1994*, Estrecho Laredo, Whiteside Channel, sta. 958, 52°58’S 70°41.1’W, 111 m (gear: small dredge); Isla Picton, sta. 1192, 55°06.7’S 67°01.6’W, 40 m (gear: small dredge); SE Isla Picton, sta. 1216, 55°07.2’S 66°40.2’W, 67 m (gear: small dredge); *Crucero CIMAR FIORD 3 (“Vidal Gormaz” Cruise)*, Isla Lennox, Paso Richmond, sta. 42, 55°11.5’S 66°46.3’W, 52 m (MR unpubl.).

Marguerite Bay: Stonington Island, 68°11’S 67°00’W, 31 m (bottom: pebble; gear: dredge) (MHT 74b).

Ross Sea: Winter Quarters Bay, Hut Point, [77°51’S 166°38’E] (AOW 07); “Terra Nova” Expedition 1910, off Cape Adare, sta. 220, [71°17’S 170°14’E], 82–92 m; McMurdo Sound, sta. 331, [77°30’S 165°00’E], 457 m (KHB 30); McMurdo Sound, 77°49’S 166°30’W, <30 m (gear: corer) (JSO 82); McMurdo Station, [77°30’S 165°00’E], 9–33.5 m (HSL 92); McMurdo Station, [77°30’S 165°00’E], 18 m (HSL 95).

South Georgia: *Schwedische Südpolar Expedition 1901–1903*, Cumberland Bay, 54°17’S 36°28’W, 75 m (bottom: clay, algae); Grytviken, [54°17’S 36°30’W], 22 m (bottom: clay, algae) (AS 31); “Discovery” 1925–1927, Cumberland West Bay, sta. 27, [54°14’S 36°35’W], 110 m (bottom: mud, rock; gear: large dredge); sta. 156, 53°51’S 36°21’W, 200–236 m (bottom: rock; gear: large heavy dredge); “William Scoresby” 1926–1927, Undine Harbour, sta. WS 25, [54°02’S 37°58’W], 18–27 m (bottom: mud, stones; gear: small beam trawl) (KHB 32).

South Orkney Islands: Scotia Bay, sta. 325, [60°43’S 44°38’W], 16–18 m (gear: dredge) (CC 12); Signy Island, Borge Bay, Billie Rocks, [60°43’S 45°37’W], 7–9 m (bottom: muddy sand; gear: spot dives) (MHT 74a).

South Shetland Islands: “Discovery” 1925–1927, Admiralty Bay, sta. 195, 62°07’S 58°28’W, 391 m (bottom: mud, stones; gear: nets) (KHB 32); King George Island, 62°11’–14’S 58°52’–58’W, 5 m (bottom: sand, pebble; gear: dredge); 7 m (bottom: sand; gear: dredge) (MR 91); Admiralty Bay, 62°00’S 58°30’W, 46–147 m (gear: Van Veen grab) (KJ *et al.* 92); “Polarstern” ANT XV/3 48, King George Island, sta. 322, 62°20.6’S 58°35.7’W, 637 m (gear: Agassiz trawl + Rauschert dredge); sta. 325, 62°21.9’S 58°42.6’W, 805 m (gear: multiboxcorer); sta. 326, 62°20.1’S 58°38.8’W, 606 m (gear: multiboxcorer) (MR unpubl.).

Weddell Sea: eastern shelf (CDB *et al.* 99).

Depth range: 2–1031 m.

Type-locality: Ross Sea: “*Terra Nova*” Expedition 1910, off Cape Adare, sta. 220, [71°17’S 170°14’E], 82–92 m (KHB 30).

Ecology: Collected from mud, clay, sand, gravel, rock, shells, algae, fish stomach content.

Extralimital distribution: Schwedische Expedition nach den Magellansländern 1895–1897, Chile: Valparaiso, [33°01’S 71°37’W], 11–14 m; Hamburger Magalhaensische Sammelreise 1892–1893, Corral, [39°50’S 73°28’W], 9–11 m (AS 31); Valdivia, [39°48’S 73°14’W], Valparaiso, [33°01’S 71°37’W] (HGA 75); “*Eduardo Holmberg*” Survey, 35.777S 56.517W, 13 m (gear: dredge) (coll. Giberto 2002) (GMA unpubl.); Brazil: São Paulo, 23°25’–24°22’S 44°33’–45°16’W, 17–25 m (bottom: muddy sand) (YW *et al.* 90), 17–47 m (VB *et al.* 00).

Extralimital depth range: 9–47 m.

Type material location: NHM, London.

Remarks: This species is distinguished from *Heterophoxus trichosus* by the short tooth on the posterodistal corner of epimeron 3 and the length of the posterior lobe of the basis on pereopod 7 which reaches the distal margin of the merus.

Heterophoxus videns is extensively distributed in the Antarctic region where Rauschert (unpubl.) expands its records to the South Shetland Islands and reports the species for the first time in the Drake Passage. The species is reported also in the Magellan province from southern Tierra del Fuego and Chile by Chiesa *et al.* (2005) and Rauschert (unpubl.), respectively. The two other species, *Heterophoxus pellusidus* and *H. trichosus*, are found only in the West Antarctic province. *Heterophoxus videns* reaches the northeast limit at Brazil on the Atlantic side and in the Pacific Ocean reaches Valparaiso.

***Leptophoxoides molaris* J.L. Barnard, 1962**

Barnard J.L., 1962: 14, 51, fig. 40.

Barnard and Drummond, 1978: 447.

Barnard and Barnard, 1990: 75.

Barnard and Karaman, 1991: 618.

Gutt *et al.*, 2000: 80–83.

Distribution:

E + (Ba)

Weddell Sea: “*Polarstern*” ANT XIII/3, eastern shelf, sta. 30 D 24, 70°05’S 8°21’W, 2334 m (gear: Rauschert dredge) (JG *et al.* 00); North of Atka, sta. 30, 70°05.30’S 8°20’W–70°5.30’S 8°21.80’W, 2315–2334 m (MR unpubl.).

Type-locality: “*Vema*” 14, off South Africa, Cape Basin, sta. 52, 41°03’S 7°49’E, 4961 m (bottom trawl; gear: small beam trawl) (JLB 62).

Depth range: 2315–2334 m.

Ecology: From deep-sea, apparently sandy bottom.

Extralimital distribution: “*Vema*” 14, off South Africa, Cape Basin, sta. 52, 41°03’S 7°49’E, 4961 m (bottom trawl; gear: small beam trawl) (JLB 62).

Extralimital depth range: 4961 m.

Type material location: LGOC, New York.

Remarks: This is the unique species in the genus *Leptophoxoides* J.L. Barnard, 1962, described from the Cape Basin, off South Africa. It is characterized by a deflexed rostrum, a well developed molar, maxilla 1 with inner plate as large as outer and maxilliped with article 3 produced apically.

Gutt *et al.* (2000) found this deep bathyal/abyssal taxon in the Weddell Sea and recently, Rauschert (unpubl.) extended its distribution in the same area.

***Linca pinita* Alonso de Pina, 1993**

Alonso de Pina, 1993: 497–507, figs. 1–32.

Taylor and Poore, 2001: 255, 256.

Distribution:

M

Magellan Area: *Shinkai Maru IV 1978*, Argentine continental shelf, sta. 92, 50°30'S 62°31'W, 159 m (gear: Picard dredge) (GMA 93).

Depth range: 159 m.

Type-locality: Magellan Area: *Shinkai Maru IV 1978*, Argentine continental shelf, sta. 92, 50°30'S 62°31'W, 159 m (gear: Picard dredge) (GMA 93).

Ecology: Collected from sandy substrata.

Type material location: MACN, Buenos Aires.

Remarks: *Linca* Alonso de Pina, 1993 was erected on the basis of a female, in excellent conditions, from the Argentine continental shelf. This genus is intermediate between the two artificial groups Birubiinae and Brolginae which require phylogenetic treatment. Basically, it has three robust setae on the molar with one of them very large, second article of antenna 1 very long with main setae disposed midventrally and faint comb on apices of peduncles of uropods 1 and 2.

***Metharpinia iado* Alonso de Pina, 2003**

Alonso de Pina, 2003: 1031–1045, figs. 1–9, 16, tables 1, 2.

Distribution:

M +

Magellan Area: *Crucero San José I 1984*, Argentina, Golfo San José, 42°20'S 64°20'W, 22 m (bottom: sand; gear: Van Veen grab) (GMA 03).

Depth range: 22 m.

Type-locality: *Campaña AUO2/93*, Argentina, Buenos Aires, El Rincón, sta. 27, 39°49'49''S 61°50'30''W, 17 m (bottom: 82% fine sand; gear: Van Veen grab) (GMA 03).

Ecology: Collected from sandy substrata.

Extralimital distribution: *Campaña AUO2/93*, Argentina, Buenos Aires, El Rincón area, approx. 39°–40°S 61°–62°W, 9–20 m (bottom: predominantly sand; gear: Van Veen grab) (GMA 03).

Extralimital depth range: 9–20 m.

Type material location: MACN, Buenos Aires.

Remarks: *Metharpinia iado* is the third species belonging to *Metharpinia* Schellenberg, 1931 recorded from the Magellan area. Alonso de Pina (2001) had described *M. protuberantis* from this province and had found that the species showed intermediate morphological characters between the genera *Metharpinia* and *Microphoxus* Barnard and Barnard, 1960. These genera are complex from the systematic point of view; and examination of more material should be necessary to redefine them.

Metharpinia iado and *M. protuberantis* can be easily distinguished from each other by the urosomite 3 unprotuberant dorsally and the epimeron 3 with posteroventral corner rounded in the first species whereas the urosomite 3 is produced upwards and the epimeron 3 has its posteroventral corner produced into a large tooth in the second species. *Metharpinia iado* is closely related to *M. longirostris*, the first species described by Schellenberg (1931) for the Magellan area, in the general aspect of the body, rostrum, antennae, gnathopods, peraeopods and unprotuberant urosomite 3; they primarily differ from each other in the setal formulas of the antennae, the number of setae of mouthparts, the setation of appendages, and the setal formulas of epimera, uropods and telson.

***Metharpinia longirostris* Schellenberg, 1931**

Schellenberg, 1931: 65–67, fig. 34.

Schellenberg, 1935: 232.

