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A new gastrotrich, *Musellifer leasiae* sp. nov. (Paucitubulatina: Muselliferidae), from Antarctica—the first Muselliferidae species description from the Southern Hemisphere

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Abstract

A new gastrotrich species, *Musellifer leasiae* **sp. nov.**, is described from the west coast of the Antarctic Peninsula. The species is recognised by its considerable size, up to 415 µm, and by its conspicuous three-lobed, keeled head scales. Besides the new species, the genus *Musellifer* accommodates five additional species known from the Mediterranean Sea, the Black Sea, the Central-West Atlantic, the Northeast Atlantic, and the Northeast Pacific, and from depths ranging from sublittoral to 5.485 m depth. A representative of *Musellifer* has previously been reported from Antarctica, but *M. leasiae* **sp. nov.** represents the first formally described Muselliferidae species from the Southern Hemisphere, and from the polar regions.

Key words: Gastrotricha, meiofauna, meiobenthos, taxonomy

Introduction

The Southern Ocean, encircling Antarctica, is among the least explored seas in terms of meiobenthos taxonomy and biodiversity, especially compared to our knowledge about macrofauna organisms (Brandt *et al.* 2014). In particular the taxonomy of species belonging to the 'minor groups', i.e., meiobenthos exclusive of nematodes and crustaceans, has barely been addressed in the Southern Ocean, and available information is restricted to very few papers. For instance, our knowledge about the marine tardigrade fauna of Antarctica and the Subantarctic islands is limited to only eight papers. The most recent contribution summarises our available biodiversity information on Antarctic marine tardigrades, and reports the existence of 20 species, distributed among ten genera (Trokhymchuk *et al.* 2024 and studies cited therein). Likewise, information on Antarctic Gnathostomulida is restricted to a single contribution (Sterrer *et al.* 2022), reporting *Haplognathia* cf. *ruberrima* (Sterrer, 1966) and an unidentified species of the family Austrognathiidae Sterrer, 1972. As for scalidophorans, Loricifera and meiobenthic species of Priapulida have never been observed from Antarctica, and so far only five kinorhynch species have been reported (Zelinka 1913, Sørensen 2008, Yamasaki *et al.* 2022, Sánchez *et al.* 2024). However, the number of kinorhynchs is about to increase through an ongoing study that is expected to be published during 2025 (Sørensen *et al.* in press).

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Also, the Antarctic marine Gastrotricha is poorly known. Besides a few records of unidentified species (Gutzmann *et al.* 2004; Kieneke & Schmidt-Rhaesa 2015), only a single identified gastrotrich, *Thaumastoderma antarctica* Kieneke, 2010, has been reported from the Southern Ocean (Kieneke 2010). In the present contribution we describe the second Antarctic marine gastrotrich, *Musellifer leasiae* **sp. nov.** The genus *Musellifer* Hummon, 1969 accommodates until now only five described species. Two species, *M. delamarei* (Renaud-Mornant, 1968) and *M. profundus* Vivier, 1974 are described from the Mediterranean Sea, *M. tridentatus* Kånneby *et al.*, 2014 is Caribbean, *M. reichardti* Kånneby *et al.*, 2014 is from the Atlantic coast of Florida, and *M. sublitoralis* Hummon, 1969 is from the San Juan Archipelago in Washington State (Renaud-Mornant 1968, Hummon 1969, Vivier 1974, Leasi & Kånneby 2008, Kånneby *et al.* 2014). One additional, putatively new but yet undescribed species of *Musellifer* has recently been reported from the Iberian Basin abyssal plain in the Northeast Atlantic (Trokhymchuk & Kieneke 2024).

Records of *Musellifer*, and its family Muselliferidae, from the Southern Hemisphere are extremely scarce, and limited to a single published photo of a specimen, tentatively identified as *Musellifer* cf. *profundus* (Figure 1.80 in Kieneke & Schmidt-Rhaesa 2015). Thus, *M. leasiae* **sp. nov.** is not only the first congener described from Antarctica, but also the first identified representative of the family and genus from the Southern Hemisphere.

Materials and methods

The study area is located along the west coast of the Antarctic Peninsula and includes one site at ~690 m depth in the Gerlache Strait (Gerl) between the Peninsula mainland and coastal islands (64°39′ S, 62°55′ W), one site (Station B) at ~590 m depth on the open shelf (64°48′ S, 65°21′ W), and three study sites at ~542 to 560 m depths (Inner Basin B, IBB—64°52′ S, 62°26′ W , Middle Basin A, MBA—64°52′ S, 62°34′ W, and Outer Basin A, OBA—64°47′ S, 62°44′ W) in Andvord Bay fjord on the Danco Coast (Fig. 1A–C). Gastrotrichs were only found in samples from the Gerlache Strait (Gerl), and Andvord Bay at the MBA and IBB sites (Table 1).

TABLE 1. Coordinates and basic data on sampling stations, type status and NHMD-catalogue numbers for *Musellifer leasiae* **sp. nov.** Study sites in Andvord Bay refer to MBA—Middle Basin A; IBB—Inner Basin B.

