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Shallow species of Holothuroidea in the collection of the *Museo Argentina de Ciencias Naturales* "Bernardino Rivadavia" (MACN)

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Abstract: Echinoderms in Argentina are closely associated with the pioneering studies of Irene Bernasconi, particularly regarding sea cucumbers from the collection at the Museo Argentino de Ciencias Naturales "Bernardino Rivadavia" (MACN). The Holothuroidea class comprises 325 lots from various global regions, as recorded in the MACN invertebrates collection (MACN-In). This study analyses all specimens from shallow waters of Argentina and includes detailed information on species distribution, depth range, and remarks for each species, along with a key for identification. We identified 19 out of 26 species known to inhabit Argentina, representing 73% of the recorded species. The absence of certain specimens may stem from challenges in sampling, restricted distributions, or past misidentifications in literature. This research enhances our understanding of Argentina's biological diversity. Future studies aim to build on this foundation and continue the legacy initiated by Bernasconi.

Key words: taxonomy, sea cucumber, Argentina, Dendrochirotida, Apodida

Resumen: Especies someras de Holothuroidea en la colección del Museo Argentina de Ciencias Naturales "Bernardino Rivadavia" (MACN). Los equinodermos de Argentina están estrechamente asociados con los estudios pioneros de Irene Bernasconi, en particular los pepinos de mar de la colección del Museo Argentino de Ciencias Naturales "Bernardino Rivadavia" (MACN). La clase Holothuroidea comprende 325 lotes de varias regiones del mundo, según se registra en la colección de invertebrados del MACN (MACN-In). Este estudio analiza todos los especímenes de aguas poco profundas de Argentina e incluye información detallada sobre la distribución de las especies, el rango de profundidad y las observaciones para cada especie, junto con una clave para su identificación. Identificamos 19 de las 26 especies que se sabe que habitan en Argentina, lo que representa el 73% de las especies registradas. La ausencia de ciertos especímenes puede deberse a desafíos en el muestreo, distribuciones restringidas o identificaciones erróneas anteriores en la literatura. Esta investigación mejora nuestra comprensión de la diversidad biológica de Argentina. Los estudios futuros apuntan a aprovechar esta base y continuar el legado iniciado por Bernasconi.

Palabras clave: taxonomía, pepino de mar, Argentina, Dendrochirotida, Apodida

INTRODUCTION

Bernasconi was the first to study sea cucumbers from the collection of the *Museo Argentino de Ciencias Naturales* "Bernardino Rivadavia" (MACN) (Bernasconi 1934; Bernasconi 1941). The study from the first report includes only a mention of an *Echinopsolus charcoti*, (senior synonym of *Psolus charcoti*) and their ossicles. Bernasconi (1941) described specimens of *Psolus patagonicus*, including ossicles shapes and the earliest mention of brooders, after she found two juveniles in the same jar near an adult. As happens with other groups of echinoderms, sometimes in collaboration with other specialists, her studies improved and enlarged the collection (see Bernasconi, 1941; Deichmann, 1941). Holothuroidea comprise 325 lots from different parts of the world, as recorded in catalogs of the MACN invertebrates collection (MACN-In). This is far from the asteroids recorded (1787 lots), one of the groups extensively studied by Bernasconi. Although, it is only a half from other echinoderms that have been also extensively examined by her, such as ophiuroids (541 lots), or echinoids (692 lots). This provides us with a significant

quantity of specimens to study the holothuroidea from Argentina, which involve the area from the mouth of the Río de la Plata (36°S) to Tierra del Fuego (54°S).

The present study is focused on the specimens of Holothuroidea allocated at the MACN-In, from intertidal and shallow waters of Argentina (up to 300m). We indicate information about distribution, depth range and remarks of each species, and a key for identification.

MATERIAL AND METHODS

Specimens from the invertebrate collection of the Museo Argentino de Ciencias Naturales "Bernardino Rivadavia" (MACN-In) were analysed (Table 1). Digital photographs of the specimens were captured using Nikon D100, D800, and Canon PowerShot SX110 cameras. For specimens lacking identification, external morphology, as well as the shape of the calcareous ring and ossicles, were used to identify them at the species level. Both external and internal morphologies were analysed using a Leica MZ9.5 stereomicroscope. For internal morphology, dissection of the anterior part of the body was performed to examine the shape of the calcareous ring. To observe ossicles under a Zeiss Axio Imager Z1 microscope, small pieces of the body wall were macerated in a sodium hypochlorite solution (55 g Cl/l) during 1 min., then rinsed several times with distilled water, 96% ethanol, and air-dried. Ossicles were observed under a Zeiss Axio Imager Z1 microscope. The shapes of the ossicles were then compared with relevant literature (Pawson, 1969; Hernández, 1981; Lambert, 2009) for each species. The General Bathymetric Chart of the Oceans database (GEBCO_2024 Grid, https://www.gebco.net/data_and_products/gridded_bathymetry_data/) was used to provide the bathymetric background of the study area and to fix the location of the species. Maps were created using QGIS v3.8 Zanzibar software.

RESULTS

Family Chiridotidae Östergren, 1898

Chiridota marenzelleri Perrier, 1904
(Fig. 2)

Catalog numbers: MACN-In 16207, 16734, 18412, 23715, 24238.
Distribution: Off Río de la Plata (34°S) to Magellan Strait (52°S) (Perrier, 1904 and herein).
Depth: 40–150m (Perrier, 1904, and herein).
Remarks: Body type cylindrical, vermiform, color in live reddish, fixed in ethanol pinkish-gray. Twelve digitiform tentacles, each one with three pairs of digits. Ossicles grouped in papillae. The calcareous deposits, hexaradial wheels and star-shaped bodies.

Chiridota pisanii Ludwig, 1886
(Fig. 1A, 2)

Catalog numbers: MACN-In 10076, 25087, 26141, 26857, 9195.
Distribution: Southern part of South America from the Pacific (41°S) to the Atlantic (43°S) including Malvinas Islands (Pawson, 1969).
Depth: 0–102m (Pawson, 1969).
Remarks: Body type cylindrical, vermiform color in live reddish, fixed in ethanol pinkish-whitish. Twelve digitiform tentacles, each one with 5 pairs of digits. Five pairs of longitudinal muscles can be observed through transparency. The calcareous ring is a single piece. On the external body wall, ossicles are grouped in papillae, mostly in the anterior part and in the posterior part of the animal a little less papillae, leaving the center of the body with fewer papillae. The calcareous deposits are in the form of hexaradial wheels.

