

***PSEUDIPHIMEDIELLA NODOSA* (DANA, 1852) (AMPHIPODA: GAMMARIDEA: IPHIMEDIIDAE) IN LOS LAGOS REGION, CHILE**

Jorge Pérez-Schultheiss

Centro de Estudios en Biodiversidad (CEBCh), Magallanes 1979, Osorno, Chile.

Laboratorio Ambiental Linnaeus Ltda., Inés Gallardo 2129, Pelluco, Puerto Montt, Chile.

jperezsch@gmail.com

Abstract

The presence of the iphimeriid amphipod *Pseudiphimediella nodosa* (Dana, 1852) in the Chiloé Archipelago is reported, extending the northern distribution limit for the species. Moreover, the possibility that this species is an endemic element of the Patagonic fjords area is discussed.

Key words: Iphimeriidae, *Pseudiphimediella nodosa*, new record, Los Lagos Region.

***Pseudiphimediella nodosa* (Dana, 1852) (Amphipoda: Gammaridea Iphimeriidae) en la Región de Los Lagos, Chile.**

Resumen

Se reporta la presencia del anfípodo Iphimeriido *Pseudiphimediella nodosa* (Dana, 1852) en el Archipiélago de Chiloé, extendiendo el límite norte de distribución de la especie. Además, se discute la posibilidad que esta especie constituya un elemento endémico de la zona de los fiordos patagónicos.

Palabras clave: Iphimeriidae, *Pseudiphimediella nodosa*, nuevo registro, Región de Los Lagos.

The family Iphimeriidae belongs to a conspicuous group of gammaridean amphipods characterized by their bodies ornamented with teeth or spines. This group constitutes one of the most important elements in the amphipodan fauna of the Southern Oceans, reaching its highest diversity in the Antarctic (De Broyer *et al.*, 2007). The iphimeriids are characterized principally by the absence of mandibular rakers and propo-subchelate gnathopods (Coleman & Barnard, 1991b).

The genus *Pseudiphimediella* is endemic of the Magellanic subregion. It includes two species: *P. glabra* (Schellenberg, 1931) and *P. nodosa* (Dana, 1852), both present in waters of southern Chile (Coleman, 2007; González *et al.*, 2008). In this note, the distributional range for *Pseudiphimediella nodosa* (Dana, 1852) in Chile is extended, by means of new material obtained in Chiloé Archipelago, Los Lagos Region. In addition, the possibility of that this species is an exclusive element of the Patagonic South American Fjords is discussed.