Barnard J.L., 1960: 186, 187, 194, 271, 273, 290, pl.43. (*Paraphoxus longirostris*).

Andres, 1975: 93, 96, 97, 108, 110, 111, 112, 113. (*Paraphoxus longirostris*).

Barnard and Drummond, 1976: 528.

Barnard and Drummond, 1978: 32, 145, 416.

Barnard J.L., 1979: 369.

Barnard J.L., 1980: 117–121, figs. 4 (in part)–5 (in part).

Barnard and Barnard, 1990: 86.

Barnard and Karaman, 1991: 622.

Gonzalez, 1991: 61.

De Broyer and Jażdżewski, 1993: 84.

Jarrett and Bousfield, 1994a: 61, 64, table 3.

De Broyer and Rauschert, 1999: 286.

Alonso de Pina, 2001: 535, 536.

Alonso de Pina, 2003: 1029, 1043, 1044, table 2.

Distribution:

M +

Magellan Area: Estrecho de Magallanes, [54°S 71°W] (HGA 75); *Magellan “Victor Hensen” Campaign 1994*, Isla Wollaston, sta. 1204, 55°38.4’S 67°12.4’W, 40 m (gear: small dredge) (MR unpubl.).

Depth range: 40 m.

Type-locality: *Schwedische Expedition nach den Magellansländern 1895–1897*, south of mouth of La Plata River, [35°S 57°W]; Valparaiso, [33°01’S 71°37’W], 13 m (revised by JLB 60, 80); *Hamburger Magalhaensische Sammelreise 1892–1893*, Corral, [30°50’S 73°28’W], 9–11 m (AS 31).

Ecology: Collected from sandy bottoms.

Extralimital distribution: *Schwedische Expedition nach den Magellansländern 1895–1897*, Argentina: south of mouth of La Plata River, [35°S 57°W]; Chile: Valparaiso, [33°01’S 71°37’W], 13 m (revised by JLB 60, 80); *Hamburger Magalhaensische Sammelreise 1892–1893*, Corral, [39°50’S 73°28’W], 9–11 m (AS 31); Punta Lavapie, [37°09’S 73°35’W], 58 m (bottom: fine sand, stones, algae; gear: dredge); Isla Mocha, [38°22’S 73°56’W], 6 m (bottom: black fine sand, detritus; gear: dredge); Niebla, [39°51’S 73°24’W], rock-pool (bottom: sand, brown and calcareous algae) (HGA 75).

Extralimital depth range: 6–58 m.

Type material location: NRS, Stockholm.

Remarks: See remarks under *Metharpinia iado*. *Metharpinia longirostris* expands its geographical distribution southwards in the Magellan area (Rauschert, unpubl.).

***Metharpinia protuberantis* Alonso de Pina, 2001**

Alonso de Pina, 2001: 527–537, figs. 7–11.

Distribution:

M

Magellan Area: Argentina, Golfo Nuevo, Península Valdés, Punta Pardelas, 42°37’S 64°16’W, 2–5 m, 2–4 m (gear: small dredge during low tide); Colombo beach (near Punta Pardelas), 42°37’S 64°16’W, 2 m (gear: small dredge during mid-tide); Bahía Nueva, Golfito, 42°46’S 65°02’W, 8–10 m (gear: samples extracted with a cylinder of 20 cm diameter during low tide); *Crucero San José I 1984*, Golfo San José, 42°20’S 64°20’W, 4 m (gear: Van Veen grab) (GMA 01); Golfo San José, off El Riacho, 42°25’20’’S 64°36’35’’W, low intertidal (bottom: mussel beds developed over a sandflat background) (coll. Orensanz 2005) (GMA unpubl.).

Depth range: 2–10 m.

Type-locality: Magellan Area: Argentina, Golfo Nuevo, Península Valdés, Punta Pardelas, 42°37'S 64°16'W, 2–5 m (gear: small dredge during low tide) (GMA 01).

Ecology: Collected from sandy substrata.

Type material location: MACN, Buenos Aires.

Remarks: See remarks under *Metharpinia iado*. *Metharpinia protuberantis* expands its distribution in Golfo San José (Alonso de Pina, unpubl.).

Microphoxus cornutus (Schellenberg, 1931)

Schellenberg, 1931: 68–69, fig. 35. (*Metharpinia cornuta*).

Barnard J.L., 1958a: 146 (by implication). (*Paraphoxus cornutus*).

Barnard J.L., 1958b: 117. (*Paraphoxus cornuta*).

Barnard J.L., 1960: 186, 194, 224, 271, 290. (*Paraphoxus cornutus*).

Barnard and Drummond, 1976: 528. (*Metharpinia cornuta*).

Lowry and Bullock, 1976: 126. (*Paraphoxus cornutus*).

Barnard and Drummond, 1978: 24, 32, 145, 416. (*Metharpinia? cornuta*).

Barnard J.L., 1979: 370.

Barnard J.L., 1980: 106, 110–115, figs. 2–3(in part)–4(in part).

Barnard and Barnard, 1990: 88.

Barnard and Karaman, 1991: 623.

Gonzalez, 1991: 61.

Wakabara *et al.*, 1991: 73, 74.

De Broyer and Jazdzewski, 1993: 84.

Jarrett and Bousfield, 1994a: 64, table 3.

Wakabara and Serejo, 1998: 578.

De Broyer and Rauschert, 1999: 286.

Valério-Berardo *et al.*, 2000: 122 (eco).

Alonso de Pina, 2001: 535.

Bustamante, 2002: 62, 70, 76, 77.

Alonso de Pina, 2003: 1029, 1030, 1045–1051, 1055, 1057, figs. 10–12, 16, tables 3, 4.

Chiesa *et al.*, 2005: 171, fig. 2B, table 2.

Distribution:

M +

Magellan Area: *Schwedische Expedition nach den Magellansländern 1895–1897*, Punta Arenas, 53°10'S 70°54'W, 13–14 m (bottom: sand, algae) (revised by JLB 60, 80); *Hamburger Magalhaensische Sammelreise 1892–1893*, Punta Arenas, 53°10'S 70°54'W, 4 m; Bahía Ushuaia, [54°49'S 68°16'W], low tide (AS 31); east end of Magellan Strait, [52°20'S 68°20'W], 11 m (bottom: fine sand) (JLB 80); Puerto Montt, 41°30'S 73°10'W (EG 91); Argentina, Golfo Nuevo, Bahía Nueva, Golfito beach, 42°46'S 65°02'W, 8–10 m (gear: samples extracted with a corer of 20 cm diameter during low tide); Península Valdés, Colombo beach (near Punta Pardelas), 42°37'S 64°16'W, 2 m, 0.4 m (gear: small dredge during mid-tide); Punta Pardelas, 42°37'S 64°16'W, 2–4 m (small dredge during low tide); Puerto Madryn beach, 42°46'S 65°02'W, intertidal (gear: corer); El Doradillo beach (about 11 Km north Puerto Madryn), 42°46'S 65°02'W (stomach content of coastal fish); Golfo San José, Fracasso beach, 42°25'S 64°10'W, intertidal (gear: corer); *Crucero San José I 1984*, Golfo San José, 42°20'S 64°20'W, 4 m, 19 m (gear: Van Veen grab) (GMA 03); Isla de los Pájaros, approx. 42°25'S 64°30'W, low tide, low mid littoral (coll. Orensanz 1975) (GMA unpubl.); off El Riacho, approx. 42°24'S 64°35'W, mid-littoral (coll. Orensanz 2005) (GMA unpubl.); San Román, 42°14'S 64°13'W, coast (bottom: sand) (coll. Orensanz 1975) (GMA unpubl.); Península Ushuaia, 54°51'S 68°19'W, 5–10 m (gear: Van Veen grab) (ICH *et al.* 05); *Crucero CIMAR FIORD 3 “Vidal Gormaz” Cruise*, Estrecho de Magallanes, Paso Ancho, sta. 5, 53°3.6'S 70°32.8'W, 82 m; Isla Lennox, Paso Richmond, sta. 42, 55°11.5'S 66°46.3'W, 52 m; Chile, Bahía San Juan, 0.2 m (MR unpubl.).

Depth range: 0–82 m.

Type-locality: Magellan Area: *Schwedische Expedition nach den Magellansländern 1895–1897*, Punta Arenas, 53°10'S 70°54'W, 13–14 m (bottom: sand, algae) (revised by JLB 60, 80); *Hamburger Magalhaen-sische Sammelreise 1892–1893*, Punta Arenas, 53°10'S 70°54'W, 4 m; Bahía Ushuaia, [54°49'S 68°16'W], low tide (AS 31).

Ecology: Collected from bottoms with sand, algae.

Extralimital distribution: *Campaña AUO2/93*, Argentina, Buenos Aires, El Rincón, approx. 30°10'–31°S 61°25'–59°W, 8–17 m (bottom: sand, clay, mud; gear: Van Veen grab); Mar del Plata beach, 30°03'17''S 57°31'18''W, 13 m (bottom: sand, crushed shells) (GMA 03); Brazil, São Paulo, 23°25'–24°22'S 44°33'–45°16'W, 18–25 m (bottom: muddy sand) (YW *et al.* 91), 101 m (VB *et al.* 00).

Extralimital depth range: 8–101 m.

Type material location: NRS, Stockholm.

Remarks: *Microphoxus* J.L. Barnard, 1960 contains five known species, one from Costa Rica, three from Brazil and the present species from the Magellan area herein checked. All the species are distinguished from each other by many morphological characters combined: length of rostrum and rami of uropods, setal formulas on article 4 of antenna 2, setation of mouthparts, epimera and appendages.

Recently, Chiesa *et al.* (2005) recorded *Microphoxus cornutus* in Tierra del Fuego and Rauschert (unpubl.) in southern Chile. Alonso de Pina (unpubl.) expanded its distribution in Chubut, Golfo San José.

Palabriaphoxus latifrons (Ren, 1991)

Ren, 1991 in Ren and Huang, 1991: 189, 267–269, 297, 311–312, figs. 51–52. (*Harpinia latifrons*).
De Broyer and Jazdzewski, 1993: 84.

Distribution:

W (+Ba)

Palmer Archipelago: 63°30'S 62°31'W, 180 m (bottom: sand) (R&H 91).

South Shetland Islands: King George Island, [54°15'S 36°45'W], 1098 m (bottom: mud, rock) (R&H 91).

Depth range: 180–1098 m.