Family Cucumariidae Ludwig, 1894

Cladodactyla crocea (Lesson, 1830)
(Fig. 2)

Catalog numbers: MACN-In 8610, 16185, 18299, 20914-2, 21736, 23326, 23757-1, 25086-1, 25124-1, 26877, 39006, 41447, 41448, 41449, 41450, 41451, 41452, 41453, 41454, 41455, 41456, 41457, 41458, 41459, 41460, 41461, 41462, 41463, 41464, 41465, 41466, 41467, 41468, 41469, 41470, 41471, 41472, 41473.
Distribution: Restricted to the southern part of South America, Tierra del Fuego and along the Argentine coast up to 38°S (Martinez *et al.*, 2018; Pawson, 1969).
Depth: 0–1738m (Martinez *et al.*, 2018; Pawson, 1969).
Remarks: Brooding species, Martinez *et al.* (2018) analysed the ontogeny and some aspects of their reproductive biology.

Hemioedema spectabilis (Ludwig, 1883)
(Fig. 1E, 3)

Catalog numbers: MACN-In 12657-1, 14926, 14927, 14928, 14929, 16121, 16779, 18414, 20204-1, 20304, 20552, 20632, 21331, 22794, 23757, 24091, 24160, 24585, 25086, 25096,

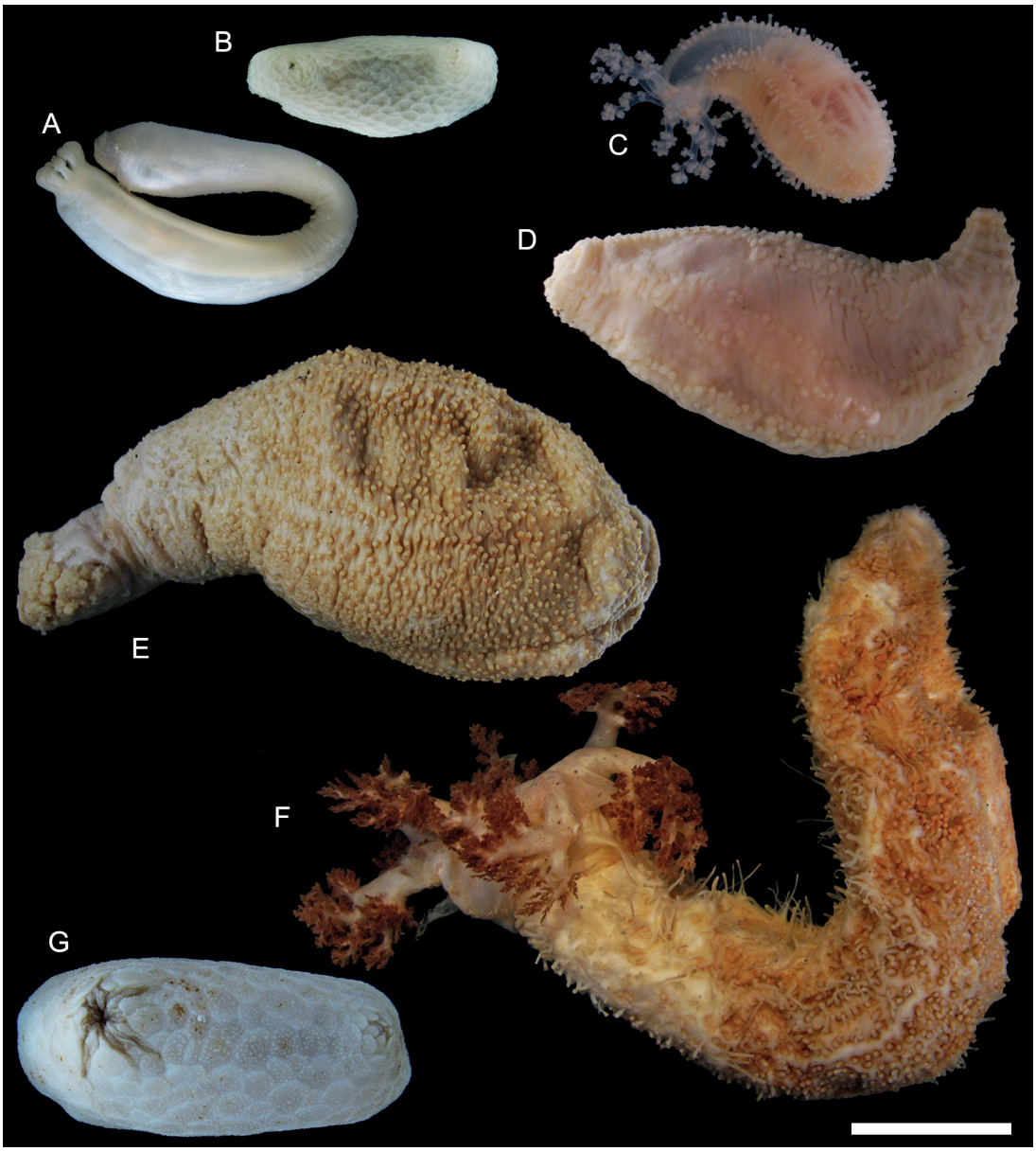

Fig. 1 Specimens of different families, Chiridotidae: (A) *Chiridota pisanii* MACN-In 26857. Psolidae: (B). *Psolidium disciformis* MACN-In 22201-1, (G). *Psolus segregatus* MACN-In 22201. Sclerodactylidae: (C) *Thandarum hernandezi* MACN-In 39256, (F) *Havelockia pegi* MACN-In 39019. Cucumariidae: (D) *Pentactella perrieri* MACN-In 15655, (E) *Hemioedema spectabilis* MACN-In 21331. Scale bar = 1 cm (A, B, C, D), 2 cm (E, F, G).

25211, 34813, 5142, 6528, 9234-1.

Distribution: Tierra del Fuego (54°S) to Río Negro (41°S) in the Atlantic (Deichmann 1947).

Depth: 0–132m (Deichmann, 1947 and herein).