CRS St.	Depth (m)	Date	Area	Position	Mount	Type status and catalogue number
1716	551	Dec. 6, 2015	Andvord Bay, IBB	64°52.36′ S 62°25.49′ W	LM	2 paratypes (NHMD-1801025-1801026)
1773	553	Apr. 6, 2016	Andvord Bay, IBB	64°52.35′ S 62°25.88′ W	SEM	2 non-types
1776	551	Apr. 7, 2016	Andvord Bay, IBB	64°52.53′ S 62°33.90′ W	SEM	9 paratypes (NHMD-1801029-1801037)
1790	532	Apr. 10, 2016	Andvord Bay, MBA	64°51.49′ S 62°34.01′ W	LM	1 paratype (NHMD-1801027)
1793	701	Apr. 11, 2016	Gerlache Strait	64°39.53′ S 62°55.03′ W	LM	holotype (NHMD-1801023); 1 paratype (NHMD-1801024)
1809	694	Apr. 15, 2016	Gerlache Strait	64°39.59′ S 62°55.09′ W	LM	1 paratype (NHMD-1801028)

Sampling was conducted during two cruises of the FjordEco project (https://fjordeco.wordpress.com/), LMG15-10 (Nov–Dec 2015) and NBP16-03 (Mar–Apr 2016), which aimed to evaluate the drivers of productivity and biodiversity, and their sensitivity to climate warming, along a transect from inner Andvord Bay, through a fjord on the West Antarctic Peninsula, out onto the open continental shelf. See Lundesgaard *et al.* (2020) for a description of the oceanography setting of this study.

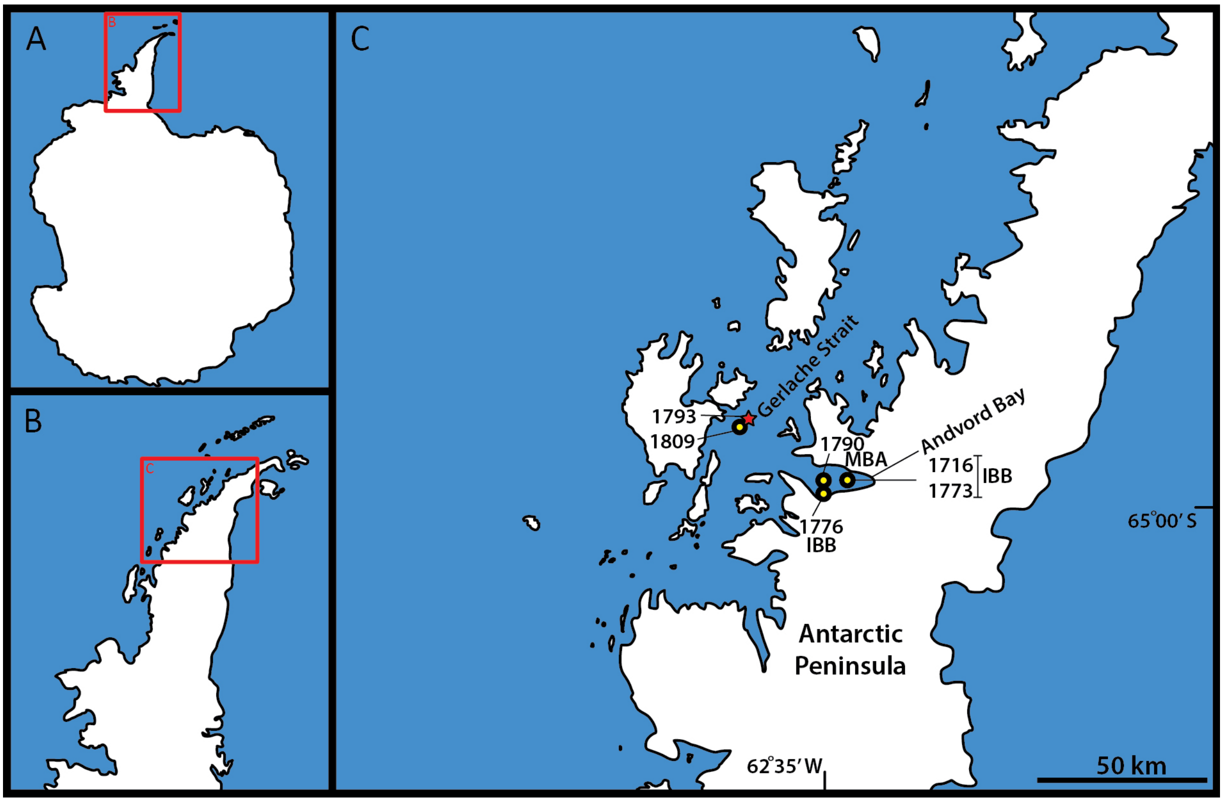

FIGURE 1. Map showing the sampling stations. **A.** Overview of Antarctica, with the Antarctic Peninsula framed. **B.** Antarctic Peninsula with sampling area framed. **C.** Sampling area with stations. Red star indicates the type locality; yellow dots indicate additional stations with *Musellifer leasiae* **sp. nov.**

A megacorer with tubes of 9.52 cm internal diameter was used to retrieve essentially undisturbed bottom sediment from a total of 30 locations,, inclusive three within ~1 km of IBB, seven within ~1 km MBA, one within ~1 km OBA, three within ~1 km of Gerl, and four within ~1 km of Station B. Sample depths ranged from 499 m to 708 m. Cores with the samples for ecological and taxonomic studies were split into three vertical layers, 0–1 cm, 1–3 cm, and 3–5 cm, and each layer was fixed separately in 10% buffered formalin. Six of the 30 stations yielded gastrotrichs of the genus *Musellifer* (Table 1).

The samples were washed through a 32-µm sieve, the meiofauna was extracted from the sieved sediment by LUDOX flotation (Somerfield & Warwick 1996), sorted to main groups, and stored in tubes with 96% ethanol. All tubes containing gastrotrichs were dispatched to the Natural History Museum of Denmark (NHMD) for preparation, examination, and identification or description.