Type-locality: Palmer Archipelago: 63°30'S 62°31'W, 180 m (bottom: sand) (R&H 91).

Ecology: Collected from mud, sand, rocks.

Type material location: IOQ, Qingdao.

Remarks: This species described by Ren and Huang (1991) was transferred to *Palabriaphoxus* by De Broyer and Jazdzewski (1993). This genus had been erected by Gurjanova (1977) to include *Harpinia palabria* J.L. Barnard, 1961. Therefore, the genus actually contains two species, both easily distinguished from each other by the setation of antennae, the shape of coxae and peraeopods, and the length of uropod 3 rami.

Parafoxiphalus longicarpus Alonso de Pina, 2001

Alonso de Pina, 2001: 517–527, figs. 1–6.
Chiesa *et al.*, 2005: 171, 172, tables 2, 3.

Distribution:

M

Magellan Area: Argentina, Golfo Nuevo, Península Valdés, Punta Pardelas, 42°37'S 64°16'W, 2–5 m (gear: small dredge during low tide); Bahía Nueva, Golfito, 42°46'S 65°02'W, 8–10 m (gear: samples extracted with a cylinder of 20 cm diameter during low tide) (GMA 01); Península Ushuaia, 54°51'S 68°19'W, 5–10 m (gear: Van Veen grab); Bahía Aguirre, 54°54'S 65°57'W, 30–35 m (gear: dredge) (ICH *et al.* 05).

Type-locality: Magellan Area: Argentina, Golfo Nuevo, Península Valdés, Punta Pardelas, 42°37'S 64°16'W, 2–5 m (gear: small dredge during low tide) (GMA 01).

Depth range: 2–35 m.

Ecology: Collected from sandy substrata.

Type material location: MACN, Buenos Aires.

Remarks: *Parafoxiphalus* Alonso de Pina, 2001 is monotypic, showing many similarities with *Foxiphalus* Barnard, 1979 such as the general aspect of the body, the unstricted rostrum and the shape of the appendages; they differ principally in the setal formula on article 4 of antenna 2, in the number of *calceoli* on article 5 of male antenna 2, in the shape of gnathopods 1 and 2 and in the setation of pereopods 3 and 4, epi-mera 1 and 2, and uropods 1 and 2.

Parafoxiphalus longicarpus extends its distribution in the Magellan area from Chubut province (Alonso de Pina, 2001) to southern Tierra del Fuego in Argentina (Chiesa *et al.*, 2005).

Paraphoxus? latipes Ren, 1991

Ren, 1991 in Ren and Huang, 1991: 190, 277–278, 297, 316–317, fig. 56. (*Paraphoxus latipes*).
De Broyer and Jazdzewski, 1993: 84.

Distribution:

W (+Ba)

Bransfield Strait: 62°51.6'S 58°07.5'W, 654 m (bottom: sand, mud); 62°33.1'S 56°28.6'W, 270 m (bottom: mud, sand) (R&H 91).

Drake Passage: “*Polarstern*” ANT XV/3 (*PS 48*), Drake Passage, sta. 356, 62°00.3'S 59°14.9'W, 130 m (gear: multiboxcorer) (MR unpubl.).

Weddell Sea: “*Polarstern*” ANT IX/3, sta. 171, 69°58.9'S 5°56.9'E, 459 m (gear: multiboxcorer) (MR unpubl.).

Depth range: 130–654 m.

Type-locality: Bransfield Strait: 62°51.6'S 58°07.5'W, 654 m (bottom: sand, mud) (R&H 91).

Ecology: Collected from mud and sandy bottoms.

Type material location: IOQ, Qingdao.

Remarks: See remarks under *Paraphoxus? pyripes*.

Rauschert (unpubl. data) recorded *Paraphoxus? latipes* for the first time from the Drake Passage and the Weddell Sea.

Paraphoxus? pyripes K.H. Barnard, 1930

Barnard K.H., 1930: 312, 316, 332–333, fig. 10. (*Paraphoxus pyripes*).

Stephensen, 1947: 42–44, figs. 15–16. (*Pontharpinia maxima*).

Barnard J.L., 1958a: 146 (by implication). (*Paraphoxus maxima*).

Barnard J.L., 1958a: 146 (by implication). (*Paraphoxus pyripes*).

Barnard J.L., 1958b: 118. (*Paraphoxus maxima*).

Barnard J.L., 1958b: 118. (*Paraphoxus pyripes*).

Barnard J.L., 1960: 186, 195, 277, 290, 291. (*Paraphoxus pyripes*).

Barnard J.L., 1961: 28, 72. (*Paraphoxus pyripes*).

Barnard and Drummond, 1976: 528.

Lowry and Bullock, 1976: 127. (*Paraphoxus pyripes*).

Barnard and Drummond, 1978: 33, 145, 146. (To a genus to be described).

Barnard and Barnard, 1990: 103.

Barnard and Karaman, 1991: 636.

Ren and Huang, 1991: 278, 317. (*Paraphoxus pyripes*).

De Broyer and Jażdżewski, 1993: 84.

Distribution:

E + W + S + (+Ba)

Campbell Island: “*Terra Nova*” Expedition 1910, sta. 210, 53°35’S 173°06’E, surface (KHB 30).

Ross Sea: “*Terra Nova*” Expedition 1910, McMurdo Sound, sta. 339, [77°30’S 165°00’E], 256 m (revised by JLB 60); sta. 340, 293 m (KHB 30).

South Shetland Islands: Bridgeman Island, [62°04’S 56°44’W], 750 m (bottom: blue clay, stones, gravel) (KS 47).

Weddell Sea: “*Polarstern*” ANT IX/3, N of Atka, sta. 165, 70°17.7’S 3°11.5’W, 149 m, sta. 220, 70°24.1’S 6°01.2’W, 132 m, sta. 127, 76°36.1’S 31°19.4’W, 394 m (gear: multiboxcorer) (MR unpubl.).

Depth range: 0–750 m.

Type-locality: Ross Sea: “*Terra Nova*” Expedition 1910, McMurdo Sound, sta. 339, [77°30’S 165°00’E], 256 m (KHB 30) (revised by JLB 60).

Ecology: Collected from bottoms with clay, stones, gravel.

Extralimital distribution: “*Galathea*”, Tasman Sea, sta. 626, 42°10’S 170°10’E, 610 m (bottom: *Globigerina* sp. ooze; gear: Petersen grab) (JLB 61).

Extralimital depth range: 610 m.

Type material location: NHM, London.

Remarks: This species, as well as *Paraphoxus latipes* need a more detailed study to confirm their assignment to *Paraphoxus* G.O. Sars, 1895. Both species resemble each other, but they can be separate mainly by the presence or absence of *calceoli* on antennae and the mandibular palp with articles 1 and 2 combined larger or slightly shorter than article 3.

Rauschert (unpubl.) recorded *Paraphoxus? pyripes* for the first time from the Weddell Sea.

***Parharpinia? obliqua* K.H. Barnard, 1932**

Barnard K.H., 1932: 10, 13, 101–102, fig. 51. (*Parharpinia obliqua*).

Barnard J.L., 1958a: 146 (by implication). (*Paraphoxus obliquus*).

Barnard J.L., 1958b: 118. (*Paraphoxus obliqua*).

Barnard J.L., 1960: 186, 195, 274. (*Paraphoxus obliquus*).

Thurston, 1974a: app. C. (*Parharpinia obliqua*).

Barnard and Drummond, 1976: 528. (To a genus to be described).

Lowry and Bullock, 1976: 127. (*Paraphoxus obliquus*).

Barnard and Drummond, 1978: 32, 145.

Barnard and Barnard, 1990: 106.

Barnard and Karaman, 1991: 636.

De Broyer and Jażdżewski, 1993: 84.

Distribution:

W + G

Bransfield Strait: “*Discovery*” 1925–1927, sta. 175, 63°17’S 59°48’W, 200 m (bottom: mud, stones, gravel; gear: large heavy dredge) (KHB 32).

South Georgia: “*Discovery*” 1925–1927, sta. 136, 54°22’S 35°21’W, 0–5 m (gear: pelagic tow-net) (KHB 32).

Weddell Sea: “*Polarstern*” ANT XV/3 48, North of Kapp Norvegia, sta. 47, 70°52.1’S 10°29.4’W, 244 m (gear: multiboxcorer) (MR unpubl.).

Depth range: 200–244 m (pelagic: 0–5 m).

Type-locality: Bransfield Strait: “*Discovery*” 1925–1927, sta. 175, 63°17’S 59°48’W, 200 m (bottom: mud, stones, gravel; gear: large heavy dredge) (KHB 32).

South Georgia: “*Discovery*” 1925–1927, sta. 136, 54°22’S 35°21’W, 0–5 m (gear: pelagic tow-net) (KHB 32).

Ecology: Collected from mud, stones, gravel.

Type material location: NHM, London.

Remarks: The species allocated in the genus *Parharpinia* Stebbing, 1899, *Parharpinia obliqua* and *P. rotundifrons* were questioned by Barnard and Drummond (1976, 1978), Barnard and Barnard (1990) and Barnard and Karaman (1991). They redefined this Australian genus concluding that these taxa were of uncertain generic allocation. Since then, there were not any more studies to clarify the taxonomic position of the species mentioned above.

Rauschert (unpubl.) reports *Parharpinia? obliqua* for the first time from the Weddell Sea.

Parharpinia? rotundifrons K.H. Barnard, 1932

Barnard K.H., 1932: 7, 11, 16, 104, fig. 53. (*Parharpinia rotundifrons*).

Stephensen, 1947: 44–45, fig. 17. (*Pontharpinia? rotundifrons*).

Barnard J.L., 1958a: 146 (by implication). (*Paraphoxus rotundifrons*).

Barnard J.L., 1958b: 118. (*Paraphoxus rotundifrons*).

Barnard J.L., 1960: 186, 195, 271, 278, 290. (*Paraphoxus rotundifrons*).

Thurston, 1974a: 2, 9, 21, 108, 111, 114, 117, 133, fig. 8a, b, app. A, B, C. (*Parharpinia rotundifrons*).

Barnard and Drummond, 1976: 529. (Unclear species of “*Paraphoxus*”).

Lowry and Bullock, 1976: 127. (*Paraphoxus rotundifrons*).

Barnard and Drummond, 1978: 32, 146.

Barnard and Barnard, 1990: 106.