Remarks: The species *H. spectabilis* is a cucumariid, although, externally, this species is similar to the sclerodactylid *Havelockia pegi*, both are sympatric thus easily misjudge. Among other differences like the shape of the calcareous ring (*i. e.* cucumariids is simple and for sclerodactylids have posterior processes), and the presence of tables in sclerodactylids. Both species could be identify by the color of the tentacles, on *H. spectabilis* tentacles are, live, light brown to light orange and slightly darker than the color of the body, fixed, the tentacles have the same

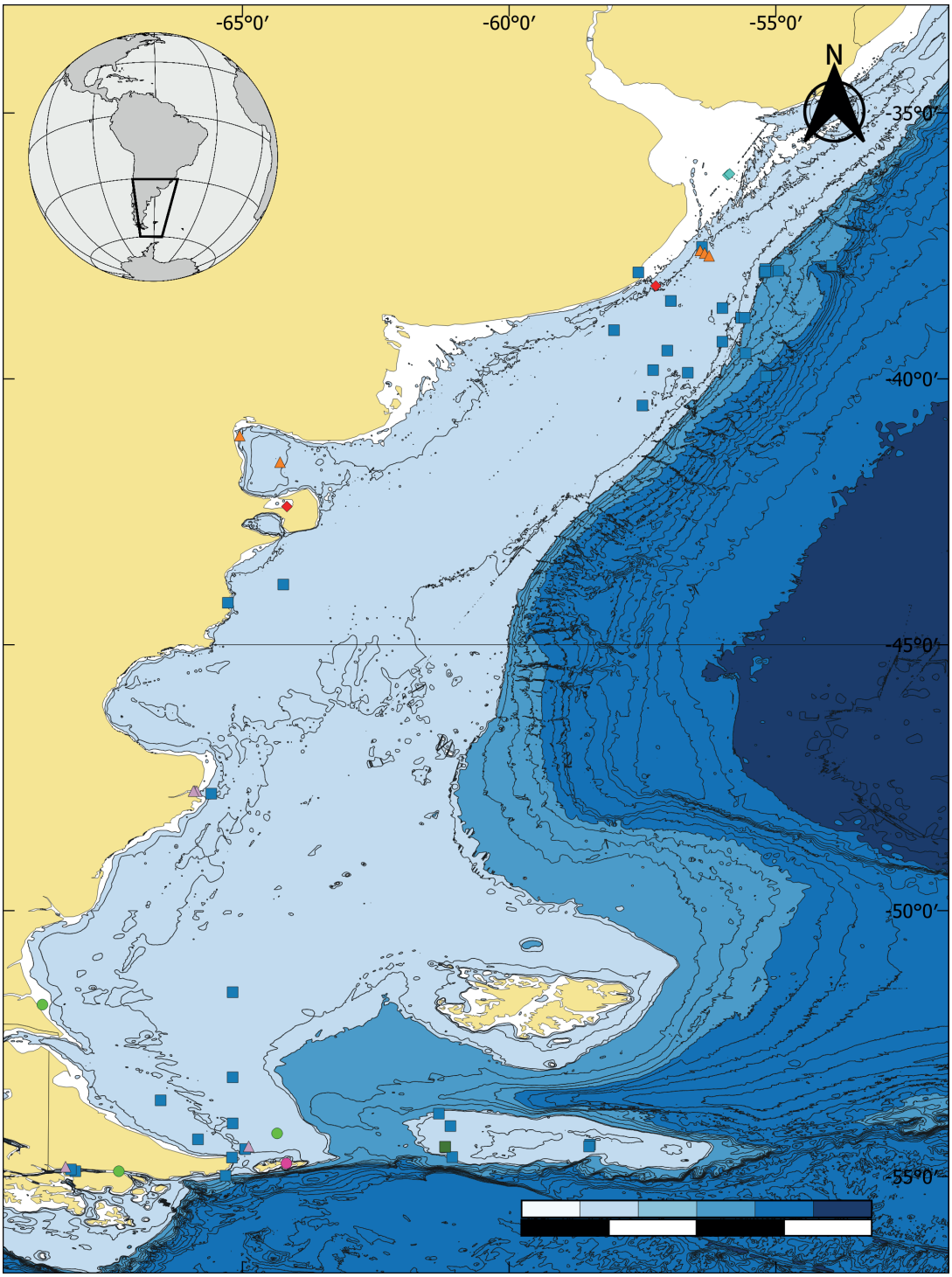

Fig. 2 Distribution of specimens from the MACN-In collection of *Havelockia pegi* (red diamond), *Thandarum hernandezi* (light blue diamond), *Chiridota marenzelleri* (orange triangle), *Chiridota pisanii* (pink triangle), *Psolidium disciformis* (fuschia circle), *Psolidium dorsipes* (green circle), *Cladodactyla crocea* (blue square) and *Pentactella cornuta* (green square). Scale bar (black and white) represents 400 km. Bathymetry scale bar (each set of values be associated with a shade of blue) represents <50 m, 50–300 m, 300–500 m, 500–1500 m, 1500–6000 m, >6000 m.

color. On *Havelockia pegi* the tentacles are darker, when fixed the difference is notorious. In addition, for *Havelockia pegi* is common, under stress, to lose of the tentacles and the calcareous ring, which is not the case for *Hemioedema spectabilis* (Hernández, 1981, Martinez *et al.*, 2013). The specimens studied extend the bathymetric distribution of the species.

Neopsolidium convergens (Hérouard, 1901)
(Fig. 4)

Catalog numbers: MACN-In 44605, 44606, 44607, 44608, 44609.
Distribution: Malvinas Islands (52°S) and Tierra del Fuego (54°S) (Pawson, 1964).
Depth: 0–15m (Pawson, 1964).
Remarks: This species was considered by some authors as part of Psolidae, although the absence of dorsal scales is crucial.

Pentactella cornuta (Cherbonnier, 1941)
(Fig. 2)

Catalog numbers: MACN-In 41351-2.
Distribution: Off Patagonia (50°S), Malvinas Islands (52°S) and Tierra del Fuego (54°S) (Cherbonnier, 1941 and herein).
Depth: 0–101m (Cherbonnier, 1941 and herein).
Remarks: For *P. cornuta* is diagnostic the two projections instead of the multiple spiny ends present in the knobbed plates of *Pentactella perrieri* and *Pentactella leonina*. In addition, *P. cornuta* had two slightly small ventral tentacles. The three specimens studied here extend the distribution of the species up to Tierra del Fuego.

Pentactella leonina (Semper, 1867)
(Fig. 3)

Catalog numbers: MACN-In 12657, 14930, 15603, 15655-1, 16265, 20914-1, 22200, 22552, 23326-1, 24216, 24493, 25097-1, 25124, 26975, 27107, 27108, 35335-2, 35335-2, 39001, 39002, 5142-1.
Distribution: Southern part of South America (Tierra del Fuego to off Buenos Aires) and Malvinas Islands (Pawson, 1969 and herein).
Depth: 0–300m (Pawson, 1969).
Remarks: This species could be captured with an extremely low tide, from the intertidal of Chubut Province to Tierra del Fuego. With *H. spectabilis* and *C. pisanii* are the three most common species of sea cucumbers from shallow waters.