The unmounted gastrotrichs were visually inspected under an Olympus SZX10 dissecting microscope, and split into a portion for light microscopy (LM), and one for scanning electron microscopy (SEM) examination. Specimens for LM were re-hydrated through a graded ethanol-water series, dehydrated through a graded water-glycerine series, left overnight in 100% glycerine, and finally mounted in Fluoromount G between two coverslips attached to an H-S plastic slide. The specimens were examined with an Olympus BX51 microscope with differential interference contrast, and photographed with an Olympus DP27 camera. Lengths and positions of organ systems are described in terms of percentage body units, where total body length from anterior (U00) to posterior (U100) is standardized as 100 units (Hummon *et al.* 1992). Specimens for SEM were transferred to 100% ethanol, and subsequently to 100% acetone through an ethanol-acetone series, critical point dried, mounted on aluminium stubs, sputter coated with gold, and examined with a Zeiss Sigma 360VP scanning electron microscope. Fifteen specimens were designated as types and deposited in the collections of NHMD (see Table 1 for catalogue numbers), whereas two were kept for the personal reference collection of the first author.

Taxonomy

Order Chaetonotida Remane, 1925

Suborder Paucitubulatina d'Hondt, 1971

Family Muselliferidae Leasi & Todaro, 2008

Genus *Musellifer* Hummon, 1969

Musellifer leasiae **sp. nov.**

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(Figs 2–5; Table 1)

Material. Holotype, adult, collected from mud on April 11, 2016, at CRS St. 1793 (Fig. 1 A–C), from 701 m depth in the Gerlache Strait, Antarctic Peninsula, Antarctica (position: 64°39.53′ S, 62°55.03′ W), mounted in Fluoromount G, deposited at the Natural History Museum of Denmark, under catalogue number NHMD-1801023. Paratypic material includes 1 adult, same data as holotype, deposited under catalogue number NHMD-1801024; 2 adults, collected from mud on December 6, 2015, at CRS St. 1716, from 551 m depth in IBB, Andvord Bay, Antarctic Peninsula, Antarctica (position: 64°52.36′ S, 62°25.49′ W), mounted in Fluoromount G, deposited under catalogue numbers NHMD-1801025 to 1801026; 1 adult, collected from mud on April 10, 2016, at CRS St. 1790, from 532 m depth in MBA, Andvord Bay, Antarctic Peninsula, Antarctica (position: 64° 51.49′ S, 62° 34.01′ W), mounted in Fluoromount G, deposited under catalogue number NHMD-1801027; 1 adult, collected from mud on April 15, 2016, at CRS St. 1809, from 694 m depth in the Gerlache Strait, Antarctic Peninsula, Antarctica (position: 64°39.59′ S, 62°55.09′ W), mounted in Fluoromount G, deposited under catalogue number NHMD-1801028; 9 adults, collected from mud on April 7, 2016, at CRS St. 1776, from 551 m depth in IBB, Andvord Bay, Antarctic Peninsula, Antarctica (position: 64°52.53′ S, 62°33.90′ W), mounted for SEM, deposited under catalogue numbers NHMD-1801029 to 1801037. Additional material includes 2 adults, collected from mud on April 6, 2016, at CRS St. 1773, from 553 m depth in IBB, Andvord Bay, Antarctic Peninsula, Antarctica (position: 64°52.35′ S, 62°25.88′ W), mounted for SEM, and stored in the first authors personal reference collection.

Diagnosis. *Musellifer* with total body length of 322 to 415 µm, and body divided into head (U0–U17), neck (U17–U20), trunk (U20–U70) regions, and terminal furca, gradually tapering into adhesive tubes (U70–U100). Head with well-defined muzzle. Scales differentiated into morphologically different head-, trunk- and furca scales. Head scales are three-lobed with a median keel, extending into a spiny distal process. Trunk scales arranged imbricate, with anterior ones forming weakly rhomboidal shield-shaped scales with pair of short spiny processes flanking a long, posteriorly directed spine; more posterior trunk scales are balloon shaped, with indistinct paired processes, but a well-developed posteriorly directed spine. Imbricate furcal scales narrow, cone-shaped to rectangular, with short, paired spiny processes flanking a median spine.

Etymology. The species is dedicated to Dr Francesca Leasi in recognition of her numerous contributions to gastrotrich taxonomy and morphology.

Description. Holotype 415 µm in total length; paratypes 322 µm to 400 µm in total length; average length of all types: 368 µm.

External morphology

Holotype: Body slender, divided into pointed head (U0–U17), weakly marked neck (U17–U20), nearly parallel-sided trunk (U20–U70), and gradually tapering furcal branches (U70–U100) (Figs 2A, B, 3A, 4A). Head with pronounced muzzle, with a cuticular mouth ring surrounding the terminal mouth (Fig. 4B, E). Behind the muzzle, the head gradually widens, reaching its maximum width, 53 µm, at U11. Cilia are distributed around the terminal part of the head, around the buccal cup, and extend ventrally, forming an elongate, ciliary field at the ventral surface to U14 (Figs 2B, 3B, C, 4B–D) and dorsally to U06. The neck region is indistinct, measuring 50 µm at its narrowest point (U19). The anterior part of the trunk is only slightly broader, 54 µm, and it widens gradually towards its widest point, 68 µm, at U49. Imbricate scales are arranged uniformly along the body axis (Fig. 3D), but are interrupted by two ventrolateral ciliated furrows (a paired column of locomotory cilia) that extend longitudinally from a position