Rauschert, 1991: 21, 38, 40. (*Paraphoxus rotundifrons*).

Barnard and Karaman, 1991: 636.

Jążdżewski *et al.*, 1992: 465, 470. (“*Parharpinia*” *rotundifrons*).

De Broyer and Jążdżewski, 1993: 84.

Distribution:

W + G

South Georgia: “*Discovery*” 1925–1927, Cumberland East Bay, sta. 39, [54°17’S 36°26’W], 179–235 m (bottom: grey mud; gear: large otter trawl); sta. 141, 17–27 m (bottom: mud; gear: small beam trawl); “*William Scoresby*” 1926–1927, Undine Harbour, sta. WS 25, [54°02’S 37°58’W], 18–27 m (bottom: mud, sand; gear: small beam trawl) (KHB 32).

South Orkney Islands: Signy Island, Borge Bay, [60°43’S 45°37’W], littoral–20 m (bottom: sand, gravel, rocks; gear: spot dives, anchor dredge, Agassiz trawl); Paal Harbour, [60°43’S 45°36’W], 20–25 m (bottom: muddy sand; gear: anchor dredge) (MHT 74a).

South Sandwich Islands: Visokoi Island, [56°42’S 27°12’W], 10–17 m (KS 47).

South Shetland Islands: Deception Island, [62°57’S 60°38’W], (KS 47); King George Island, 62°11’–14’S 58°52’–58’W, 7 m (bottom: sand; gear: dredge (MR 91); Admiralty Bay, [62°00’S 58°30’W], 4–30 m (gear: SCUBA, Tvärminne sampler) (KJ *et al.* 92).

Depth range: 0–235 m.

Type-locality: South Georgia: “*Discovery*” 1925–1927, Cumberland East Bay, sta. 39, [54°17’S 36°26’W], 179–235 m (bottom: grey mud; gear: large otter trawl) (KHB 32).

Ecology: Collected from mud, sandy bottoms.

Type material location: NHM, London.

Remarks: See remarks under *Parharpinia? obliqua*. *Parharpinia? rotundifrons* can be distinguished from *P.? obliqua* principally by the shape and setation of epimeron 3 posterior margin.

***Phoxorgia sinuata* (K.H. Barnard, 1932)**

- Barnard K.H., 1932: 12, 17, 103–104, fig. 52. (*Parharpinia sinuata*).
 Schellenberg, 1931: 75–78, fig. 39. (*Parharpinia villosa*, in part).
 Schellenberg, 1935: 232. (*Parharpinia villosa*).
 Barnard J.L., 1958a: 147–148. (*Paraphoxus sinuatus*).
 Barnard J.L., 1958b: 118. (*Paraphoxus sinuata*).
 Barnard J.L., 1960: 186, 195, 271, 278–282, 283, 285, pl. 45. (*Paraphoxus sinuatus*).
 Thurston, 1974a: app. C. (*Parharpinia sinuata*).
 Andres, 1975: 92, 96, 97. (*Paraphoxus villosus*).
 Barnard and Drummond, 1976: 527. (*Paraphoxus sinuata*).
 Lowry and Bullock, 1976: 128. (*Paraphoxus sinuatus*).
 Barnard and Drummond, 1978: 32, 146. (To a genus to be described).
 Barnard and Barnard, 1980: 869–874, fig. 7.
 Barnard and Barnard, 1990: 110.
 Barnard and Karaman, 1991: 627.
 Gonzalez, 1991: 61.
 De Broyer and Jażdżewski, 1993: 84.
 De Broyer and Rauschert, 1999: 286.
 Chiesa *et al.*, 2005: 169, 171, fig. 2C, table 2.

Distribution:

G + M +

Magellan Area: *Schwedische Expedition nach den Magellansländern 1895–1897*, Punta Arenas, 53°10'S 70°54'W, 13–14 m (bottom: sand, algae); Bahía Inutil, 53°30'S 69°45'W, 20–54 m (bottom: coralline algae nodules, grey-whitish shells); Isla Nueva, [55°14'S 66°33'W], 54 m (bottom: shells); Tierra del Fuego, 54°43'S 64°08'W, 36 m (bottom: pebble, calcareous algae) (revised by JLB 60, B&B 80); *Hamburger Magalhaensische Sammelreise 1892–1893*, Smyth Channel, [52°15'S 73°40'W], 14 m; 43°S 60°W, 11 m (AS 31); “*William Scoresby*” 1926–1927, sta. WS 88, 54°00'S 64°57'W, 118 m (bottom: sand, shells, stones; gear: commercial otter trawl) (KHB 32); *Albatros*, Estecho de Magallanes, 52°41'00"S 69°55'30"W, 38 m (B&B 80); Isla Gable, 54°54'S 67°21'W, 15–20 m (gear: dredge); “*Eduardo Holmberg*” Survey, 52.342S 65.372W, 118 m, (stomach content of *Bathyrāja macloviana*) (coll. Bellegia 2004) (GMA unpubl.); “*Eduardo Holmberg*” Survey, 52.549S 66.099W, 104 m, (stomach content of *Bathyrāja macloviana*) (coll. Bellegia 2005) (GMA unpubl.); Punta Moat, 55°02'S 66°42'W, 15–25 m (gear: dredge); Bahía Sloggett; 55°00'S 66°21'W, 15–27 m (gear: dredge); Bahía Golondrina, 54°49'–50'S 68°14'–20'W, 5 m (gear: Snapper grab); Bahía Buen Suceso, 54°47'S 65°14'W, 12 m (gear: dredge); Cabo San Pío, 55°03'S 66°37'W, 30–55 m (gear: dredge) (ICH *et al.* 05); *Magellan “Victor Hensen” Campaign 1994*, Estrecho Gente Grande, Laredo Bay, sta. 924, 52°56.8'S 70°18.6'W, 17 m (gear: small dredge); Estrecho Laredo, sta. 960, 52°57.9'S 70°43.4'W, 36 m (gear: Agassiz trawl); sta. 963, 52°57.9'S 70°43.5'W, 38 m (gear: small dredge); Estrecho Paso Ancho St. 16, sta. 972, 53°28.8'S 70°21.9'W, 92 m (gear: small dredge); Paso Goree, sta. 1164, 55°18.8'S 67°05'W, 24 m (gear: small dredge); sta. 1165, 55°18.6'S 67°08.5'W, 42 m (gear: multiboxcorer); Punta Rico, sta. 1176, 55°07.3'S 66°53'W, 25 m (gear: small dredge); Isla Wollaston, sta. 1204, 55°38.4'S 67°12.4'W, 40 m (gear: small dredge); SE Isla Picton, sta. 1216, 55°07.2'S 66°40.2'W, 67 m (gear: small dredge); sta. 1221, 55°07.6'S 66°44.6'W, 33 m (gear: small dredge); *Crucero CIMAR FIORD 3 (“Vidal Gormaz” Cruise)*, Canal Beagle, Puerto Williams, sta. 41, 54°53.8'S 67°34.5'W, 35 m (MR unpubl.).

South Georgia: “*Discovery*” 1925–1927, sta. 159, 53°52'S 36°08'W, 160 m (bottom: rock; gear: large heavy dredge) (KHB 32).

Depth range: 5–160 m.

Type-locality: South Georgia: “*Discovery*” 1925–1927, sta. 159, 53°52'S 36°08'W, 160 m (bottom: rock; gear: large heavy dredge) (KHB 32).

Ecology: Collected from bottoms with sand, stones, rock, shells, algae.

Extralimital distribution: *Schwedische Expedition nach den Magellansländern 1895–1897*, Chile: Valparaiso, [33°01'S 71°37'W], 11–22 m (revised by JLB 60, B&B 80); *Hamburger Magalhaensische Sammelreise 1892–1893*, 38°S 56°W, 94 m (AS 31); Valparaiso, [33°01'S 71°37'W] (HGA 75); Bahía La Herradura, 29°58'S 71°22'W (EG 91).

Extralimital depth range: 11–94 m.

Type material location: NHM, London.

Remarks: Barnard and Barnard (1980) erected the genus *Phoxorgia* on the basis of some morphological characters such as the apical group of setae on article 2 of antenna 1, the naked ventral margin of basis peraeopod 7, the scarce posterior setation of epimera 1 and 2 and setae on the telson. Although this genus is similar to *Parharpinia* Stebbing, 1899 from Australia, and these characters could not be adequate to segregate it, it was correct to separate both genera since some of *Phoxorgia* plesiomorphic character-states correlate with its distribution in southern South America.

Phoxorgia sinuata, the unique species in the genus, has been recorded lately from southern Tierra del Fuego (Chiesa *et al.*, 2005) and southern Chile (Rauschert, unpubl.); Alonso de Pina (unpubl.) expanded its distribution in the southern Atlantic.

***Proharpinia antipoda* Schellenberg, 1931**

Schellenberg, 1931: 80–81, fig. 41.

Barnard J.L., 1958b: 119.

Barnard J.L., 1960: 311, 312–315, 318, pl. 56.

Lowry and Bullock, 1976: 128.

Barnard and Drummond, 1978: 532.

Barnard and Karaman, 1982: 183.

Barnard and Barnard, 1990: 114.

Barnard and Karaman, 1991: 627, 628.

Gonzalez, 1991: 61.

De Broyer and Jazdzewski, 1993: 85.

De Broyer and Rauschert, 1999: 286.

Distribution:

W + M (+Ba)

Falkland Islands: *Schwedische Südpolar Expedition 1901–1903*, Port Louis, 51°33'S 58°09'W, 8 m (bottom: mud, shells) (AS 31) (revised by JLB 60).