Pentactella perrieri (Ekman, 1927)
(Fig. 1D, 4)

Catalog numbers: MACN-In 8145, 15655, 20914, 25124-2, 35335-1, 39007, 43348, 43349, 43350, 43351, 43352, 43353, 43354, 43355, 43356, 43357, 43358, 43359.
Distribution: Southern part of South America, from 44°S in the Pacific to 38°S in the Atlantic, including Malvinas Islands (Martinez *et al.*, 2020; Pawson, 1969).
Depth: 0–278m (Martinez *et al.*, 2020; Pawson, 1969).
Remarks: All *Pentactella* species have knobbed plates with denticulate ends, although *P. leonina* have also buttons, absent in *P. perrieri* and *P. cornuta*. The presence of knobbed plates with multiple spiny ends is crucial to distinguish *P. perrieri* from *P. cornuta* (see *Pentactella cornuta* remarks). Martinez *et al.* (2020) study the reproductive biology of *P. perrieri* with a discussion on *Pentactella* species from southwestern Atlantic, including the description of the internal brooding behaviour.

Pseudotrasfer microincubator Bohn, 2007
(Fig. 3)

Catalog numbers: MACN-In 44610.
Distribution: Burdwood Bank.
Depth: 209–290m (Bohn, 2007 and herein).
Remarks: This is the report of the species after the first description.

Trachythyone lechleri (Lampert, 1885)
(Fig. 3)

Catalog numbers: MACN-In 44611.
Distribution: Tierra del Fuego (52°–54°S) (Pawson, 1964).
Depth: 0–30m (Hernández, 1982).
Remarks: The species is one of the biggest holothuroids from Argentina.

Trachythyone parva (Ludwig, 1875)
(Fig. 4)

Catalog numbers: MACN-In 25097.
Distribution: From off Uruguay (35°S) to Tierra del Fuego (54°S), including Malvinas Island (Hernández, 1982 and herein).
Depth: 0–180m (Hernández, 1982).
Remarks: Although the present report only studies the specimens from Argentina, the collection has a sample, MACN-In 15835, from

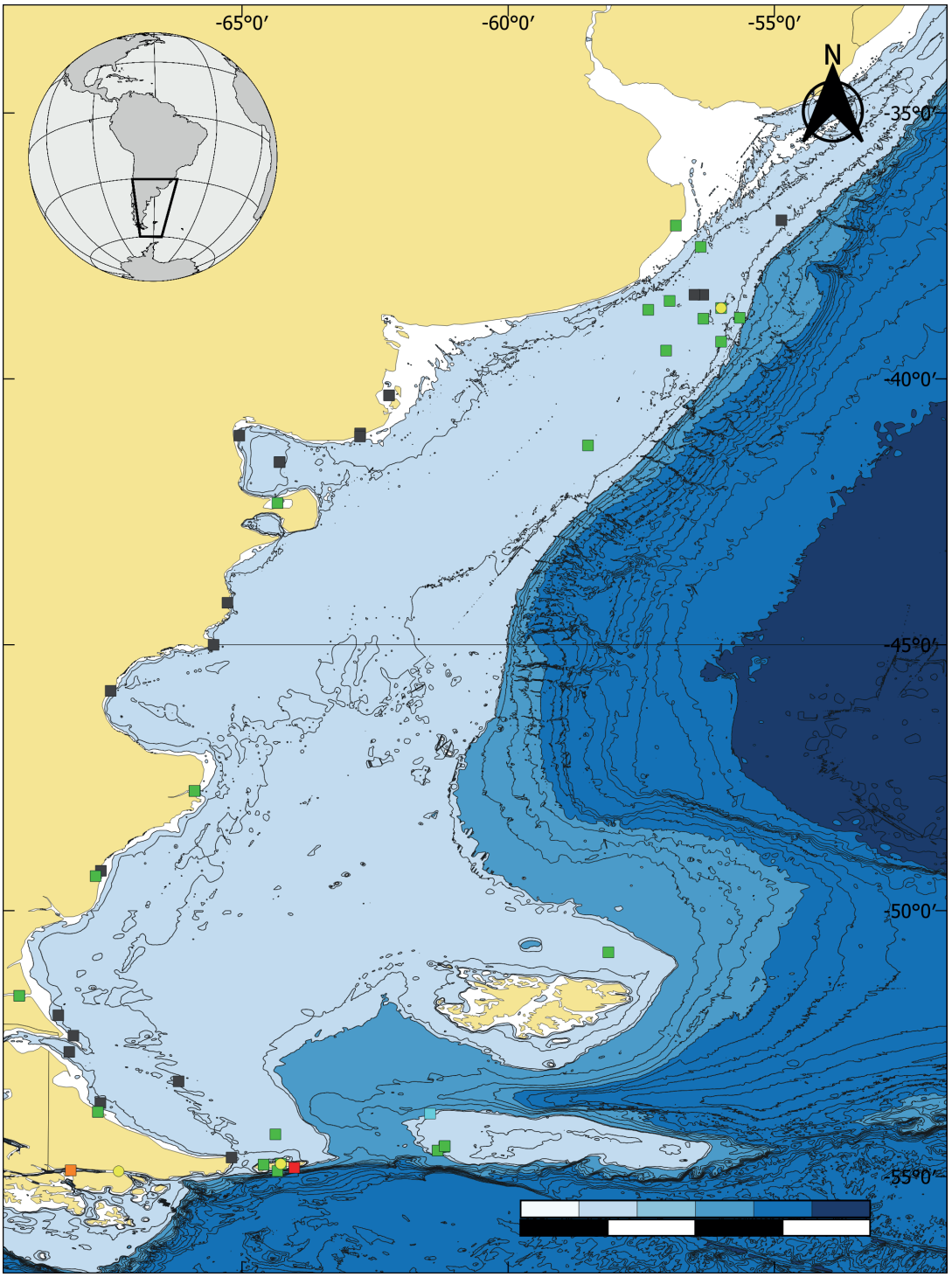

Fig. 3 Distribution of specimens from the MACN-In collection of *Psolus antarcticus* (yellow circle), *Pentactella leonina (green square), Trachythyone lechleri* (orange square), *Trachythyone peruana* (red square), *Pseudotrasfer microincubator* (light blue square) and *Hemioedema spectabilis* (black square). Scale bar (black and white) represents 400 km. Bathymetry scale bar (each set of values be associated with a shade of blue) represents <50 m, 50–300 m, 300–500 m, 500–1500 m, 1500–6000 m, >6000 m.

Uruguay (35°42'S; 54°40'W), which extends the distribution up to 35°S.

Trachythyone peruana (Semper, 1868)
(Fig. 3)

Catalog numbers: MACN-In 22723.
Distribution: From Mar del Plata (38°S) to Tierra del Fuego (54°S) (Hernández, 1982)
Depth: 90–154m (Hernández, 1982 and herein).

