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# ZOOTAXA

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## **New records of Antarctic and Sub-Antarctic sea anemones (Cnidaria, Anthozoa, Actiniaria and Corallimorpharia) from the Weddell Sea, Antarctic Peninsula, and Scotia Arc**

ESTEFANÍA RODRÍGUEZ<sup>1</sup> & PABLO J. LÓPEZ-GONZÁLEZ<sup>2</sup>

<sup>1</sup> *Division of Invertebrate Zoology, American Museum of Natural History, Central Park West at 79th Street, New York, NY 10024, USA.  
E-mail: erodriguez@amnh.org*

<sup>2</sup> *Biodiversidad y Ecología de Invertebrados Marinos (BEIM), Departamento de Zoología, Facultad de Biología, Universidad de Sevilla, Avenida Reina Mercedes, 6, 41012-Sevilla, Spain. E-mail: pjlopez@us.es*



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## Table of contents

Abstract	4
Introduction	4
Material and Methods	4
Results and Discussion	5
Order Actiniaria Hertwig, 1882	5
Suborder Endocoelanthae Carlgren, 1925	5
Family Actinernidae Stephenson, 1922	5
Genus <i>Actinernus</i> Verrill, 1879	5
<i>Actinernus antarcticus</i> (Carlgren, 1914)	5
Suborder Nynantheae Carlgren, 1899	10
Endomyaria Stephenson, 1921	10
Family Actiniidae Rafinesque, 1815	10
Genus <i>Aulactinia</i> Verrill, 1864	10
<i>Aulactinia sulcata</i> (Clubb, 1902)	10
Genus <i>Bolocera</i> Gosse, 1860	14
<i>Bolocera kerguelensis</i> Studer, 1879	14
Genus <i>Epiactis</i> Verrill, 1869	18
<i>Epiactis georgiana</i> Carlgren, 1927	18
Genus <i>Glyphoperidium</i> Roule, 1909	23
<i>Glyphoperidium bursa</i> Roule, 1909	23
Genus <i>Isotealia</i> Carlgren, 1899	27
<i>Isotealia antarctica</i> Carlgren, 1899	27
Family Capneidae Gosse, 1860	30
Genus <i>Capnea</i> Forbes, 1841	30
<i>Capnea georgiana</i> (Carlgren, 1927)	30
Family Haloclavidae Verrill, 1899	36
Genus <i>Stephanthus</i> Rodríguez & López-González, 2003	36
<i>Stephanthus antarcticus</i> Rodríguez & López-González, 2003	36
Family Liponematidae Hertwig, 1882	38
Genus <i>Liponema</i> Hertwig, 1882	38
<i>Liponema multiporum</i> Hertwig, 1882	38
Family Preactinidae England (in England & Robson), 1984	40
Genus <i>Dactylanthus</i> Carlgren, 1911	40
<i>Dactylanthus antarcticus</i> (Clubb, 1908)	40
Mesomyaria Stephenson, 1921	44
Family Actinostolidae Carlgren, 1893	44
Genus <i>Actinostola</i> Verrill, 1883	44
<i>Actinostola crassicornis</i> (Hertwig, 1882)	44
<i>Actinostola georgiana</i> Carlgren, 1927	46
Genus <i>Hormosoma</i> Stephenson, 1918a	51
<i>Hormosoma scotti</i> Stephenson, 1918a	51
Genus <i>Stomphia</i> Gosse, 1859	55
<i>Stomphia selaginella</i> (Stephenson, 1918a)	55
Family Galatheanthemidae Carlgren, 1956	59
Genus <i>Galatheanthemum</i> Carlgren, 1956	59
<i>Galatheanthemum profundale</i> Carlgren, 1956	59
Superfamily Metridioidea Carlgren, 1893	63
Family Actinoscyphiidae Stephenson, 1920a	63
Genus <i>Actinoscyphia</i> Stephenson, 1920a	63
<i>Actinoscyphia plebeia</i> (McMurrich, 1893)	63
Family Isanthidae Carlgren, 1938	67
Genus <i>Eltaninactis</i> Dunn, 1983	67
<i>Eltaninactis infundibulum</i> Dunn, 1983	67
Family Hormathiidae Carlgren, 1925	70
Genus <i>Actinauge</i> Verrill, 1883	70
<i>Actinauge verrillii</i> McMurrich, 1893	70
Genus <i>Hormathia</i> Gosse, 1859	75
<i>Hormathia armata</i> Rodríguez & López-González, 2001	75
<i>Hormathia lacunifera</i> (Stephenson, 1918a)	77
Order corallimorpharia Carlgren, 1940	83
Family Corallimorphidae Hertwig, 1882	83
Genus <i>Corallimorphus</i> Moseley, 1877	83