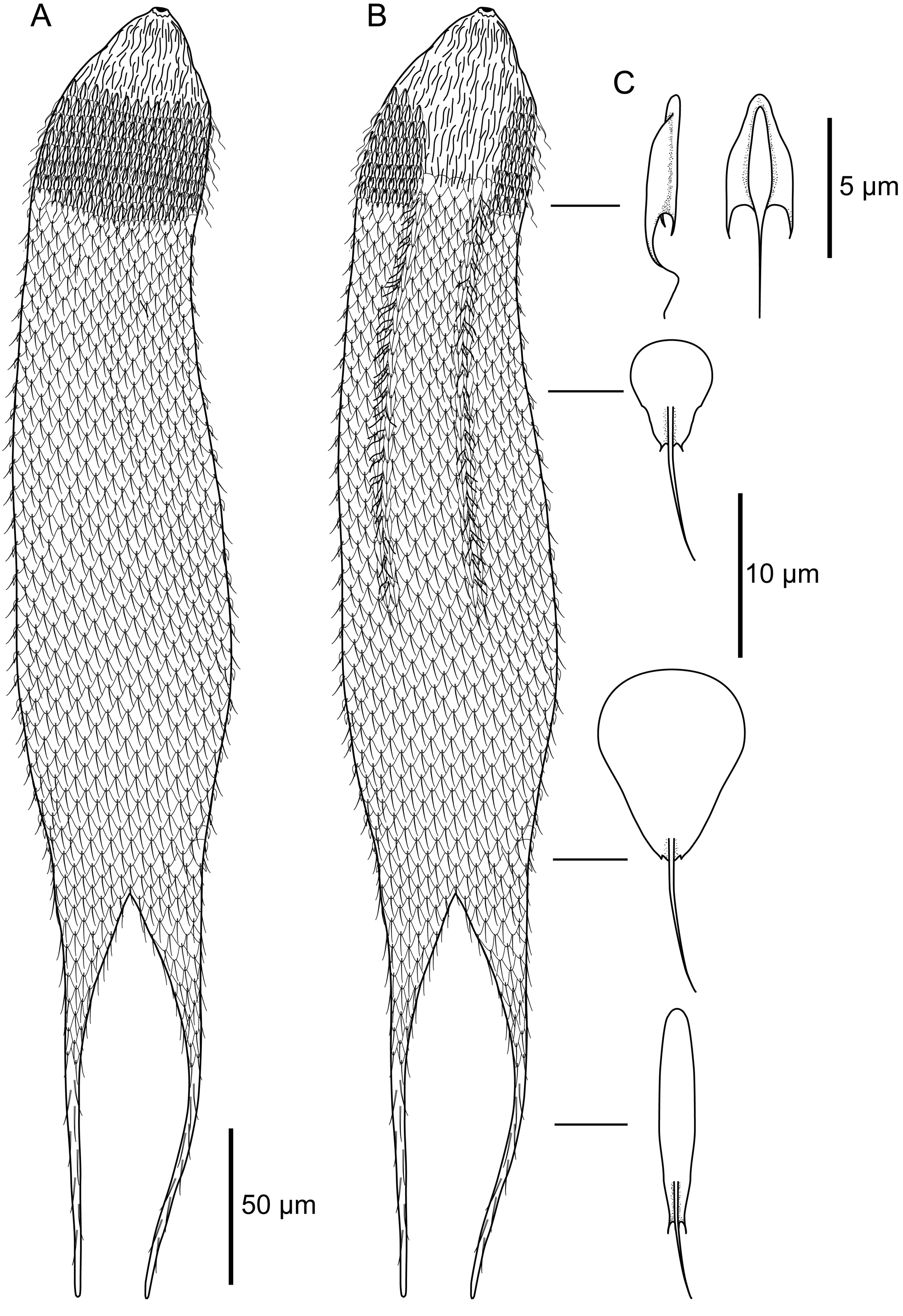

FIGURE 2. Line art illustration of *Musellifer leasiae* **sp. nov. A.** Dorsal view. **B.** Ventral view. **C.** Close-ups of head scales, anterior-, and posterior trunk scales, and terminal furca scales.