Family Psolidae Burmeister, 1837
Psolidium disciformis (Théel, 1886)
(Fig. 1B, 2)

Catalog numbers: MACN-In 22201-1.
Distribution: Tierra del Fuego and near waters (Lambert, 2009; O'Loughlin & Ahern, 2008).
Depth: 10–448m (O'Loughlin & Ahern, 2008).

Psolidium dorsipes Ludwig, 1886
(Fig. 2)

Catalog numbers: MACN-In 23856, 24004, 25042.
Distribution: Tierra del Fuego, in the Atlantic up to Santa Cruz (50°S) (O'Loughlin & Ahern, 2008).
Depth: 10–438m (O'Loughlin & Ahern, 2008).

Psolus antarcticus (Philippi, 1857)
(Fig. 3)

Catalog numbers: MACN-In 22201-3, 22538, 24004-1, 27009, 8604-1.
Distribution: Close to Mar del Plata (38°S) to Tierra del Fuego (54°S) and near waters, including Staten and Malvinas Island. According to Pawson (1969), a circumpolar species and presumably also in Antarctic waters, no records of Antarctic distribution at the MACN (Pawson, 1969 and herein).
Depth: 35–1080m (Pawson 1969).
Remarks: Oral valves are larger than dorsal scales, without oral teeth. This species was mistaken as a brooder after a misidentification of specimens which belong to *Psolus patagonicus* (Martinez, 2016).

Psolus patagonicus Ekman, 1925
(Fig. 4)

Catalog numbers: MACN-In 12661, 16264, 23362, 24083, 34776, 34777, 37574, 38999, 39000.
Distribution: Southwestern Atlantic Ocean, from Mar del Plata (38°S) to Tierra del Fuego (54°S) and Cape Horn. In the Pacific Ocean, known from the vicinity of Magellan Strait (48°S) (Hernández, 1981; Martinez, 2016).
Depth: Intertidal to 308m (Hernández, 1981; Martinez, 2016).
Remarks: *P. patagonicus* has five oral valves with five oral teeth between valves, and dorsal scales with a similar size than oral valves. This species broods under the sole, from March to September, specimens from February have oocytes of almost 1 mm (Giménez & Penchaszadeh, 2010; Martinez *et al.*, 2011).

Psolus segregatus Perrier, 1905
(Fig. 1G, 4)

Catalog numbers: MACN-In 15683, 22201, 22538-1, 39005.
Distribution: Southern South America, from 41°S in the Pacific to 40°S in the Atlantic, including Tierra del Fuego and near waters (Pawson, 1969 and herein).
Depth: 7–207m (Pawson, 1969).
Remarks: Oral valves and teeth are similar in size, or without a clear difference in size, sometimes it is hard to distinguish. With similar ossicles, the shape of the valves is quite diagnostic for all the three species of *Psolus*.

Family Sclerodactylidae Panning, 1949
Havelockia pegi Martinez, Thandar & Penchaszadeh, 2013
(Fig. 1F, 2)

Catalog numbers: MACN-In 39019, 39020, 39021.
Distribution: Coast of Argentina (38°S to 42°S) (Martinez *et al.*, 2013).
Depth: 10–48m (Martinez *et al.*, 2013).
Remarks: No new reports on the species after the first description.

Thandarum hernandezi Martinez & Brogger, 2012
(Fig. 1C, 2)

Catalog numbers: MACN-In 39003, 39256, 39257.
Distribution: Coast of Buenos Aires (36°S) (Martinez & Brogger, 2012).
Depth: 15–17m (Martinez & Brogger, 2012).
Remarks: Endemic species, only found on shallow waters and sandy bottoms from the northern region of Argentine coast. After the original description of the genus *Thandarum*, Martins & Souto (2015) designated a neotype for the spe-

