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# ZOOTAXA

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**A revision of the genus *Thouarella* Gray, 1870  
(Octocorallia: Primnoidae), including an illustrated dichotomous key,  
a new species description, and comments on *Plumarella* Gray, 1870  
and *Dasystenella*, Versluys, 1906**

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## Abstract

A comprehensive revision of the genus *Thouarella* is presented. Thirty-five holotypes of the 38 nominal *Thouarella* species, two varieties, and one form were examined. The number of original *Thouarella* species has been reduced to 25, mostly through synonymy or new genus combinations. In the process several new species have also been identified, one of which is described here as *Thouarella parachilensis* nov. sp. The genus is split into two groups based on polyp arrangement: Group 1 with isolated polyps and Group 2 with polyps in pairs or whorls. An illustrated dichotomous key and detailed character table of the 25 *Thouarella* species are presented alongside an up-to-date account of all species described in the 19<sup>th</sup> and 20<sup>th</sup> centuries and summaries of the few described from 2000 onwards. We propose that *Thouarella longispinosa* is synonymous with *Dasystenella acanthina*, *T. versluysi* with *T. brucei*, and, *T. tenuisquamis*, *T. flabellata*, and *T. carinata* are synonymous with *T. laxa*. Lastly, we propose that *T. bayeri* and *T. undulata* be placed in *Plumarella* and support recent suggestions that *T. alternata*, *T. recta*, *T. superba*, and *T. diadema* are also *Plumarella*.

**Key words:** Cnidaria, taxonomic revision, sub-Antarctic, octocoral

## Introduction

*Thouarella* Gray, 1870 is a genus of primnoid octocorals within the class Anthozoa. Octocorals usually have small calcium carbonate sclerites over or within their tissue (with a few notable exceptions, discussed in Alderslade & McFadden 2007). Within octocorals there are a wide variety of sclerite shapes and sizes (Bayer et al. 1983) serving different functions, such as limiting adjacent sclerite movement, giving rigidity and support, as well as flexibility (Lewis & Wallis 1991). Primnoids, with the exception of one species of *Mirostenella* Bayer, 1988, which has a jointed axis, have solid continuous, calcified gorgonin axes (Cairns & Bayer 2009). They are found worldwide but are especially common in the Antarctic seas and Southern Ocean (*Thouarella* is no exception) and predominantly occur deeper than 400 m, with the deepest record from 5850 m (although primnoids have been recorded from 8 m depth; Cairns & Bayer 2009).

*Thouarella* is an architecturally delicate genus in which the majority of species have flower-like, open operculate polyps covered with thin sclerites. Species of *Thouarella* are locally abundant in many areas of the deep sea, especially in the sub-Antarctic, and play an important ecological role, providing habitat for many other animals from a variety of phyla. Although relatively common, little research has focused on species identifications beyond the original type descriptions, many of which are from the turn of last century. Often considered the “bottlebrush” genus, *Thouarella* spp. in fact have a range of branching forms, similar to several other genera, resulting in specimens being frequently misidentified.

*Thouarella* is a group of very closely related species; their morphology and many characters historically used to separate species and subgenera are variable and the genus is in need of further revision. Having reviewed all available holotypes we present the most thorough review of this ecologically important genus to date. This has resulted in significant changes to the understanding of several species within this genus and the key characters used for species identification.

### Abbreviations

NHM—Natural History Museum, London, UK.

NMNH—National Museum of Natural History, Smithsonian Institution, Washington DC, USA.

MNHN—Muséum National d’Histoire Naturelle, Paris, France.

MNHWU—Museum of Natural History, Wrocław University.

SMF—Senckenberg Forschungsinstitut und Museum Frankfurt.

UMUT—University Museum, University of Tokyo.

ZMA—Zoological Museum, University of Amsterdam.

ZMH—Zoological Museum, University of Hamburg.

ZMB—Zoologisches Museum, Berlin.

ZSL—Zoological Society of London, Institute of Zoology.

MYA—million years ago

ZGR—Zapata-Guardiola, Rebeca

SJ—Schleyer, Jon