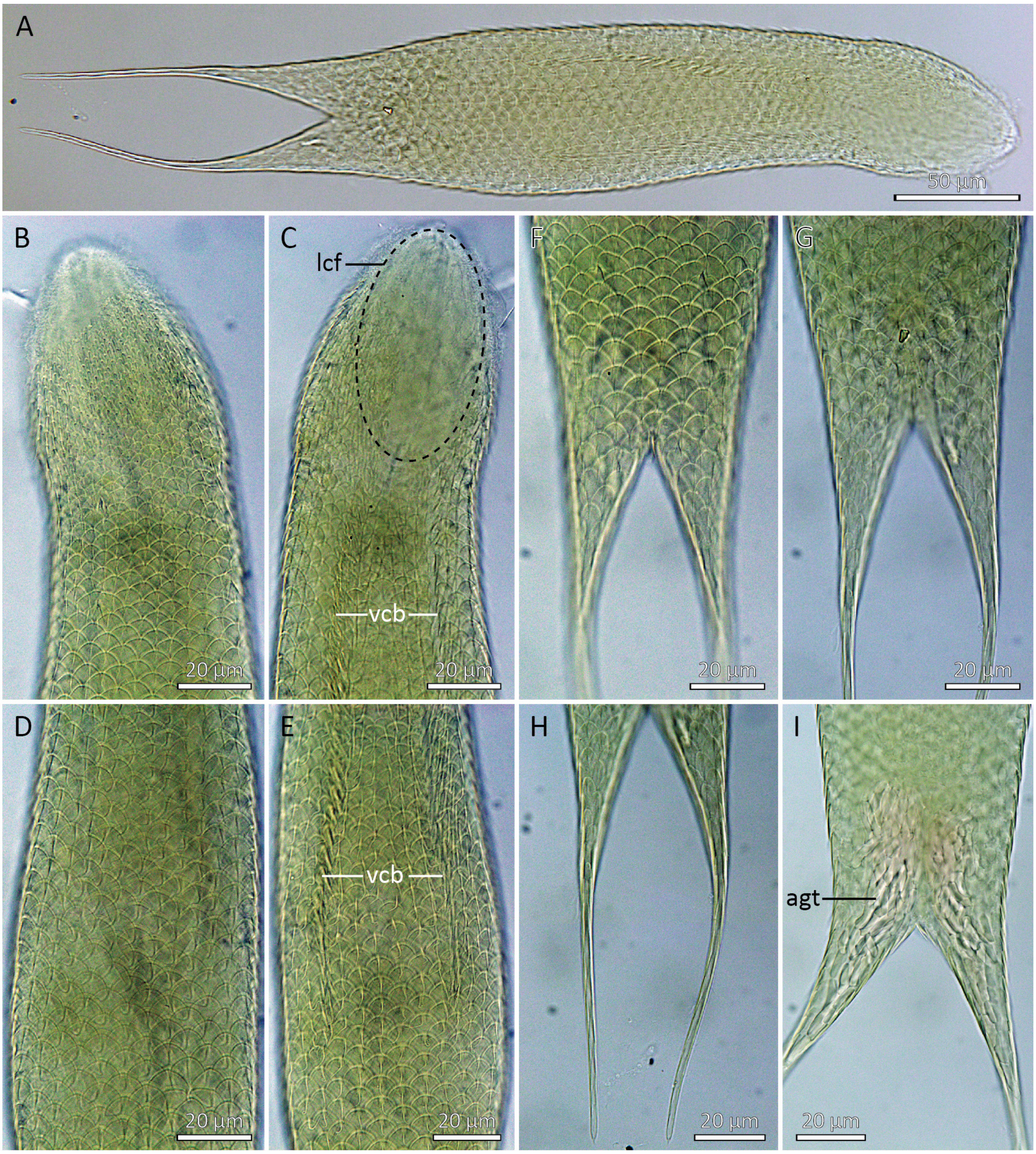

FIGURE 3. Light micrographs showing overviews and details of holotype NHMD-1801023 (**A-H**) and paratype NHMD-1801024 **(I)** of *Musellifer leasiae* **sp. nov. A.** Ventral overview. **B.** Body, anterior, U0-32, dorsal view. **C.** Body, anterior, U0-32, ventral view. **D.** Body, median, U26-55, dorsal view. **E.** Body, median, U28-60, dorsal view. **F.** Body, posterior, U54-84, dorsal view. **G.** Body, posterior, U54-86, ventral view. **H.** Caudal furca branches, U67-100, ventral view. **I.** Body, posterior, U54-82, focused on adhesive glandular tissue. Abbreviations: agt, adhesive glandular tissue; lcf, locomotory ciliary field; vcb, ventral ciliary bands.

near the posterior margin of the ventral ciliary field (U15) to a point about halfway down the trunk (U48) (Figs 2B, 3C, E, 5A, B). The furca (inclusive adhesive tubes) is 130 µm long, and each furcal branch is 23 µm broad at its proximal base. From this point (U70) they taper gradually until U84, where they have narrowed to 3 µm width, and articulate with adhesive tubes of the same width (Figs 2A, B, F–I). The adhesive tubes maintain their width of 3 µm to their distal tips. A clear distinction between furcal bases and adhesive tubes is not possible, since the entire tubes are also covered scales (Figs. 4A, 5J–L)