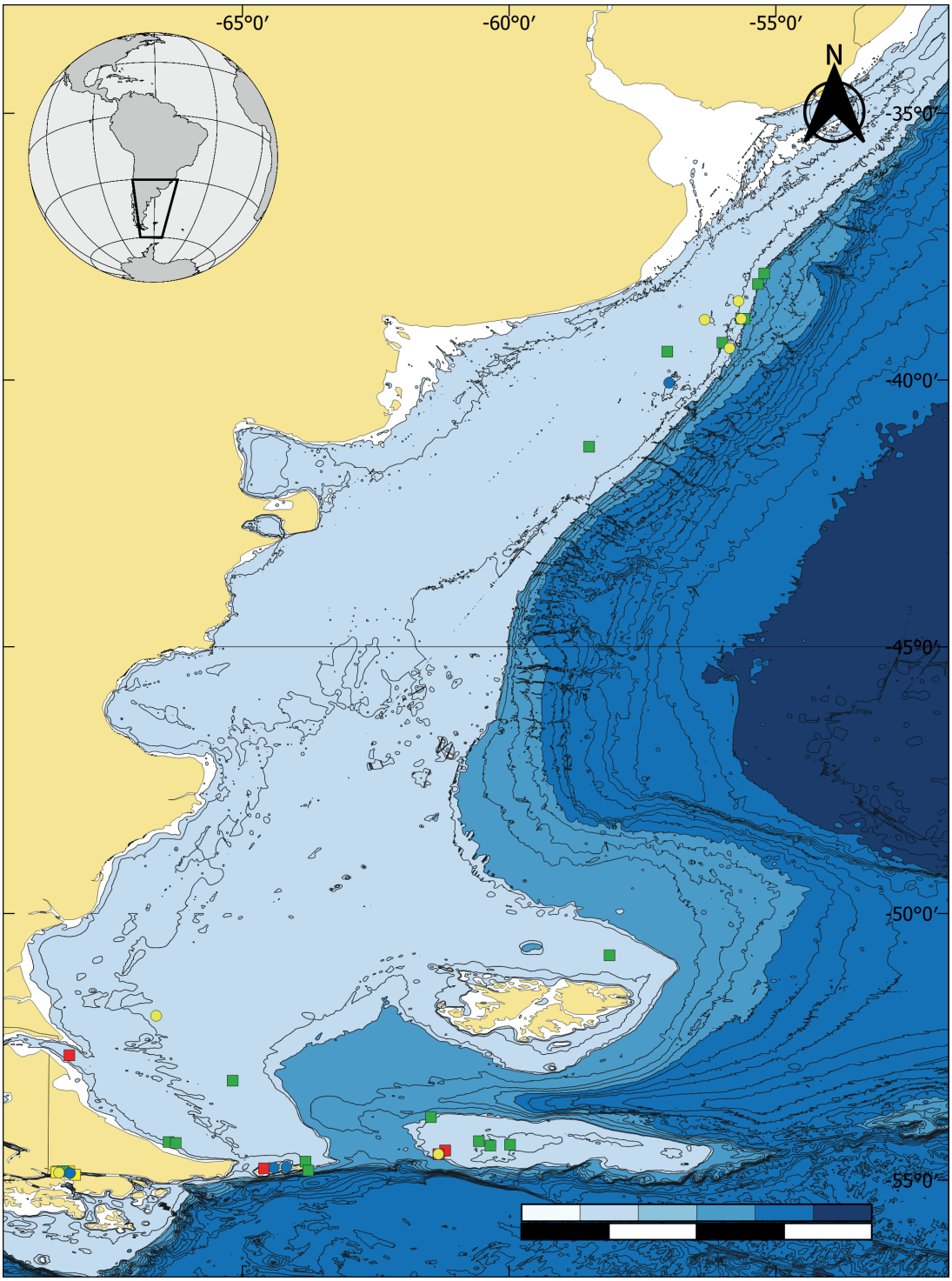

Fig. 4 Distribution of specimens from the MACN-In collection of *Psolus patagonicus* (circle yellow), *Pentactella perrieri* (square green), *Psolus segregatus* (circle blue), *Neopsolidium convergens* (square yellow) *and Trachythyone parva* (square red). Scale bar (black and white) represents 400 km. Bathymetry scale bar (each set of values be associated with a shade of blue) represents <50 m, 50–300 m, 300–500 m, 500–1500 m, 1500–6000 m, >6000 m.

Key modified from Pawson (1969):

(1). Presence of dorsal scales ..... (2)
(1'). Endoskeleton without dorsal scales, vermiform or slightly flattened body ..... (3)

(2). Presence of dorsal and ventral podia ..... (4)
(2'). Podia only in the ventral region ..... (5)

(3). Presence of podia on the body, ten tentacles, and presence of respiratory trees ..... (6)
(3'). Twelve tentacles, no podia on the body and absence of respiratory trees ..... (7)

(4). Ossicles, thick plates with perforations, small or absent ..... *Psolidium disciformis*
(4'). Ossicles, thin plates and baskets with perforations, warts mainly around the perimeter ..... *Psolidium dorsipes*

(5). Presence of oral teeth, oral valves smaller or similar in size to the dorsal scales ..... (8)
(5'). Five oral valves, larger than the dorsal scales ..... *Psolus antarcticus*

(6). Dorsally devoid of tube feet, except for a single small tube foot close to tentacles and next to anus ..... *Pseudotrasfer microincubator*
(6'). Podia all over the body, restricted or not to radii ..... (9)

(7). Ossicles, star-shaped bodies ..... *Chiridota marenzelleri*
(7'). Ossicles, six-rayed wheels, without star-shaped bodies ..... *Chiridota pisanii*

(8). Oral valves bigger than teeth and with different shape ..... *Psolus patagonicus*
(8'). Oral valves and teeth similar in shape and size ..... *Psolus segregatus*

(9). Ossicles, plates in lesser proportion, bars and/or tables in greater proportion ..... (10)
(9'). Body tegument with plate-type ossicles, bars in lesser proportion, greater proportion in ambulacral feet and tentacles ..... (11)
(10). Calcareous ring with posterior extensions, ossicles, tables present ..... (12)
(10'). Simple calcareous ring, without posterior extensions ..... (13)

(11). Plates with warts ..... (14)
(11'). Smooth plates and presence of baskets ..... (15)

(12). Ossicles along the tegument, four-pillar tables ..... *Thandarum hernandezi*
(12'). Ossicles, two-pillar tables, present in the tegument near the anus, in podia, four-locular tables with two pillars ..... *Havelockia pegi*

(13). Presence of undefined feet in ambulacral rows, ossicles, bars with glasses-like morphology ..... *Hemioedema spectabilis*
(13'). Ambulacral feet arranged in ambulacral rows, ossicles, bars with multiple openings ..... *Cladodactyla crocea*

(14). Plates with warts, buttons and pineapple morphology ..... *Pentactella leonina*
(14'). Plates with warts, pineapple morphology without buttons ..... (16)

(15). Ossicles, baskets restricted to dorsal side ..... *Neopsolidium convergens*
(15'). Ossicles, baskets in dorsal and ventral side ..... (17)

(16). Pineapple morphology with crown shape end ..... *Pentactella perrieri*
(16'). Pineapple morphology with two horns at the end ..... *Pentactella cornuta*

(17). Ossicles, from bodywall, round plates without or few small perforations *Trachythyone lechleri*
(17'). Ossicles, from bodywall, triangular or oblong plates ..... (18)

(18). Ossicles, baskets reduced to crosses ..... *Trachythyone peruana*
(18'). Ossicles, delicate baskets with small protrusions ..... *Trachythyone parva*

cies *Cucumaria manoelina* Tommasi 1971, and established that the species belongs to the genus *Thandarum*, that now has two species, *T. hernandezi* and *T. manoelina*. No new reports on the species after the first description.

DISCUSSION

From the 26 species found in Argentina, the MACN-In has a total of 19, those not shown in the museum are for Dendrochirotida, *Heterocucumis godeffroyi* (Semper, 1867), *Heterocucumis steineni* (Ludwig, 1898), *Pentamera chiloensis* (Ludwig, 1886). For Apodida, *Taeniogyrus purpureus* (Lesson, 1830), *Sigmodota contorta* (Ludwig, 1875) and *Anapta fallax* Lampert, 1889, and for Molpadiida, *Paracaudina chilensis* (Müller, 1850). The absence of those species perhaps includes different problems, in particular for the apodids, some reports indicate intertidal or shallow waters sampling and a restricted distribution (see Pawson, 1969). For dendrochirotids, *Pentamera chiloensis* and *Heterocucumis* species, their large distribution (see O'Loughlin, 2002; Pawson, 1969; Solís-Marín *et al.* 2012) may be analysed to distinguish properly if it is also present in Argentina. For *P. chiloensis* the similarities with the sclerodactylids *Thandarum hernandezi* and *Havelockia pegi* and the calcareous ring and ossicles, could lead in the past to misidentifications. The same case could be for the *Heterocucumis* species, although in this case with *Pentactella* species (*i. e.*: *Pentactella cornuta*, *Pentactella leonina* and *Pentactella perrieri*), which are quite extended in Argentina, and have similar ossicles. Finally for *Paracaudina chilensis*, the absence in past records (see Hernández, 1981; 1985) and the presence in recent observations (Brogger *et al.*, 2013), could indicate a recent settlement of the species.