Magellan Area: *Schwedische Expedition nach den Magellansländern 1895–1897*, Ultima Esperanza, 51°40'S 72°40'W, 7–9 m (bottom: black fine clay); Puerto Angosto, 53°14'S 73°21'W, 18 m (bottom: clay); Puerto Condor, 54°00'S 70°08'W, 90 m (bottom: rocks, sponges, ascidians); Cabo Valentina, 53°25'S 70°40'W, 270 m (bottom: shells); “Lagotowia”, 55°24'S 68°17'W, 18 m (bottom: bluish and black-greyish clay); Puerto Toro, 55°05'S 67°06'W, 36–45 m (bottom: shells, algae); Bahía Ushuaia, 54°49'S 68°18'W, 18 m (bottom: brown clay) (revised by JLB 60); *Hamburger Magalhaensische Sammelreise 1892–1893*, Puerto Bridges, [54°52'S 68°17'W], 13 m; Isla Picton, Banner Cove, [55°01'S 66°56'W], 5 m (bottom: kelp holdfasts) (AS 31); *Magellan “Victor Hensen” Campaign 1994*, Estrecho Laredo, sta.813, 52°57.5'S 70°41'W, 90 m (gear: small dredge); Bahía Manza south, Puerto del Hambre, [53°38'S 70°56'W], 3 m; Estrecho Gente Grande, sta. 822, 53°02.5'S 70°17.1'W, 8 m (gear: small dredge); Estrecho Paso Ancho St. 19, sta. 843, 53°09.2'S 70°39.2'W, 127 m (gear: small dredge); Estrecho off Punta Arenas, sta. 950, 53°10.2'S 70°52.7'W, 26 m (gear: small dredge); sta. 958, 52°58'S 70°41.1'W, 111 m (gear: small dredge); sta. 966, 52°57.9'S 70°46.9'W, 13 m (gear: small dredge); Estrecho Bahía Voces, sta. 868, 53°42.3'S 70°54.4'W, 470 m (gear: small dredge); Canal Beagle, Francia, sta. 1084, 54°55.3'S 69°019.9'W, 268 m (gear: light meter); Bahía Oglander, sta. 1152, 55°09.1'S 67°01.7'W, 15 m (small dredge); sta. 1160, 55°07.8'S 67°01.8'W, 33 m (gear: small dredge); Isla Lennox, sta. 1226, 55°14.3'S 67°00.4'W, 24 m (gear: baited trap); *Crucero CIMAR*

FIORD 3 (“*Vidal Gormaz*” Cruise), Estrecho de Magallanes, Bahía Snug, sta. 8, 53°51.8’S 71°32’W, 260 m; Seno Almirantazgo, sta. 52, 54°24.5’S 69°11.3’W, 110 m; Bahía Inutil, sta. 57, 53°27.7’S 69°30.6’W, 45 m (MR unpubl.).

South Shetland Islands: “*Polarstern*” *ANT XV/3 48*, King George Island, sta. 300, 62°16.8’S 58°42.1’W, 423 m (gear: multiboxcorer) (MR unpubl.).

Depth range: 3–470 m.

Type-locality: Falkland Islands: *Schwedische Südpolar Expedition 1901–1903*, Port Louis, 51°33’S 58°09’W, 8 m (bottom: mud, shells) (AS 31).

Magellan Area: *Schwedische Expedition nach den Magellansländern 1895–1897*, Ultima Esperanza, 51°40’S 72°40’W, 7–9 m (bottom: black fine clay); Puerto Angosto, 53°14’S 73°21’W, 18 m (bottom: clay); Puerto Condor, 54°00’S 70°08’W, 90 m (bottom: rocks, sponges, ascidians); Cabo Valentina, 53°25’S 70°40’W, 270 m (bottom: shells); “Lagotowia”, 55°24’S 68°17’W, 18 m (bottom: bluish and black-greyish clay); Puerto Toro, 55°05’S 67°06’W, 36–45 m (bottom: shells, algae); Bahía Ushuaia, [54°49’S 68°16’W], 18 m (bottom: brown clay) (revised by JLB 60); *Hamburger Magalhaensische Sammelreise 1892–1893*, Puerto Bridges, [54°52’S 68°17’W], 13 m; Isla Picton, Banner Cove, [55°01’S 66°56’W], 5 m (bottom: kelp holdfasts) (AS 31).

Ecology: Collected from clay, rocky bottoms with shells, algae, sponges, ascidians.

Type material location: NRS, Stockholm.

Remarks: See remarks under *Proharpinia stephensi*. *Proharpinia antipoda* extends its distribution widely in the Magellan province and represents a new record in the South Shetland Islands (Rauschert, unpubl.).

Proharpinia stephensi (Schellenberg, 1931)

Schellenberg, 1931: 73–74, fig. 37a. (*Heterophoxus stephensi*).

Not Hurley, 1954: 589–593, figs. 29–67. (*Heterophoxus stephensi* = *Proharpinia hurleyi*, in part).

Hurley, 1957: 3. (*Heterophoxus stephensi*).

Barnard J.L., 1958a: 149.

Barnard J.L., 1958b: 119.

Barnard J.L., 1960: 311, 312, 315, 316–318, pl. 58.

Lowry and Bullock, 1976: 129.

Barnard and Drummond, 1978: 532.

Barnard and Karaman, 1982: 183.

Barnard and Barnard, 1990: 114.

Barnard and Karaman, 1991: 628.

Gonzalez, 1991: 61.

De Broyer and Jazdzewski, 1993: 85.

De Broyer and Rauschert, 1999: 286.

Chiesa *et al.*, 2005: 171, 172, tables 2–3.

Distribution:

M

Falkland Islands: *Schwedische Südpolar Expedition 1901–1903*, Port Louis, 51°33’S 58°09’W, 2–8 m (bottom: gravel, mud, shells); Port Albemarle, 52°09’S 60°33’W, 15 m (bottom: sand, algae) (AS 31) (revised by JLB 60).

Magellan Area: *Schwedische Expedition nach den Magellansländern 1895–1897*, Bahía Ushuaia, 54°49’S 68°18’W, 6–18 m (bottom: mud); *Hamburger Magalhaensische Sammelreise 1892–1893*, Bahía Ushuaia, [54°49’S 68°16’W], 4 m (AS 31) (revised by JLB 60); Estrecho de Magallanes, 53°S 70°W (EG 91); Península Ushuaia, 54°51’S 68°19’W, 5–10 m (gear: Van Veen grab); Bahía Buen Suceso, 54°47’S 65°14’W, 12 m (gear: dredge) (ICH *et al.* 05); Golfo San Jorge, 45°56’S 67°32’W, 5–7 m (gear: collector tube, smooth

plastic panels) (coll. Vinuesa 2006) (GMA unpubl.); Golfo San Jorge, 45°52'S 67°30'W, 5–7 m (gear: collector tube, plastic panels with artificial grass) (coll. Vinuesa 2006) (GMA unpubl.); *Magellan "Victor Hensen" Campaign 1994*, Estrecho Gente Grande, sta. 822, 53°02.5'S 70°17.1'W, 8 m (gear: small dredge); Estrecho Bahía Voces, sta. 884, 53°42.6'S 70°57.5'W, 51 m (gear: small dredge); sta. 958, 52°58'S 70°41.1'W, 111 m (gear: small dredge); sta. 966, 52°57.9'S 70°46.9'W, 13 m (gear: small dredge) (MR unpubl.).

Depth range: 2–111 m.

Type-locality: Falkland Islands: *Schwedische Südpolar Expedition 1901–1903*, Port Louis, 51°33'S 58°09'W, 2–8 m (bottom: gravel, mud, shells); Port Albemarle, 52°09'S 60°33'W, 15 m (bottom: sand, algae) (AS 31) (revised by JLB 60).

Magellan Area: *Schwedische Expedition nach den Magellansländern 1895–1897*, Bahía Ushuaia, [54°49'S 68°16'W], 6–18 m (bottom: mud); *Hamburger Magalhaensische Sammelreise 1892–1893*, Bahía Ushuaia, [54°49'S 68°16'W], 4 m (AS 31) (revised by JLB 60).

Ecology: Collected from mud, sandy bottoms with shells, gravel, algae.

Type material location: NRS, Stockholm.

Remarks: *Proharpinia stephensi* and *P. antipoda* can be distinguished from each other by the shape of epimeron 3, the basis of peraeopod 7, the apices of telson, the size of eyes, and the setation of uropods 1 and 2.

The species expands its distribution in southern Tierra del Fuego (Chiesa *et al.*, 2005) and southern Chile (Rauschert, unpubl.). Alonso de Pina (unpubl.) extends this geographical range of distributions northern, for the first time in Chubut province.

***Pseudfoxiphalus setosus* Andres, 1991**

Andres, 1991: 187–196, figs. 1–5.

De Broyer and Jazdzewski, 1993: 85.

De Broyer and Rauschert, 1999: 286.

Distribution:

M

Magellan Area: Chile, Seno de Reloncavi, Bahía Quillaiepe, 41°54'S 72°75'W (sandy tidal flat) (HGA 91).

Depth range: 0 m.

Type-locality: Magellan Area: Chile, Seno de Reloncavi, Bahía Quillaiepe, 41°54'S 72°75'W (sandy tidal flat) (HGA 91).

Ecology: Collected from sandy tidal flat.

Type material location: ZMH, Hamburg.

Remarks: Since Andres (1991) described and illustrated the genus *Pseudfoxiphalus*, no other records or species were found.

***Pseudharpinia antarctica* Ren, 1991**

Ren, 1991 in Ren and Huang, 1991: 190, 274–276, 297, 315–316, fig. 55.

De Broyer and Jazdzewski, 1993: 85.

Valério-Berardo and Piera, 2006: 75, 81.

Distribution:

W

South Shetland Islands: King George Island, 62°06.8'S 58°23.5'W, 400 m (bottom: sand, mud with rock); 62°14.4'S 58°51.7'W, 345 m (bottom: mud, sand); 62°12.2'S 58°55'W, 110 m (bottom: mud with rock) (R&H 91).

Depth range: 110–400 m.

Type-locality: South Shetland Islands: King George Island, 62°06.8'S 58°23.5'W, 400 m (bottom: sand, mud with rock) (R&H 91).

Ecology: Collected from mud, sand, rocks.

Type material location: IOQ, Qingdao.

Remarks: See remarks under *Pseudharpinia dentata*.

***Pseudharpinia calcariaria* Bushueva, 1982**

Bushueva, 1982: 1261–1264, 1 fig.

Barnard and Barnard, 1990: 116.

Barnard and Karaman, 1991: 629.

De Broyer and Jazdzewski, 1993: 85.

Valério-Berardo and Piera, 2006: 75, 81.

Distribution:

E (+Ba)

Davis Sea: *Ob*, sta. 15, 64°35'S 96°51'E, 210 m (bottom: silty sand; gear: Okean grab 0.25 m²); sta. 16, 64°08'S 95°44'E, 2000 m (bottom: clay, mud; gear: dredge) (IVB 82).

Depth range: 210–2000 m.