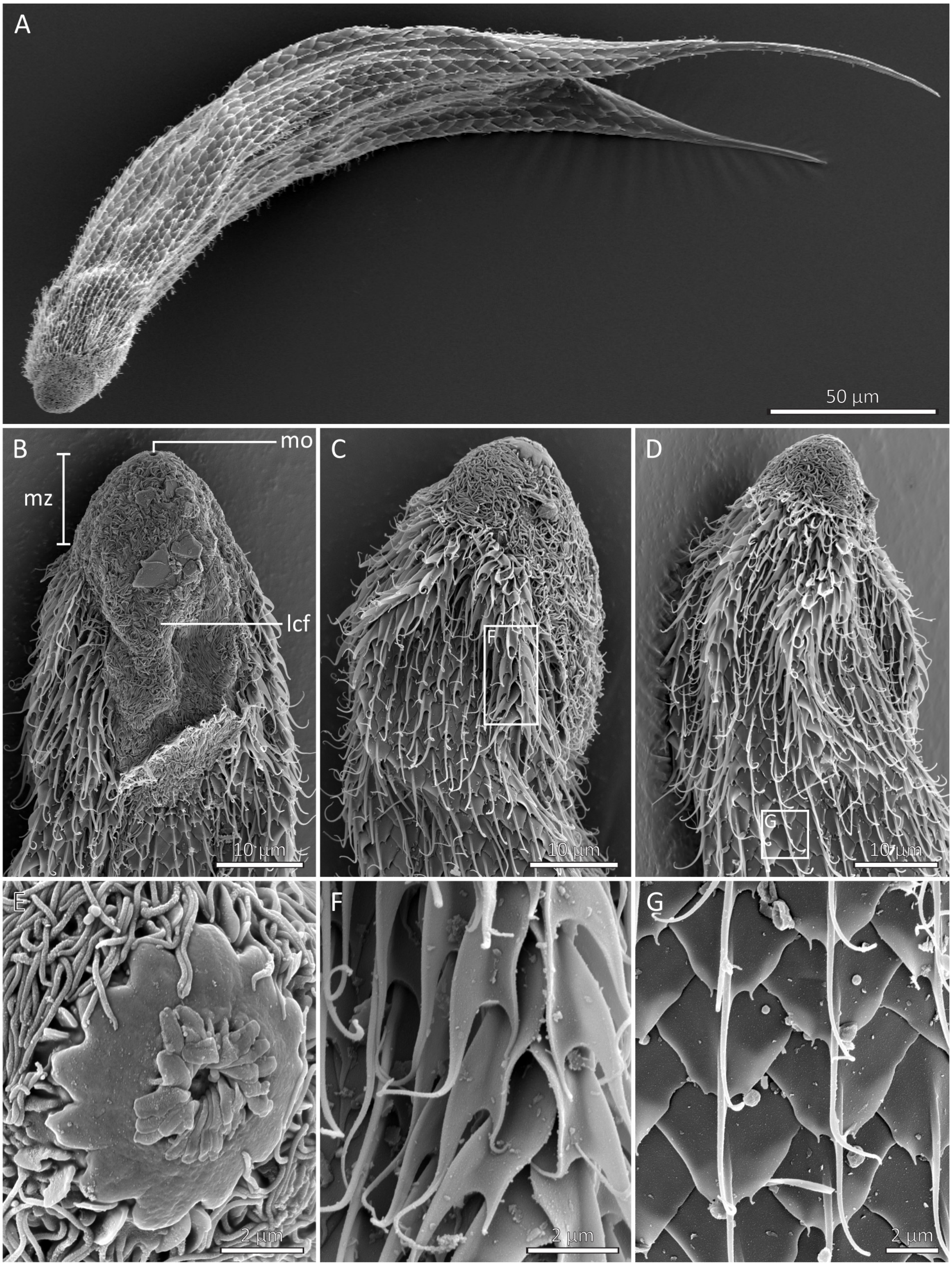

FIGURE 4. Scanning electron micrographs showing overviews and anterior details of paratypes NHMD-1801035 (**A**), NHMD-1801030 (**B**) and NHMD-1801029 (**C-G**) of *Musellifer leasiae* **sp. nov. A.** Left lateroventral overview. **B.** Head (U0-U15), ventral view. **C.** Head, U0-U15, right lateral view; framed area marks position of close-up in (**F**). **D.** Head, U0-U15, dorsal view; framed area marks position of close-up in (**G**). **E.** Close-up of mouth ring and mouth opening. **F.** Close-up of scales near U9, lateroventral view. **G.** Close-up of scales near U15, laterodorsal view. Abbreviations: lcf, locomotory ciliary field; mz, muzzle.