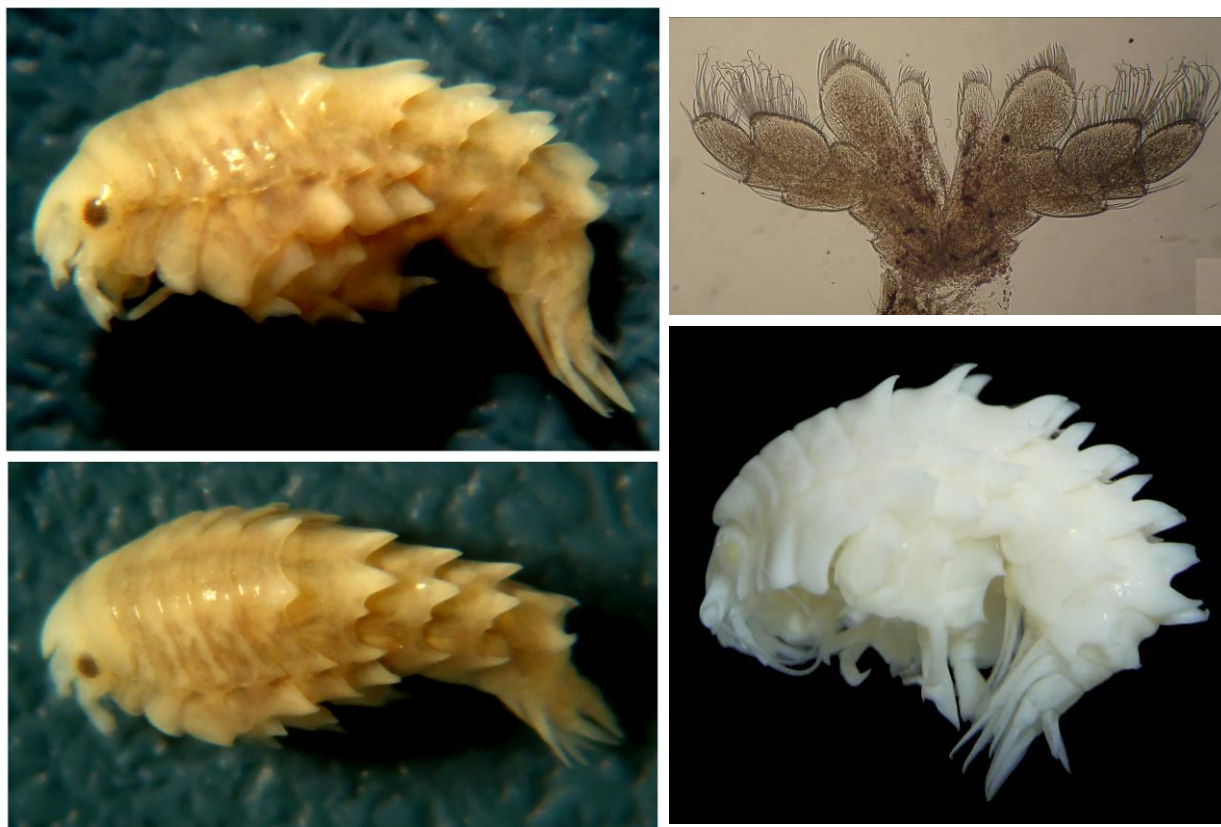


Figure 1. Habit of *Pseudiphimiella nodosa* (Dana, 1852), specimen from Chulín Island, 4.8 mm. A. Lateral view. B. Dorsal view; C. Maxilliped. Specimen from Falkland Island (Museum Stockholm, Catalogue No. ZMB 22814), 5 mm. D. Lateral view (photo: C. O. Coleman).

Figura 1. Habito de *Pseudiphimiella nodosa* (Dana, 1852), espécimen de Isla Chulín, 4,8 mm. A. Vista lateral; B. Vista dorsal; C. Maxilípido. Espécimen de Islas Falkland (Museo de Estocolmo, N° Catalogo ZMB 22814), 5 mm. D. Vista lateral (foto: C. O. Coleman).

Studied material: The analyzed specimen is a female of 4.8 mm (Figure 1), deposited in the peracarid collection of the author (N°C-00054). The collection data, textual from label are: Oeste de Punta Gaona, Isla Chulín, Región de Los Lagos, 42°37'25,63''S 73°03'22,50''W, 22-VI-2011, Col. Litoral Austral Ltda., Sedimentos: arena gravosa, 16 m, OT3431. The distal parts of pereopods and antennae are lost; the color of the specimen, after two days in preservative was purple, posteriorly turning brown stained yellowish white.

Pseudiphimiella nodosa was originally described by Dana (1852), based on one specimen from Hermite Island, Tierra del Fuego. Later, it was reported from several others localities in the Magellan Strait (Della Valle, 1893; Chevreux, 1913; Schellenberg, 1931; Coleman & Barnard, 1991a), in the Beagle Channel (Chieza *et al.*, 2005) and around the Falkland Islands (Stebbing, 1906; Schellenberg, 1931; Barnard, 1932). The found material does not exceed 30 specimens in total (Tabla 1). The present record expands the known distribution of the species approximately

1.300 km northwards, to the Chiloé Archipelago, Los Lagos Region and exceeds the Taitao peninsula, a zone previously proposed as a probable distributional barrier for some benthic organisms (Lancellotti & Vásquez, 1999; Häussermann & Försterra, 2005; Försterra, 2009).

P. nodosa can be differentiated from *P. glabra* principally by its more robust habitus, with broader and shorter dorsal teeth and the absence of a mid-dorsal tooth on the first urosomite, an incised upper lip, the slightly excavated pereopod 7 basis forming two short processes (versus bi-excavated with 3 processes in *P. glabra*) and the rounded or truncate distally telson (Coleman & Barnard, 1991a; Coleman, 2007).

Table 1. References of specimens of *Pseudiphimediella nodosa* reported in the literature.

Tabla 1. Especímenes de *Pseudiphimediella nodosa* reportados en la literatura.