Type-locality: Davis Sea: *Ob*, sta. 15, 64°35'S 96°51'E, 210 m (bottom: silty sand; gear: Okean grab 0.25 m²); sta. 16, 64°08'S 95°44'E, 2000 m (bottom: clay, mud; gear: dredge) (IVB 82).

Ecology: Collected from clay, mud, sandy bottoms.

Type material location: ZIN, St. Petersburg.

Remarks: See remarks under *Pseudharpinia dentata*.

***Pseudharpinia cariniceps* (K.H. Barnard, 1932)**

Barnard K.H., 1932: 12, 13, 14, 99–100, fig. 49. (*Harpinia cariniceps*).

Barnard J.L., 1958b: 116. (*Harpinia cariniceps*).

Barnard J.L., 1960: 347, 348, 351. (*Harpinia cariniceps*).

Barnard J.L., 1969: 414 (by implication).

Thurston, 1974a: app. A, C. (*Harpinia cariniceps*).

Lowry and Bullock, 1976: 129.

Barnard and Drummond, 1978: 534.

Barnard and Barnard, 1990: 116.

Barnard and Karaman, 1991: 629.

Jazdzewski *et al.*, 1992: 465, 470.

De Broyer and Jazdzewski, 1993: 85.

Valério-Berardo and Piera, 2006: 75, 81.

Distribution:

W

Palmer Archipelago: “*Discovery*” 1925–1927, Schollaert Channel, sta. 181, [64°30'S 62°52'W], 160–335 m (bottom: mud; gear: nets); Anvers Island, Fournier Bay, sta. 186, [64°31'S 63°06'W], 295 m (bottom: mud; gear: large heavy dredge) (KHB 32).

South Orkney Islands: “*Discovery*” 1925–1927, off Signy Island, sta. 162, [60°43'S 45°38'W], 320 m (bottom: green mud; gear: large heavy dredge); sta. 167, [60°43'S 45°38'W], 244–344 m (bottom: green mud; gear: nets) (KHB 32).

South Shetland Islands: “*Discovery*” 1925–1927, King George Island, Admiralty Bay, sta. 195, 62°07'S 58°28'W, 391 m (bottom: mud, stones; gear: nets) (KHB 32); 88–120 m (gear: Van Veen grab) (KJ *et al.* 92).

Depth range: 88–391 m.

Type-locality: South Orkney Islands: “Discovery” 1925–1927, off Signy Island, sta. 167, [60°43’S 45°38’W], 244–344 m (bottom: green mud; gear: nets) (KHB 32).

Ecology: Collected from mud, stones.

Type material location: NHM, London.

Remarks: See remarks under *Pseudoharpinia dentata*.

Pseudoharpinia dentata Schellenberg, 1931

Schellenberg, 1931: 82–83, fig. 42.

Barnard J.L., 1958b: 119.

Barnard J.L., 1960: 330, 342, 347, 349, pl. 75.

Barnard J.L., 1969: 414 (by implication), 420.

Lowry and Bullock, 1976: 129.

Barnard and Drummond, 1978: 534.

Barnard and Barnard, 1990: 116.

Wakabara *et al.*, 1990: 2, 5, 7. (*Pseudoharpinia sic dentata*).

Barnard and Karaman, 1991: 628, 629.

Rauschert, 1991: 38, 41.

Gonzalez, 1991: 62.

Wakabara *et al.*, 1991: 74.

Ren and Huang, 1991: 276, 316.

De Broyer and Jazdzewski, 1993: 85.

Wakabara and Serejo, 1998: 579.

De Broyer and Rauschert, 1999: 286.

Valério-Berardo *et al.*, 2000: 122, 123, 124 (eco). (*Pseudoharpinia sic dentata*).

Valério-Berardo and Piera, 2006: 75, 81.

Distribution:

W + M + (+Ba)

Magellan Area: *Schwedische Expedition nach den Magellansländern 1895–1897* “Lagotowia”, 55°24’S 68°17’W, 18 m (bottom: bluish and black-greyish clay) (AS 31) (revised by JLB 60); Estrecho de Magallanes, 53°S 70°W (EG 91); *Magellan “Victor Hensen” Campaign 1994*, Estrecho Laredo, sta. 813, 52°57.5’S 70°41’W, 90 m (gear: small dredge); Estrecho Paso Ancho St. 19, sta. 843, 53°09.2’S 70° 39.2’W, 127 m (gear: small dredge); St. 15, sta. 979, 53°32.9’S 70°39.2’W, 462 m (gear: small dredge); Estrecho Bahía Voces, sta. 868, 53°42.3’S 70°54.4’W, 470 m (gear: small dredge); sta. 874, 53°43.6’S 70°56.1’W, 335 m (gear: small dredge); sta. 878, 53°41.7’S 70° 56.4’W, 260 m (gear: small dredge); sta. 886, 53°41.8’S 70°57.2’W, 102 m, (gear: multicorer meiobenthos); sta. 887, 53°42.2’S 70°57.2’W, 100 m (gear: small dredge); sta. 958, 52°58’S 70°41.1’W, 111 m (gear: small dredge); sta. 866, 53°41.8’S 70°54.6’W, 440 m (gear: multicorer meiobenthos); sta. 980, 53°42.7’S 70°50.1’W, 522 m (gear: small dredge); Canal Beagle, Romanche, sta. 1083, 54°53.1’S 69°30.5’W, 62 m (gear: small dredge); Canal Beagle, Italia, sta. 1119, 54°56’S 69°014.3’W, 208 m (gear: small dredge); Isla Picton, sta. 1183, 55°06.5’W 66°55.5’W, 109 m (gear: small dredge); SE Isla Picton, sta. 1221, 55°07.6’S 66°44.6’W, 33 m (gear: small dredge); *Crucero CIMAR FIORD 3 (“Vidal Gormaz” Cruise)*, Estrecho de Magallanes, Bahía Snug, sta. 8, 53°51.8’S 71°32’W, 260 m; G. Xaultegua, sta. 16, 53°8.65’S 73°4.7’W, 411 m; Seno Agostini, sta. 29, 54°27.5’S 70°25.5’W, 197 m; Canal Ballenero, sta. 36, 54°55.7’S 70°42.3’W, 120 m; Seno Almirantazgo, sta. 52, 54°24.5’S 69°11.3’W, 110 m (MR unpubl.).

South Shetland Islands: 61°16’S 55°05’W, 60 m (YW *et al.* 90); King George Island, 62°11’–14’S 58°52’–58’W (MR 91).

Depth range: 18–522 m.

Type-locality: Magellan Area: *Schwedische Expedition nach den Magellansländern 1895–1897*, “Lagotowia”, 55°24’S 68°17’W, 18 m (bottom: bluish and black-greyish clay) (AS 31) (revised by JLB 60).

Ecology: Collected from clay bottoms.

Extralimital distribution: Brazil, São Paulo, 23°25’–24°22’S 44°33’–45°16’W (bottom: muddy sand) (YW *et al.* 91), 17–50 m (VB *et al.* 00).

Extralimital depth range: 17–50 m.

Type material location: NRS, Stockholm.

Remarks: *Pseudharpinia antarctica*, *P. calcariaria*, *P. cariniceps*, *P. dentata*, *P. macrospinosa*, *P. obtusifrons* and *P. vallini* can be separated from each other by the combination of some morphological character states such as: presence or absence of projection-like-tooth on the posterior margin of peraeopod 7, different size of serrations on ventral margin of basis of peraeopod 7, number and length of setae among these serrations, the length of uropod 3 and the length and setation on article 2 of outer ramus of uropod 3.

Pseudharpinia dentata is extensively recorded from the Magellan area (Rauschert, unpubl.).

Pseudharpinia macrospinosa Valério-Berardo and Piera, 2006

Valério-Berardo and Piera, 2006: 75–82, figs. 1–4.

Distribution:

W

South Shetland Islands: King George Island, Admiralty Bay, 62°12’S 58°39’W, 20 m (gear: Van Veen grab) (VB&FP 06).

Depth range: 20 m.

Type-locality: South Shetland Islands: King George Island, Admiralty Bay, 62°12’S 58°39’W, 20 m (gear: Van Veen grab) (VB&FP 06).

Ecology: Unknown data.

Type material location: MZUSP and MNRJ, Brazil.

Remarks: See remarks under *Pseudharpinia dentata*.

Pseudharpinia obtusifrons (Stebbing, 1888)

Stebbing, 1888: 820–824, pl. 56. (*Harpinia obtusifrons*).

Della Valle, 1893: 747. (*Harpinia neglecta*, in part).

Stebbing, 1906: 143–144. (*Harpinia obtusifrons*).

Not Walker, 1907: 17. (*Harpinia obtusifrons*=*Heterophoxus videns*).

Not Chilton, 1909: 619. (*Harpinia obtusifrons*=*Proharpinia hurleyi*, in part).

Not Chilton, 1912: 477–478. (*Harpinia obtusifrons*=*Heterophoxus videns*).

Not Thomson, 1913: 242. (*Harpinia obtusifrons*=*Proharpinia hurleyi*).

Schellenberg, 1926: 195. (*Harpinia obtusifrons*).

Not Stephensen, 1927: 306–307, fig. 6. (*Harpinia obtusifrons*=*Proharpinia hurleyi*).

Barnard J.L., 1958b: 116. (*Harpinia obtusifrons*).

Barnard J.L., 1960: 315, 316, 318, 319, 344, 347, 348, 355. (*Harpinia obtusifrons*).

Barnard J.L., 1969: 414 (by implication).

Mills, 1972: 74, table 1. (*Harpinia obtusifrons*).

Arnaud, 1974: 546, table 14 (eco). (*Harpinia obtusifrons*).

Bellan-Santini and Ledoyer, 1974: 639, 640, 694. (*Harpinia obtusifrons*).

Lowry and Bullock, 1976: 129–130.

Barnard and Drummond, 1978: 534.

Bellan-Santini and Ledoyer, 1987: 351, 352, 353, 354, 418. (*Harpinia obtusifrons*).

Barnard and Barnard, 1990: 116.

Barnard and Karaman, 1991: 629.
 Branch *et al.*, 1991: 10, 40, fig. on p. 10. (*Harpinia obtusifrons*).
 De Broyer and Jażdżewski, 1993: 85.
 De Broyer and Rauschert, 1999: 286.
 Valério-Berardo and Piera, 2006: 75, 81.