<i>Corallimorphus profundus</i> Moseley, 1877 .....	83
<i>Corallimorphus rigidus</i> Moseley, 1877 .....	87
Acknowledgements .....	91
References .....	91
APPENDIX I .....	95
APPENDIX II .....	96

## Abstract

Herein we provide new records for 22 Antarctic species of sea anemone *sensu lato* (Anthozoa: Actiniaria and Corallimorpharia) from the Weddell Sea, Antarctic Peninsula, and the Scotia Sea. We provided short descriptions, images of the external morphology of preserved specimens (but also of living specimens in most cases), cnida data, and distribution maps for each studied species. New records are presented for nine species in the Weddell Sea and the geographic or bathymetric distributions for 19 of the 22 studied species are extended.

**Keywords:** Antarctica, Biodiversity, Distribution, Hexacorallia

## Introduction

The sea anemone *sensu lato* (Anthozoa: Actiniaria and Corallimorpharia) fauna of Antarctic and sub-Antarctic waters was initially described by Hertwig in 1882, with subsequent contributions primarily by Carlgren (1899, 1927, 1930, 1939) and Stephenson (1918a). For the next half century, the study of sea anemone biodiversity in the Antarctic and Sub-Antarctic regions was at a standstill, until Fautin (1983—as Dunn, 1984) described specimens collected by the U.S. Antarctic program in the Ross Sea and Antarctic Peninsula. Logistics tend to bias sampling effort; areas like the Weddell and Bellingshausen seas, and East Antarctica (Maud Land, Enderby Land, Wilkes Land) remain understudied and our knowledge of their species composition or latitudinal gradients is still extremely patchy. Over the last ten years, intensive Antarctic benthic investigations (e.g. R/V *Polarstern* cruises EPOS, EASIZ, and ANDEEP), particularly in the Weddell Sea, have accumulated remarkable collections of new material. Our analysis of only part of this newly-collected material from the Weddell Sea, Antarctic Peninsula, and Scotia Arc has resulted in the description of one new family, two new genera, six new species (Rodríguez & López-González 2001, 2002, 2003, 2008, Rodríguez *et al.* 2009; Rodríguez 2012), and the first overview of the biogeographic patterns of Southern Ocean sea anemones (Rodríguez *et al.* 2007a).

Here we provide new records for 22 Antarctic species of sea anemone from the Weddell Sea, Antarctic Peninsula, and the Scotia Sea. These new records extend the geographic or bathymetric distribution of 19 species. The Antarctic sea anemone fauna comprises 57 species, representing 22 of the 51 currently-recognized families (Rodríguez *et al.* 2007a, b, 2009, 2012; Rodríguez 2012). These numbers represent almost 45% (at the family level) of the group's total diversity. In addition, almost half of the species are found nowhere else (Rodríguez *et al.* 2007a), including several species critical to resolving evolutionary relationships among sea anemones.

## Material and Methods

The studied material was collected on the R/V *Polarstern* cruises ANT XV/3, ANT XVII/3, ANT XIX/3, ANT XIX/5, ANT XXI/2, and ANT XXIII/8 to the Weddell Sea, Antarctic Peninsula, and Scotia Arc (Antarctica), sponsored by the Alfred-Wegener-Institut für Polar- und Meeresforschung (AWI) in Bremerhaven, from 1998 to 2007.

Sea anemones were relaxed onboard using menthol crystals and photographed alive. Small pieces of tissue from selected specimens were preserved in absolute ethanol for DNA analysis; the remainder was subsequently fixed in 10% seawater-buffered formalin. All preserved specimens were examined whole and a subset was dissected. Histological sections 7–8  $\mu\text{m}$  thick from parts of several specimens were made (Johansen 1940) and stained with Ramón y Cajal's Triple Stain (Gabe 1968). Measurements of cnidae were made from preserved material; small pieces of tissue were smeared on slides and examined using DIC microscopy at 1000X