This study significantly advances our understanding of Argentina's biological diversity, especially within the holothuroidea fauna. Future research will aim to expand the national collections, such as those at the Museo Argentino de Ciencias Naturales "Bernardino Rivadavia" (MACN), with the ultimate goal of cataloguing specimens from all holothuroidea species present in the country. Additionally, efforts will focus on augmenting the quantity of specimens for already-represented species in the MACN, furthering the legacy established by Bernasconi. These initiatives not only support species conservation but also provide a critical foundation for taxonomic, ecological, and biogeographic studies essential to understanding ecosystem health and resilience in Argentina's marine environments.

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Table 1. Specimens analysed from the MACN-In, for those without coordinates, we indicate the textual geographical reference according to the museum's notes

Species	Author	Cat N° MACN-In	Lat	Long	Loc	Depth	Date DD/MM/YYYY	Specimens
Chiridota marenzelleri	Perrier, 1904	16207	-37,58333	-56,41667		67		20
		16734	-37,63334	-56,33333		50	08/10/1926	1
		18412	-41.0667	-65.0500		-		13
		23715	-41.56485	-64.2943389		-	1/3/1939	25
		24238	-37,68556	-56,25028		45	30/07/1939	5
Chiridota pisanii	Ludwig, 1886	9195	-47.747571	-65.89182		-		2
		10076	-54.814484	-68.316254		-	2/4/1905	8
		25087	-54,43333	-64,88333		7	11/03/1941	10
		26141	-47.75055	-65.85583		-	23/02/1963	4
		26857	-47,75	-65,91666		-	1/2/1964	18
		35377			Canal Beagle, Ushuaia (Aeropuerto)	0	9/3/1963	4
Cladodactyla crocea	(Lesson, 1830)	8610	-37.99721	-57.57658		-		12
		16185	-37,51667	-56,38334		55		36
		18299	-40.5000	-57.5000		95		1
		20914-2	-39,3	-56		117	1/11/1932	13
		21736	-39,83333	-57,3		84	02/02/1934	4
		23326	-38,53333	-56,96667		87	1/9/1938	28
		23757-1	-44.209691	-65.272541		42	31/03/1939	1
		25086-1	-54.642134	-65.195387		-	25/01/1941	1
		25124-1	-39.4667	-57.0333		91	05/06/1941	6
		26877	-39.5167	-55.5667		1000	1/6/1963	22
		39006	-38.85	-55.65		115	11/09/2009	2
		40794	-38.6667	-56.0000	ARA *"Patria"* Estación 54	91	1/2/1914	2
		41351-4	-54,4411	-61,19984		101	10/12/2009	4
		41447	-54,9	-68,13333		Intertidal	12/3/2012	1
		41448	-54,86666	-68,21667		25	14/3/2012	4
		41449	-54,48333	-64,95		111	15/3/2011	1
		41450	-54	-65,18333		138	15/3/2011	3
		41451	-51,53333	-65,18333		138	16/3/2011	3
		41452	-53,13334	-65,18333		138	16/3/2011	14
		41453	-47,8	-65,58334		46	17/3/2011	1
		41454	-39,88334	-56,65		96	27/3/2011	1
		41455	-54,4	-58,48333		135	29/3/2016	2
		41456	-54,43333	-58,5		138	29/3/2016	34
		41457	-54,3	-65,83334		72	2/4/2014	2
		41458	-53,56667	-66,53333		84	2/4/2014	18
		41459	-54,98333	-65,31667		128	3/4/2014	4
		41460	-54,63334	-61,06667		195	15/4/2016	75
		41461	-54,05	-61,1		140	8/5/2017	1
		41462	-53,81667	-61,31667		197	8/5/2017	15
		41463	-39,95	-55,18333		291	10/8/2012	30
		41464	-38	-55,21667		250	10/8/2012	102
		41465	-37,98333	-55,15		528	10/8/2012	3
		41466	-37,96667	-54,95		647	10/8/2012	12
		41467	-37,86666	-53,95		1738	15/8/2012	1
		41468	-37,93333	-55,2		319	17/8/2012	25
		41469	-37,98333	-55,2		308	17/8/2012	436
		41470	-38,85	-55,65		115	11/9/2009	150
		41471	-38,85	-55,58333		140	11/9/2009	100
		41472	-39,08333	-58,03333		74	12/9/2009	1
		41473	-43,86666	-64,23333		74	25/10/2016	5
Hemioedema spectabilis	(Ludwig, 1883)	6528	-41.56485	-64.2943389		-		1
		9234-1	-49,25	-67,65		-	05/12/1917	2
		12657-1	-53.78333	-67.70594		-	4/4/1905	1
		14926	-47.747571	-65.89182		-		7
		14927	-47.747571	-65.89182		-		1
		14928	-47.747571	-65.89182		-		1
		14929	-47.747571	-65.89182		6		1
		16121	-38,41667	-56,33333		77		1
		16779	-38.4167	-56.5000		-		8
		18414	-41.0667	-65.0500		-		1
		20204-1	-40.308276	-62.237683		-		1
		20304	-40.308276	-62.237683		-	02/04/1932	8
		20552	-41.024722	-62.780078		-	06/08/1932	5
		20632	-41.0833	-62.7833		13	1/8/1932	218
		21331	-41.56485	-64.2943389		-	1/4/1935	30
		22794	-51,96667	-68,45		45	16/01/1935	12
		23757	-44.209691	-65.272541		42	31/03/1939	1
		24091	-45.0000	-65.5333		77	02/05/1939	1
		24160	-37,01667	-54,86666		91	21/01/1939	1
		24585	-52,35	-68,16666		33	1/12/1940	40
		25086	-54.642134	-65.195387		-	25/01/1941	2