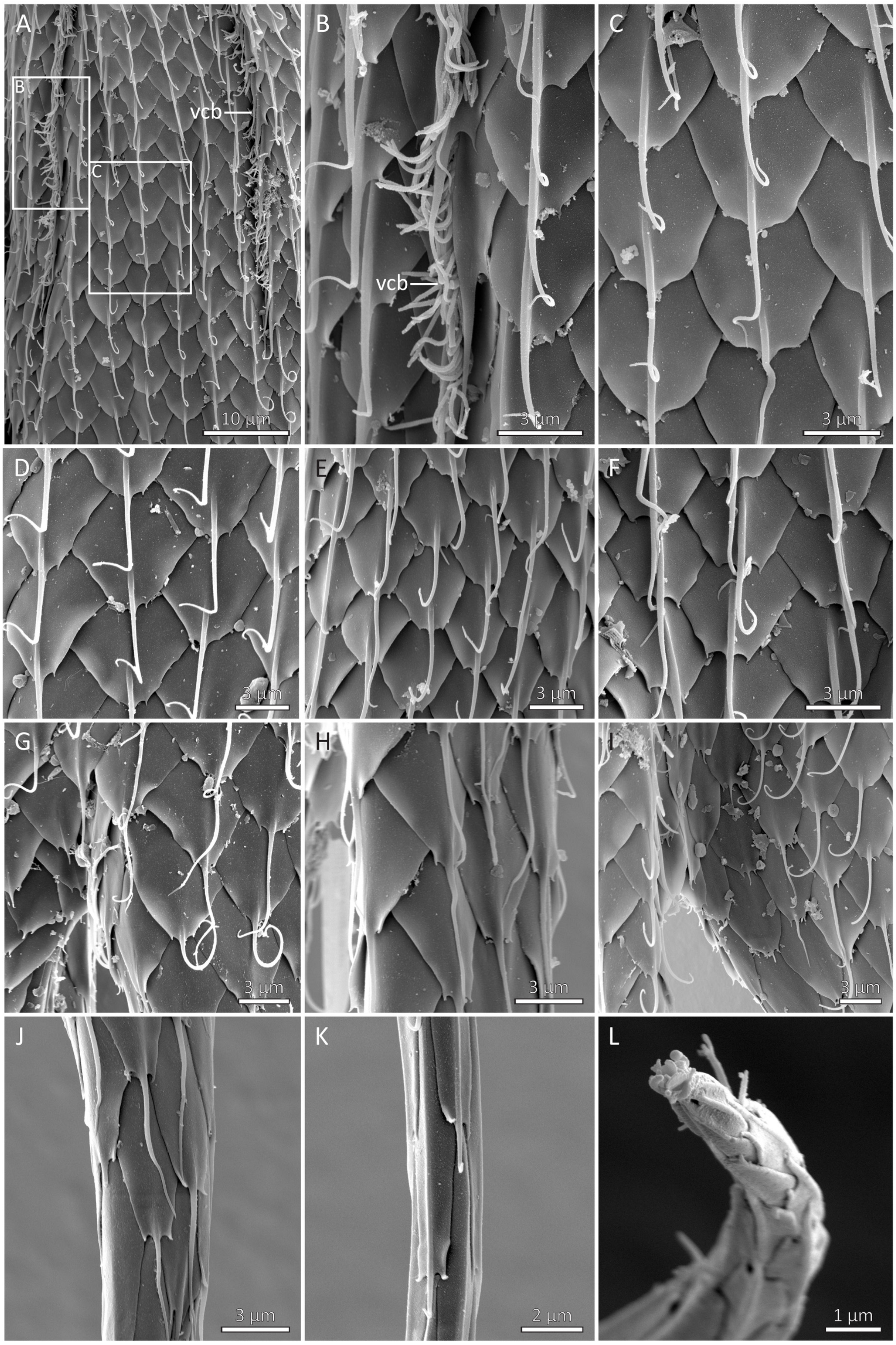

FIGURE 5. Scanning electron micrographs showing medial and posterior details of paratypes NHMD-1801035 (**A-C**), NHMD-1801029 (**D, G, I**) and NHMD-1801030 (**E-F, H, J-L**) of *Musellifer leasiae* **sp. nov. A.** U25-40, ventral view; framed areas mark positions of close-up in (**B**) and (**C**). **B.** Close-up of scales near U30, ventrolateral view. **C.** Close-up of scales near U35, ventrolateral view. **D.** Close-up of scales near U50, dorsal view. **E.** Close-up of scales near U50, left lateral view. **F.** Close-up of scales near U50, ventral view. **G.** Close-up of scales near U70 and base of terminal furca, dorsal view. **H.** Close-up of scales near U70 and base of terminal furca, left lateral view. **I.** Close-up of scales near U70 and base of terminal furca, ventral view. **J.** Close-up of U80, proximally on terminal furca. **J.** Close-up of U90, distally on terminal furca. **L.** Close-up of U100, tip of terminal furca.

Scales (holotype and paratypes) are arranged in approximately 26 columns (8 dorsal, 2x5 lateral, and 8 ventral including those between the two columns of locomotory cilia), with about 45 scales per column. The morphology of the head- and trunk scales differ considerably, and at least four different scale shapes are observed (Fig. 2C).

Head covered of three-lobed keeled scales dorsally and ventrolaterally from U09–U16. The two posterior lobes have pointed tips, 1.3 µm long. The thick keel rises close to the rounded anterior lobe, and the highest point of the keel measures 3 to 4 µm. A long spiny process at the distal portion of the keel extends to 4 to 6 µm in total length.

Ventral, lateral and dorsal surfaces of the trunk follow the same scale arrangement. The lateral sides of the head from U10, and the anterior part of the trunk, from U15 to U55 are covered by smooth and weakly rhomboidal shield-shaped scales (i.e. stingray-shaped *sensu* Trokhymchuk & Kieneke 2024) with a broadly rounded anterior margin, a pair of lateral small "notches" in the middle, and a pair of short spiny processes (1 µm in length) at the posterior end (Fig. 2C). A long spine, up to 10 µm, arises from the mid of the scale. A second type of scales covers the trunk surface from U55–U75. The shape resembles a balloon, lateral notches are not observed, and the spiny processes are hardly visible. Also, a long spine, up to 10 µm, arises from the mid of the scale. The overall size of the trunk scales is fairly uniform throughout the trunk, but they tend to gradually increase in size from the smaller anterior scales, 5 µm width and 7 µm length at U20, to the larger posterior ones, 7 µm width and 10 µm length at U60. The scales are arranged in an imbricate and staggered manner, and overlap so that the broad and rounded anterior half always is covered by scales in the more anterior row. The scale cuticle is thickest along the anterior margin, which makes this, otherwise covered part of the scale, appear most distinct when visualised with LM (Fig. 3B–E). However, SEM clearly shows the true arrangement of the scales, and that only their posterior parts are exposed (Figs 4G, 5A–I).

Scales on the terminal furcal branches resemble the trunk scales, but are gradually narrowing towards the distal ends of the branches, and change from shield-shape towards cone-shape and finally take the shape of narrow rectangular plates from U90–U100 (Figs 2A–C, 5J–K). The medial spine which is flanked by a pair of short spiny processes at the posterior margin is still present despite the changed and strongly narrowed overall shape of the scales. The furcal branches terminate in adhesive tubes that are covered entirely with scales until their distal tips (Fig. 5L).

Internal morphology

The fixation and ethanol storage had unfortunately caused bleaching in the specimens, and internal structures, inclusive pharynx or reproductive organs, could hardly be observed. A weak internal shading indicates that the pharyngeo-intestinal transition is located at the narrowest part of the neck, i.e., around U18. The only distinct internal structures were the paired adhesive glands, which are positioned from U62 and extend into each terminal furcal branch (Fig. 3I).

Ecology

The species was collected from muddy sediment in Gerlache Strait, and the Inner- and Middle Basins of Andvord Bay, at depths ranging from 551 m to 701 m. All specimens but one, appeared in the upper 0 to 1 mm sediment. A single specimen (paratype NHMD-1801028) was found in the 3 to 5 mm sediment profile.

Discussion and Conclusions

Diagnostic account

The general body shape, the elongate caudal furca, and the tip of the head forming a narrowed muzzle clearly assigns the new species to the genus *Musellifer* (see Hummon 1969). Within the genus, it is relatively easily distinguished from its five known congeners.

The size itself helps to distinguish the new species from its congeners. *Musellifer leasiae* **sp. nov.** is the largest *Musellifer* species described so far, and with a total length of 415 µm the holotype exceeds the otherwise largest species, *M. profundus* and *M. sublitoralis*, that typically reach lengths of 310 to 340 µm (Hummon 1969, Leasi & Todaro 2010). The total lengths of the paratypes ranged between 322 µm and 400 µm, which overlaps slightly with the size ranges of the Adriatic population of *M. profundus*, studied by Leasi & Todaro (2010), but the average length for all types at 368 µm still indicate that the Antarctic species is larger than any other *Musellifer* spp. Another seemingly unique and species diagnostic trait for *M. leasiae* **sp. nov.** is the peculiar three-lobed head scales with their median keel, and long, spiny process. We are aware that this trait is most easily visualised with SEM, but even in LM the difference between the head scales, and the two different kinds of intricate, stingray-shaped trunk scales is so distinct that it would have been noticed and mentioned, even in older descriptions solely based on light microscopy.