Distribution:

W + S + M (+Ba)

Drake Passage: *Polarstern ANT XV/3 48*, Drake Passage, sta. 336, 61°26.5'S 58°07.4'W, 1031 m (gear: Agassiz trawl) (MR unpubl.).

Iles Kerguelen: *H.M.S. Challenger 1873–1876*, Kerguelen Islands, [49°15'S 69°10'E], 54–216 m (TRS 88); *Deutschen Tiefsee-Expedition 1898–1899*, Kerguelen Islands, shallow littoral (AS 26); NE Golfe du Morbihan, sta. Ker-B14, [49°25'S 70°08'E], 15 m (bottom: sand, mud); NW Golfe du Morbihan, Ile Australia, sta. Ker-B7, [49°28'S 69°51'E], 24 m (bottom: black mud) (BS&L 74).

Magellan Area: *Magellan Victor Hensen Campaign 1994*, Estrecho Bahía Voves, sta. 980, 53°42.7'S 70°50.1'W, 522 m (gear: small dredge); Isla Picton, sta. 1192, 55°06.7'S 67°01.6'W, 40 m (gear: small dredge) (MR unpubl.).

Marion and Prince Edward Islands: *Marion Dufresne 08*, sta. 12 BB 79, 46°55.7'S 37°54.1'E, 95 m (bottom: sand, mud); sta. 15 BB 88, 46°57.7'S 37°59.9'E, 204 m (bottom: coarse sand); sta. 17 DC 96, 46°52.1'S 37°53.8'E, 112 m (bottom: sand, mud); sta. 17 BB 97, 46°52.5'S 37°53.5'E, 110 m (bottom: sand, mud); sta. 18 DC 107, 46°49.8'S 37°56.2'E, 140 m (bottom: sandy mud with bryozoans); sta. 18 BB 108, 46°49.8'S 37°56.4'E, 138 m; sta. 18 RK 109, 138 m; sta. 19 BB 111, 46°46.2'S 38°03.2'E, 190 m (bottom: mud); sta. 21 DC 118, 46°53.3'S 37°52.8'E, 50 m (bottom: black sand); sta. 21 BB 119, 46°53.3'S 37°53'E, 57 m (bottom: black sand); sta. 22 DC 124, 46°52.4'S 37°51.9'E, 30 m (bottom: sand); sta. 22 BB 125, 31 m (bottom: sand); sta. 31 DC 156, 46°59.05'S 37°46.06'E, 185 m (bottom: black sand, gravel); sta. 31 BB 157, 46°59.5'S 37°46.8'E, 192 m (bottom: sand); sta. 34 DC 167, 46°50.2'S 37°51.2'E, 115 m (bottom: compacted mud); sta. 34 BB 168, 46°50.2'S 37°51.2'E, 110 m (bottom: compacted mud); sta. 35 DC 170, 46°39.7'S 38°00.3'E, 53 m (bottom: gravel, blocks) (BS&L 87); 46°54'S 37°45'E–46°38'S 37°57'E, 10–200 m (MLB *et al.* 91).

Depth range: Shallow littoral-1031 m.

Type-locality: *H.M.S. Challenger 1873–1876*, Kerguelen Islands, [49°15'S 69°10'E], 54–216 m (TRS 88).

Ecology: Collected from mud, sandy mud, sand, gravel, occasionally with bryozoans.

Type material location: NHM, London.

Remarks: See remarks under *Pseudharpinia dentata*. *Pseudharpinia obtusifrons* presents new records in the Magellan Area and in the Drake Passage (Rauschert, unpubl.).

***Pseudharpinia vallini* (Dahl, 1954)**

Dahl, 1954: 289–290, figs. 22–35. (?*Harpinia vallini*).
 Barnard J.L., 1969: 414 (by implication).
 Lowry and Bullock, 1976: 130.
 Barnard and Drummond, 1978: 534.
 Barnard and Barnard, 1990: 116.
 Barnard and Karaman, 1991: 629.
 De Broyer and Jażdżewski, 1993: 85.
 Valério-Berardo and Piera, 2006: 75, 81.

Distribution:

E (Ba)

Ross Sea: *Discovery* Inlet, [78°20'S 171°00'W], 550 m (ED 54).**Depth range:** 550 m.**Type-locality:** Ross Sea: *Discovery* Inlet, [78°20'S 171°00'W], 550 m (ED 54).**Ecology:** Unknown.**Type material location:** ?**Remarks:** See remarks under *Pseudoharpinia dentata*.***Torridoharpinia hurleyi* (J.L. Barnard, 1958a)**Barnard J.L., 1958a: 149. (*Proharpinia hurleyi*).Chilton, 1909: 619. (*Harpinia obtusifrons*, in part).Thomson, 1913: 242. (*Harpinia obtusifrons*).Stephensen, 1927: 306–307, fig. 6. (*Harpinia obtusifrons*).Hurley, 1954: 587, 589–593, figs. 29–67. (*Heterophoxus stephenseni*, in part).Barnard J.L., 1960: 311, 315–316, 318, 319, 355, pl. 57. (*Proharpinia hurleyi*).Lowry and Bullock, 1976: 128–129. (*Proharpinia hurleyi*).Barnard and Drummond, 1978: 532. (*Proharpinia hurleyi*).

Barnard and Karaman, 1982: 183, 184.

Barnard and Barnard, 1990: 131.

Barnard and Karaman, 1991: 632.

De Broyer and Jażdżewski, 1993: 85.

Distribution:

S +

Auckland Islands: Coleridge Bay, Carnley Harbour, [50°52'S 166°10'E], 50 m (bottom: sandy clay) (KS 27).**Campbell Island:** Perseverance Harbour, [52°33'12''S 169°12'30''E], 14 m (CC 09) (revised by JLB 60).**Depth range:** 14–50 m.**Type-locality:** New Zealand, Quarantine Island, Otago Harbour, [45°49'S 170°39'E], (bottom: sandbank) (DEH 54) (revised by JLB 60).**Ecology:** Collected from sandy clay.**Extralimital distribution:** New Zealand, Quarantine Island, Otago Harbour, [45°49'S 170°39'E] (bottom: sandbank); Portobello Marine Biological Station, Otago Harbour, [45°49'S 170°39'E] (bottom: sandy mud) (DEH 54) (revised by JLB 60).**Extralimital depth range:** 0 m.**Type material location:** CMNZ, Christchurch.**Remarks:** This species, originally located in *Proharpinia* Schellenberg, 1931, was transferred to *Torridoharpinia* Barnard and Karaman, 1982; both genera differ principally in the aspect of the epimeron 3 and the telson setae. *Torridoharpinia hurleyi* is easily distinguished from the only other species of the genus (*T. tropicana* J.L. Barnard, 1960) by the epimeron 3 and article 2 of peraeopod 7.**Discussion****Bathymetric distribution**

The number of benthic phoxocephalid species in the world seas is about 325, belonging to about 75 genera. Approximately, 98 world species have been reported below 200 meters, distributed in the Arctic, sub-Arctic, Antarctic and sub-Antarctic regions, as well as in tropical zones. From these 98, 21 species (about 21%) are present in the Southern Ocean, where a total of 35 species have been reported.

Most of the species from Antarctic and sub-Antarctic waters have a wide bathymetric distribution; the most representative taxa are: *Fuegiphoxus fuegiensis*, which has been found from 0 to 1031 meters depth, *Heterophoxus videns* from 2 to 1031 meters, *Pseudharpinia obtusifrons* from shallow waters to 1031 meters, *Pseudharpinia calcariaria* from 210 to 2000 meters, *Pseudharpinia latifrons* from 180 to 1098 meters, *Cephalophoxoides kergueleni* from 10 to 805 meters, *Paraphoxus? pyripes* from 0 to 750 meters and *Fuegiphoxus? uncinatus* from 30 to 628 meters depth. Only two species, *Harpiniopsis wandichia* and *Leptophoxoides molaris* from Antarctica, have been reported at 2747 and 2334 meters depth, respectively, being the deepest distributions in the Southern Ocean. In addition, *Harpiniopsis aciculum*, a bathyal species from the West Antarctic province, occurs in a narrow range in the bathyal zone (429–805 meters). *Pseudharpinia vallini* from the East Antarctic province, is restricted to 550 meters, but this is an almost unknown taxon because it has never been reported since its discovery (Dahl, 1954). It is worth mentioning here that the *Polarstern* ANDEEP cruises collected important phoxocephalid samples in the Antarctic deep sea (Vader & Berge, 2003; De Broyer *et al.*, 2003, 2006) which are still under study and may change our view of the Antarctic bathyal and abyssal phoxocephalid fauna.

Five species from the Antarctic region are found above 500 meters depth.

The remainder taxa from the Southern Ocean, that is to say 14 species, are found at or above 200 meters depth. From these 14 species, 10 inhabit in depths varying from 0 to 82 meters: 7 species distributed in the Magellan province, one in the South Shetland Islands, one in the South Georgia district and one in the sub-Antarctic islands. The remainder 4 species extend their bathymetric distribution between 0 and 200 meters: 2 recorded in the Magellan province, one in this latter and the South Georgia district and one in the West Antarctic province. Apparently, only 5 species are restricted to real shallow waters (from 0 to 22 meters depth), 3 of them being recorded in the Magellan area (*Metharpinia iado*, *Metharpinia protuberantis* and *Pseudfoxiphalus setosus*), one in South Georgia (*Coxophoxus coxalis*) and one in South Shetland Islands. In conclusion, the shallow water species predominate in the sub-Antarctic region.

Further field studies should be conducted in the area, especially more intensive samplings should be made in a wider bathymetric range.

Zoogeographical remarks

This work reports on 35 benthic phoxocephalid species included in 18 genera. From these, 25 species are endemic to the Southern Ocean, representing about 71%.

Endemicity at the genus level is very low, 4 genera (approximately 22%), *i.e.* *Linca*, *Parafoxiphalus*, *Pseudfoxiphalus* and *Fuegiphoxus*, are only found in the Southern Ocean; the first 3 genera are restricted to the Magellan province; *Fuegiphoxus* is endemic to the West Antarctic, Magellan and sub-Antarctic Islands (Tristan da Cunha district) provinces. Only one genus, *Phoxorgia*, scarcely extends its geographic distribution beyond the northern limits of the Magellan province (it reaches Valparaíso and the latitude of 38°S along the Atlantic Ocean); this distribution could be due to the influence of the sub-Antarctic currents which flow northwards.