Species	Author	Cat N° MACN-In	Lat	Long	Loc	Depth	Date DD/MM/YYYY	Specimens
		25096	-54.776589	-64.594508		-	24/01/1941	2
		25211	-41.56485	-64.2943389		-	24/4/1905	9
		34813	-45,86666	-67,46667		-	1/10/2000	1
		37359			Ría Deseado, Santa Cruz	-	12/3/2005	2
		5142	-51,6	-69,18333		-		6
		40785	-41.56485	-64.2943389		-	1941	19
		41343	-53,20992	-66,18992		105	9/12/2009	1
		41344	-52,65629	-68,24425		78	8/12/2009	2
		42361	-53,61696	-67,65972		49	8/12/2009	10
		42364	-53°24,8558'	-67,68307		59	8/12/2009	32
		42365	-54,51016	-61,32462		132	11/12/2009	1
Neopsolidium convergens	(Hérouard, 1901)	44605	-54,83333	-68,25		3	19/2/2014	4
		44606	-54,89944	-68,13612		0	12/3/2012	5
		44607	-54,83333	-68,35		0	28/12/2014	3
		44608	-54,83333	-68,46667		2	15/3/2010	2
		44609	-54,84972	-68,49194		2	14/3/2010	2
Pentactella leonina	(Semper, 1867)	5142-1	-51,6	-69,18333		-		1
		12657	-53.78333	-67.70594		-	4/4/1905	2
		14930	-47.747571	-65.89182		-		3
		15603	-37,11666	-56,85		17		1
		15655-1	-41.2500	-58.5000		91		1
		16185-1	-37,51667	-56,38334		55	10/1925	1
		16265	-38.8667	-56.3333		90		2
		20914-1	-39,3	-56		117	1/11/1932	8
		22200	-54.76268	-64.271468		79	1/12/1933	2
		22552	-54.76268	-64.271468		28	1/12/1934	2
		23326-1	-38,53333	-56,96667		87	1/9/1938	2
		24216	-38.700278	-57.367778		84	26/07/1939	1
		24493	-42.335057	-64.332844		-	1/6/1940	2
		25097-1	-54.776589	-64.594508		-	24/01/1941	1
		25124	-39.4667	-57.0333		91	05/06/1941	11
		26206	-47.747571	-65.89182			/02/1961	31
		26975	-47,75	-65,88333		-	23/02/1965	2
		27107	-47.747571	-65.89182		-	08/02/1968	23
		27108	-47.747571	-65.89182		-	23/02/1968	4
		31235			Kidneys, Malvinas		22/11/1973	1
		35335-2	-50.7833	-58.1167		-	08/02/1976	6
		35609			Punta Cascajo, Ría Deseado, Santa Cruz		24/3/2003	1
		39001	-38.85	-55.65		115	11/09/2009	8
		39002	-49.35	-67.75		-	11/09/2009	8
		40789			Camarones, Chubut		1/2/2016	2
		40790			Comodoro Rivadavia, Chubut		1916	3
		40793	-38.6667	-56.0000		91	2/1914	1
		41350	-54,89649	-64,33292		149	12/12/2009	1
		41351	-54,4411	-61,19984		101	10/12/2009	8
		42355	-54,42686	-61,19229		99	10/12/2009	15
		42344	-54,51016	-61,32462		132	11/12/2009	10
		42346	-54,20655	-64,37201		125	10/12/2009	1
		42355	-54,42686	-61,19229		99	10/12/2009	15
Pentactella perrieri	(Ekman, 1927)	8145	-38.2000	-55.3333		-		1
		15655	-41.2500	-58.5000		91		3
		20914	-39,3	-56		117	1/11/1932	4
		25124-2	-39.4667	-57.0333		91	05/06/1941	2
		35335-1	-50.7833	-58.1167		-	08/02/1976	3
		39007	-38.85	-55.65		115	11/09/2009	2
		41351-1	-54,4411	-61,19984		101	10/12/2009	6
		42345	-54,51016	-61,32462		132	11/12/2009	2
		43348	-54,83333	-68,36667		3	24/2/2014	1
		43349	-53,13334	-65,18333		138	16/3/2011	2
		43350	-54,26667	-60,56667		113	21/3/2013	5
		43351	-54,28333	-66,38333		45	31/3/2014	1
		43352	-54,3	-66,25		51	31/3/2014	1
		43353	-54,35	-60,35		104	9/5/2017	3
		43354	-54,33333	-59,98333		96	15/5/2017	3
		43355	-54,65	-63,81667		143	16/5/2017	1
		43356	-54,81667	-63,76667		278	17/5/2017	2
		43357	-53,81667	-61,46667		209	18/5/2017	2
		43358	-38	-55,21667		250	10/8/2012	4
		43359	-38,85	-55,58333		145	11/9/2009	4
Pentactella cornuta	Cherbonnier, 1941	41351-2	-54,4411	-61,19984		101	10/12/2009	3
Pseudotrasfer microincubator	Bohn 2007	44610	-53,81667	-61,46667		209	8/5/2017	1
Trachythyone lechleri	(Lampert, 1885)	44611	-54,88334	-68,21667		10	28/12/2010	1
Trachythyone parva	(Ludwig, 1875)	25097	-54.776589	-64.594508		-	24/01/1941	2

Species	Author	Cat N° MACN-In	Lat	Long	Loc	Depth	Date DD/MM/YYYY	Specimens
		41344-1	-52,65629	-68,24425		78	8/12/2009	1
		41351-3	-54,4411	-61,19984		101	10/12/2009	2
		42353	-54,51016	-61,32462		132	11/12/2009	3
Trachythyone peruana	(Semper, 1868)	22723	-54.8333	-64.0167		154	04/05/1935	5
Psolidium disciformis	(Theel, 1886)	22201-1	-54.751923	-64.175071		77	1/12/1933	3
Psolidium dorsipes	Ludwig, 1886	23856	-51.7667	-68.7500		22	16/04/1939	3
		24004	-54,9	-67,31667		25	21/04/1939	1
		25042	-54,18834	-64,35		109	13/03/1941	4
Psolus antarcticus	(Philippi, 1857)	8604-1	-38.6667	-56.0000		91	1/3/1914	5
		22201-3	-54.76268	-64.271468		79	1/12/1933	5
		22538			Puerto Hoppner, Isla de los Estados	-		2
		24004-1	-54,9	-67,31667		25	21/04/1939	1
		27009	-38.6667	-56.0000		91	1/2/1914	5
Psolus patagonicus	Ekman, 1925	12661			Playa río Fuego, Tierra del Fuego	-	4/4/1905	10
		16264	-38.8667	-56.3333		90		6
		23362	-38.5167	-55.7000		109	1/9/1938	2
		24083	-51,91667	-66,61667		-	02/05/1939	3
		34776	-54.857158	-68.439009		-		4
		34777			off Buenos Aires	107		2
		37574	-39,4	-55,86666		100	1/11/1999	11
		38999	-54.866	-68.233		10	11/09/2009	8
		39000	-38.85	-55.65		115	11/09/2009	8
		42354	-54,51016	-61,32462		132	11/12/2009	3
Psolus segregatus	Perrier, 1905	15683	-40.0500	-57.0000		91		1
		22201	-54.751923	-64.175071		79	1/12/1933	6
		22538-1	-54,76667	-64,40833		-		2
		39005	-54.866	-68.233		10	11/09/2009	2
Havelockia pegi	Martinez, Thandar & Penchaszadeh, 2013	39019	-42.4	-64.166		10	23/04/2001	1
		39020	-42.4	-64.166		10	23/04/2001	1
		39021	-38.25	-57.25		48	09/09/2009	2
Thandarum hernandezi	Martinez & Brogger, 2012	39003	-36.166	-55.9		15	11/09/2009	8
		39256	-36.145766	-55.865616		17	15/09/2009	1
		39257	-36.145766	-55.865616		17	15/09/2009	6

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