Besides this unique trait, other characters differentiate the new species from particular congeners. *Musellifer leasiae* **sp. nov.** is most easily distinguished from the Mediterranean species *M. delamarei* by their rather different body dimensions. Opposite to *M. leasiae* **sp. nov.** (as well as other congeners), the terminal furca of *M. delamarei* splits at U63 and constitutes more than 1/3 of the total body length, which proportionally makes the furca appear very long (Renaud-Mornant 1968). In comparison, the terminal furca of other *Musellifer* spp., the new species included, typically splits around U70. The original description of *M. profundus* leaves the impression that this species have very similar body proportions (Vivier 1974), but Leasi & Todaro (2010) addressed this issue in their redescription of the species, and pointed out some inaccuracies in Vivier's description. Following measures and dimensions from the more comprehensive material of Leasi & Todaro (2010), the terminal furca of *M. profundus* splits at U71, which is very similar to the proportions in *M. leasiae* **sp. nov.** and the remaining congeners.

The two Central-West Atlantic species *M. reichardti* and *M. tridentatus* are also easily distinguished from the new species. Both species are characterised by lacking the muzzle that otherwise give species of *Musellifer* their characteristic head shape (Kånneby *et al.* 2014). *Musellifer tridentatus* is the only other congener with three-lobed head scales, but those of *M. leasiae* **sp. nov.** differ morphologically by its median keel, and much longer posteriorly directed spiny process. *Musellifer reichardti* differs in several ways, by having uniform head- and trunk scales, by its offset adhesive tubes, and by its lack of ventral locomotory cilia (Kånneby *et al.* 2014).

The new species shows closest resemblance to *M. profundus* and *M. sublitoralis*. In the description of the Northeast Pacific *M. sublitoralis*, Hummon (1969) mentions the presence of a distinct ciliary band on the muzzle, with conspicuously long, 9–12 µm cilia. Such differentiated ciliary bands do not appear to be present in *M. leasiae* **sp. nov.**, and it could be a differential character to distinguish the two species (in addition to those mentioned above). The Mediterranean *M. profundus* appears to differ only by being slightly smaller, and by not having morphologically differentiated head scales.

Regarding other reported but unidentified *Musellifer* spp., it is obviously relevant to compare with the single Antarctic record, reported as *M.* cf. *profundus* (see Kieneke & Schmidt-Rhaesa 2015) and the juvenile specimen from the Northeast Atlantic Iberian Basin abyssal plain, reported as *M.* cf. *tridentatus* (Trokhymchuk & Kieneke 2024). Morphological data on the Antarctic specimen is too limited to reach an exact species identity. The total length of the specimen is between 250 and 300 µm, which is smaller than any of the specimens in the type series of *M. leasiae* **sp. nov.** On the other hand, its general appearance, and body proportions resemble those of the new species, and this, combined with the fact that the specimen reported by Kieneke & Schmidt-Rhaesa (2015) is Antarctic, could suggest that it is conspecific with *M. leasiae* **sp. nov.** Comparison with the specimen from the Iberian Basin deep-sea is more challenging because the single, collected specimen is a juvenile (Trokhymchuk & Kieneke 2024). The Iberian Basin specimen and *M. leasiae* **sp. nov.** have similar stingray-shaped trunk scales, which could suggest conspecifity. It also have morphologically differentiated head- and neck scales, but even though the scales are tridentate, they differ considerably from the head scales in *M. leasiae* **sp. nov.** with their conspicuously large median keel (Fig. 4F). This significant difference, together with the considerable distance from the type locality of *M. leasiae* **sp. nov.**, makes us very hesitant about suggesting a potential conspecifity.

Distribution of *Musellifer* spp.

Thanks to the record by Kieneke & Schmidt-Rhaesa (2015) we already know that specimens of *Musellifer* exist around Antarctica, but *M. leasiae* **sp. nov.** represents the first fully identified and formally described congener from this continent. In fact, the new species not only represents the first *Musellifer* described from Antarctica. It is the first *Musellifer* described from the Southern Hemisphere. The discovery and description of this new southern species is a major achievement, since there is a well-known geographic discrepancy between our knowledge and sampling effort of marine meiofauna on the Northern versus the Southern Hemisphere (Garraffoni *et al.* 2021).

Our current knowledge about disbursal capabilities for species of *Musellifer* suggests, for now, that the species have relatively limited ranges. *Musellifer profundus* has the widest documented distributional range, extending from its type locality in southern France (Vivier 1974), to the Adriatic (Leasi & Todaro 2010) and Black Sea (Sergeeva *et al.* 2019). In addition, Kolicka *et al.* (2014) report an unpublished finding of *M. profundus* as far north as the Baltic Sea. The second Mediterranean species, *M. delamarei* is mostly known from localities around Italy, i.e., its type locality in the Gulf of Naples (Renaud-Mornant 1968), around the Tyrrhenian Sea island Elba (Balsamo *et al.* 1992), and from Apulia in southeast Italy (Hummon *et al.* 1992; Guidi *et al.* 2003), but it has also been reported from Lanzarote in the Canary Islands (Todaro *et al.* 2019). The remaining three species, i.e., *M. reichardti* from Florida, *M. tridentatus* from Tobago, and *M. sublitoralis* from the San Juan Archipelago in Washington State, are only known from their type localities (Hummon 1969; Kånneby *et al.* 2014). The existing records of *Musellifer* spp. have indicated that the genus at least would have a boreal to tropical distribution throughout the Northern Hemisphere. However, finding of a well-established Antarctic population represented by *M. leasiae* **sp. nov.** clearly suggests that the potential range of the genus should be seen as cosmopolitan, and not to be restricted to any climatic zones.

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