A significant percentage of the phoxocephalid fauna (60%) is considered endemic to the Antarctic waters, embracing 15 species from a total of 25 species inhabiting this region. Two species (*Coxophoxus coxalis* and *Fuegiphoxus inutilis*) are endemic to the South Georgia district.

The number of taxa with distribution in the sub-Antarctic region is smaller (19 species) than that found in the Antarctic region, showing also a lower endemicity, with 6 species (about 32%) only present in the Magellan province (see below Magellan distribution).

The proportion of species found in the sub-Antarctic Islands province is fairly low. Five species are sparse in sub-Antarctic islands of New Zealand and Tristan da Cunha district. One species, *Torridoharpinia hurleyi*, is reported from the sub-Antarctic islands of New Zealand, while the other 4 species present diverse geographic affinities: *Paraphoxus? pyripes* is found in one of the sub-Antarctic group of islands surrounding New

Zealand and in the Antarctic region; *Cephalophoxoides kergueleni* is reported from Kerguelen Islands, West Antarctic and Magellan provinces; *Pseudharpinia obtusifrons* inhabits Prince Edwards and Marion Islands, the Kerguelen Islands and the same provinces that the latter species; *Fuegiphoxus fuegiensis* is found in Tristan da Cunha (the unique species with distribution in this district), South Georgia district, West Antarctic and the Magellan area.

Consequently, species endemism has not been observed in the sub-Antarctic islands province. The sub-Antarctic islands of New Zealand constitute isolated biotopes which would favour the increase in number of species; however, the phoxocephalid fauna is poorly known in these areas, which indicates that more samples should be collected there.

On the contrary, among 17 species distributed in the Magellan province, there is a group of 6 species, such as: *Fuegiphoxus abjectus*, *Linca pinita*, *Metharpinia protuberantis*, *Parafoxiphalus longicarpus*, *Proharpinia stephensi* and *Pseudfoxiphalus setosus*, not found anywhere else (represent an endemism of about 35%). These species are characterized by having plesiomorphic or primitive morphological characters; it must be considered that the fauna from austral South America may have its origin in the Gondwanan seas, and that their evolutionary trend was very slow.

Although the Falkland (Malvinas) Islands are included in the Magellan province as indicated in Geographic scope section, they are considered as a separate area only for distribution records. Comparing both Falkland (Malvinas) and the Magellan area as separate units, it appears that the following species have been reported from the Falkland Islands: *Proharpinia stephensi*, endemic to the Magellan province: in southern Chile and Argentina; *Proharpinia antipoda* widely distributed in austral South America (Pacific and Atlantic Oceans) and West Antarctic province, and *Heterophoxus videns* with wide distribution in both southern Chile and Argentina, and the Antarctic region. From 10 species found in the Magellan province, with distributions along the Atlantic Ocean, only these 3 species are present in the Falkland Islands. Bastida *et al.* (1992) suggested the possibility of subdividing the Atlantic sector of this province into two districts: the Patagonian, internal and influenced by the Patagonian current and the Malvinean, external and influenced by the Falkland current.

Comparing with other areas of the world, the Antarctic and sub-Antarctic regions, especially the Magellan area on the Atlantic side, apparently have been less explored. The low number of records of phoxocephalid species in the different geographic areas of the Southern Ocean, do not allow at the moment to elaborate a substantial biogeographic conclusion.

Ecology habitat

Studies on habitat and substrate preferences of Phoxocephalidae from the Southern Ocean are unknown for most of the species.

Phoxocephalidae are principally benthic burrowers on coastal shelves and deep-sea bottoms, where substrate sediments have a large range of granulometric diameter sizes. They colonize the intertidal and deep-sea soft bottoms, having undergone remarkable morphological adaptations such as powerful antennae, long rostra and very setose appendages to be able to invade these environments.

Occasionally, they inhabit intertidal substrates dominated by epiflora and groups of invertebrates, where phoxocephalids burrow in sediment patches.

According to De Broyer *et al.* (2003) bottom pictures and video records are of little assistance for small amphipods and obviously for sand burrowing phoxocephalids in particular. Analyses of trawl and dredge contents, the sampling techniques usually employed in Antarctica, do not allow to infer the probable habitat due to the disturbance produced during the extraction operation of the soft bottom infauna.

Few soft bottom Antarctic localities where phoxocephalid species were recorded have been typified. Thurston (1974a) in his work devoted to the Crustacea Amphipoda of Signy Island, South Orkney Islands, gave a detailed description of substrate types and indicated the habitat preferences of some of the common

species. The studied area embraced many stations along Borge Bay – Paal Harbour. In general terms, the sites were characterized by rocks and boulders extending from the shore to 5–20 meters depth, then replaced by areas of sand and mud; these plains of sand and mud were interrupted by rock outcrops, boulders and morainic deposits. Summarizing, gravels and sands occurred in shallow waters close to the shore, and mud and silts in deeper water farther offshore. Two phoxocephalid species were recorded in the area: *Parharpinia? rotundifrons* was confined to sand and mud substrates in the shallow sublittoral (from littoral to 25 meters depth) and *Heterophoxus videns* occurred in the shallow sublittoral (from 7 to 9 meters) in small pockets of muddy sand between boulders and in crevices in the rocks.

Lowry (1975) described the bottom of Arthur Harbor as mainly muddy below 15 meters and his list of amphipods includes *Heterophoxus videns*.

Jażdżewski *et al.* (1991) studied the area of Admiralty Bay (King George Island, South Shetland Islands) in the immediate vicinity of the Polish Antarctic Station *H. Arctowski*. There, the bottom of the littoral was stony and rocky down to 3–4 meters depth; between 4 and 10 meters patches of rocks and boulders characterized the generally soft bottom which was composed of coarse sand underlain by gravel; gradually, below 10 meters the bottom became sandy and muddy, but at greater depths, mixed with muddy sediments, there was coarse gravel and stones deposited on the sea bed by ice. Phoxocephalids such as *Heterophoxus trichosus* and *Parharpinia? rotundifrons* were found in the upper sublittoral (4–30 meters), and *H. videns* and *Pseudharpinia cariniceps* were recorded in the middle sublittoral, at 46–147 meters (Jażdżewski *et al.*, 1992). Both upper and middle sublittoral were characterized by the presence of decaying algal remnants.

Some Southern Ocean phoxocephalid species seem to be ubiquitous, since *e.g.* *Fuegiphoxus fuegiensis*, which is recorded from a great bathymetric range, at shallow water is found buried in sediments such as clay or sand among rocks and surrounded by algae, sponges and ascidians. *Proharpinia antipoda* in shallow intertidal has been found in mud or clay in environments characterized by bottoms with rocks, shells and abundant algae, sponges and ascidians. *Proharpinia stephensi* inhabits in sand or mud fissures among gravels, shell fragments and algae.

More ecological studies are needed to determine the habitat use of the Phoxocephalidae from the Southern Ocean, aiming the investigations towards granulometric analysis of sediments and organic matter content of soft bottoms, and examination of phoxocephalid digestive tract contents.

Behaviour

Burrowing and dietary behaviours of Phoxocephalidae from the Southern Ocean are scarcely documented in literature.

Lenihan *et al.* (1995) studied the patterns of survival and behaviour of benthic invertebrates from Winters Bay (McMurdo Station), Antarctica, exposed to contaminated sediments in field and laboratory bioassay experiments. The main test animal used was *Heterophoxus videns*; they collected these phoxocephalid specimens at 18 m depth and exposed them to contaminated and uncontaminated sediments in a series of experiments carried out in laboratory and in nature. The aim was to analyse the survival rate of the species and additionally its behaviour. They observed that *Heterophoxus videns* burrowed below the sediment surface both contaminated and uncontaminated, but more specimens had this burrowing activity (see also Lenihan, 1992) in the uncontaminated environment; moreover, when they had the choice they preferred the sediments without any trace of contaminants. Dauby *et al.* (2001) on the basis of ethological observations performed on living organisms kept in aquaria, could detect that *Heterophoxus videns* buried actively in the sediment for foraging and when they were disturbed from shelter they dig quickly back into the sand.

Oliver and Slattery (1985) investigated the effects of crustacean predators on species composition and population structure of soft-bodied infauna from McMurdo Sound, Antarctica, observing a dense population of *Heterophoxus videns* (6,367 individuals per square meter) at 20 meters depth. They obtained similar results in field and laboratory experiments. This phoxocephalid species is dominant in the McMurdo jetty soft-bot-

tom macrofaunal community and constitutes a foundation species for the communities inhabiting there, thus regulating species composition and population size (age) structure by preying on small species and juveniles. According to these authors *H. videns* is a motile deposit feeder and an important predator, buried just below the sediment surface, from where they rarely emerge. It feeds on annelids (e.g. the polychaete worms *Spiophanes tcherniai*, *Tharyx* sp., *Haploscoloplos kerguelensis*, maldanids or oweniids) -which are significant elements of the upper infauna-, nematodes, copepods, ostracods (e.g. *Philomedes* sp.), sponges and diatoms. *Heterophoxus videns* is eaten by the predator fish *Trematomus* sp. (see also Oliver *et al.*, 1982).

Dauby *et al.* (2001) studied the trophic preferences of some dominant Antarctic amphipod species of the Eastern Weddell Sea benthos. They analysed stomach contents and performed experiments in aquaria for ethological observations. The aquaria reproduced the environment of the known or suspected life style of the studied species, which were presented during 6–9 weeks with different food items. On the basis of these two approaches eight feeding types were deduced. Thus the phoxocephalid *Heterophoxus videns* had a feeding behaviour corresponding to the macropredatory/opportunistic scavenging type. Due to its burrowing behaviour as indicated above, it was difficult to observe the feeding activity, but the gut analysis of freshly captured specimens showed a large variety of food items such as polychaetes (flesh and setae of Syllidae, Paraonidae, Aphroditidae), crustacean parts (tanaids, copepods), sponge spicules, benthic diatoms and less commonly foraminifers or nematodes. Dauby *et al.* (2001) concluded that *Heterophoxus videns* is a predator preying in the upper layer of the sediment. Moreover, the size of some polychaete setae suggested that the species could also be a scavenger on larger animal remains (see also De Broyer *et al.*, 2003).

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