Autor	Dorsal tooth pattern	Locality	Number of specimens	Habitat
Chile – Argentina (A)				
Dana, 1852	0-(2)-2-4	Hermite Island	1	–
Della Valle, 1893	0-0-0-4	Virgin Cape (A)	1	On <i>Macrocystis</i>
Chevreaux, 1913	Stebbing, 1906*	Tuesday Bay	1	On starfish
Schellenberg, 1931	0-2-4-4 (?)	Magellan Strait	2	–
		Bahia Inutil	1	Shelly bottom
		Porvenir	1	Bottom with algae
		Smith Channel	1	–
		Punta Arenas	3	On starfish
Coleman & Barnard, 1991a	0-(2)-2-4	Punta Arenas	1	–
Chiesa <i>et al.</i> , 2005	Not described	San Pio Cape (A)	4	–
	Not described	Bahía Slogget (A)	1	–
Present record (Figure 1A-C)	0-(2)-2-4	Chulín Island	1	Gravelly sand
Falkland Islands				
Stebbing, 1906	2-4-4-4	Stanley Harbour	several	–
Stebbing, 1914	Stebbing, 1906*	Stanley Harbour	1	<i>Macrocystis</i> (rizoide)
Barnard K.H., 1932	0-0-0-4	East Lively Island	1	–
Schellenberg, 1931	0-2-4-4 (?)	Port Albemarle	1	Sand
		Port Louis	2	–
		Stanley Harbour	1	On starfish
		East Falkland Island	1	Sand
Watling & Holman, 1980	0-0-0-4	Eastern Lively Island**	1	–
Coleman Figure 1D	0-2-4-4	Falkland Islands	1	–

Note: Dorsal teeth pattern from pereonite 4 to 7, without considering dorsolateral teeth; numbers in brackets indicate rudimentary tooth. * Teeth pattern not described, but probably similar as indicated. ** Probably the same material analyzed by K.H.Barnard (1932).

Several authors have reported the occurrence of intraspecific morphological variability in *P. nodosa* (see Table 1). In the female specimen studied herein there is a broader third article of the maxilliped (compare Figure 1C with Figure 3f of Coleman & Barnard, 1991a) and the distal margin of the telson is slightly excavated; however, other characters are completely in agreement, especially the dorsal tooth pattern of the last three pereonites and pleon. Considering the original description of Dana (1852), most of the known Magellan material seems have a relatively stable dentition pattern, characterized by a pair of small and slight dorsal humps (teeth rudiments) on the posterodorsal margin of pereonite 5 and well developed teeth on pereonite 6 (formula 0-(2)-2-4); different from that would be the report of Della Valle (1893), who mentioned teeth on pereonite 7 only and perhaps some of the Schellenberg (1931) specimens.

Comparing the published descriptions, we identified at least two more well differentiated teeth patterns. Stebbing (1906) assumed that his specimens from Falkland Islands belong to the same species described by Dana (1852), although have tooth formula 2-4-4-4, contrasting to the material studied herein which has well developed posterodorsal teeth beginning at pereonite 6. Barnard's (1932: fig. 67) described material with a smooth pereonite 6 and well developed dentition from pereonite 7 (formula 0-0-0-4), a pattern similar reported by Della Valle (1893) for Chilean material, and Watling & Holman (1980) for Falkland Islands specimen. Finally, another specimen from the Falkland Islands, examined herein (figure 1D), shows a third dentition pattern similar to Magellan specimens, but with well developed teeth on pereonite 5, two pairs of tooth in pereonite 6 and sharper pleonal teeth (formula 0-2-4-4). A specimen photographed by Schellenberg (1931: Plate I, Figure a) had a similar pattern, however, he mentioned specimens from Chile and the Falkland Islands, and we don't know if all of his material has this same pattern. In his work he mentioned that his specimens are more in accordance with Dana (1852) than Stebbing (1906), but he did not discuss this variability any further.

The preceding observations support the hypothesis that *P. nodosa* constitutes an exclusive endemic element from all the fjords and channels of Patagonia from Chile and that the Falkland Islands specimens could belong to three undescribed species, at least one of them could also be present in the Magellan fjords. This hypothesis could be checked only on the basis of detailed morphological analyses and comparisons between additional specimens from Chile and Falkland Islands.

Acknowledgements

I would like thank to Litoral Austral Ltda for making available the material studied here and for allowing me to carry out this study. I am grateful to Dr Charles O. Coleman for their useful comments for improve the manuscript and for allowing me use his photograph of the specimen of the Museum Stockholm. I am also grateful to Leonardo Fernández for his constructive critical remarks and to Erich Rudolph, for his diligent support and for corrections on the manuscript.

References

- Barnard, K. H., 1932. Amphipoda. *Discovery Reports*, 5: 1–326.
- Chevreaux, E., 1913. *Amphipodes*. Deuxieme Expedition Antarctique Francaise (1908-1910) commandee par le Dr. Jean Charcot, Sciences Naturelles: Documents Scientifiques, pp. 79–186.
- Chieza, I. L., G. M. Alonso & D. G. Zelaya, 2005. Species richness and faunistic affinities of the Gammaridea and Corophiidea (Amphipoda) from shallow waters of southern Tierra del Fuego, Argentina: preliminary results. *Scientia Marina*, 69(Suppl. 2): 167–174.
- Coleman, C. O. & J. L. Barnard, 1991a. Redescription of two species of *Pseudiphimediella* from the Southern Ocean (Amphipoda: Iphimediidae). *Proceedings of the Biological Society of Washington*, 104(1): 76–90.
- Coleman, C. O. & J. L. Barnard, 1991b. Revision of Iphimediidae and similar families (Amphipoda : Gammaridea). *Proceedings of the Biological Society of Washington*, 104(2): 253–268.
- Coleman, C. O., 2007. Volume 2: Acanthonotozomellidae, Amathillopsidae, Dikwididae, Epimeriidae, Iphimediidae, Ochlesidae and Vicmusiidae. In: De Broyer, C. (Ed.) Census of Antarctic Marine Life, Synopsis of the Amphipoda of the Southern Ocean. *Bulletin de L'institut Royal des Sciences Naturelles de Belgique, Biologie*, 77 (Suppl. 2): 134 pp.
- Dana, J. D., 1852. Conspectus crustaceorum quae in orbis terrarum circumnavigatione, Carolo Wikles e classe Reipublicae Faederatae Duce, lexit et descripsit Jacobus D. Dana, Pars III (Amphipoda n°1). *Proceedings of the American Academy of Arts and Sciences*, 2: 201–220.
- De Broyer, C., J. K. Lowry, K. Jazdzewski & H. Robert, 2007. Volume 1: Part 1. Catalogue of the Gammaridean and Corophiidean Amphipoda (Crustacea) of the Southern Ocean with distribution and ecological data. In: De Broyer, C. (Ed.) Census of Antarctic Marine Life, Synopsis of the Amphipoda of the Southern Ocean. *Bulletin de L'institut Royal des Sciences Naturelles de Belgique, Biologie*, 77 (Suppl. 1): 324 pp.
- Della Valle, A., 1893. *Gammarini del Golfo di Napoli*. Fauna und Flora des Golfes von Neapel und der angrenzenden Meeres-Abschnitte. Monographie 20: 948 pp.
- Försterra, G., 2009. Aspectos ecológicos y biogeográficos de la región de los Fiordos Chilenos. 61-74. In: Haussermann, V. & G. Försterra (Ed.) Fauna Marina Bentónica de la Patagonia Chilena. Santiago, Nature in Focus, 1000 pp.
- González, E. R., P. A. Haye, M-J. Balanda & M. Thiel, 2008. Lista sistemática de especies de Peracáridos de Chile (Crustacea, Eumalacostraca). *Gayana*, 72(2): 157–177.
- Häussermann, V. & G. Försterra, 2005. Distribution patterns of Chilean shallow-water sea anemones (Cnidaria: Anthozoa: Actiniaria, Corallimorpharia), with a discussion of the taxonomic and zoogeographic relationships between the actinofauna of the South East Pacific, the South West Atlantic and the Antarctic. *Scientia Marina*, 69(Suppl. 2): 91–102.
- Lancellotti, D. & J. A. Vásquez, 1999. Biogeographical patterns of benthic macroinvertebrates in the Southeastern Pacific littoral. *Journal of Biogeography*, 26: 1001–1006.
- Schellenberg, A., 1931. Gammariden und Caprelliden des Magellangebietes, Sudgeorgiens und der Westantarktis. *Further Zoological Results of the Swedish Antarctic Expedition 1901-1903*, 2(6): 1–290.
- Stebbing, T.R.R., 1906. Amphipoda. I. Gammaridea. *Das Tierreich*, 21: 1–806.

Stebbing, T.R.R., 1914. Crustacea from the Falkland Islands collected by Mr. Rupert Vallentin, F.L.S. Part II. *Proceedings of the Zoological Society of London*, 1914: 341–378.

Watling, L. & H. Holman, 1980. New amphipoda from the Southern Ocean, with partial revisions of the Acanthonotozomatidae and Paramphithoidae. *Proceedings of the Biological Society of Washington*, 93(3): 609–654