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A revision of the soft coral genus, *Eunephthya* Verrill, 1869 (Anthozoa: Octocorallia: Nephtheidae), with a description of four new species from South Africa

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Abstract

Based on the results of morphological and molecular phylogenetic analyses of newly collected material, we reinstate the soft coral genus *Eunephthya* Verrill, 1869 for a group of species endemic to South Africa. *Eunephthya* is morphologically and phylogenetically distinct from the zooxanthellate, tropical genus *Capnella* Gray, 1869 with which it had been synonymized. In *Eunephthya* the polyp sclerites include unilaterally spinose or leaf spindles, and the sclerites of the stalk surface and interior (when present) are small radiates and spheroids. In contrast, *C. imbricata*, the type species of *Capnella*, has leaf clubs and leaf-capstans in the polyps and stalk surface, and large ovals and irregular forms in the interior. We describe four new species of *Eunephthya* from Algoa Bay, South Africa—*E. celata*, *E. ericius*, *E. granulata*, and *E. shirleyae*—and propose a new combination, *E. susanae*.

Keywords. Molecular phylogenetics, *Capnella*, mtMutS, COI, 28S rDNA, endemism

Introduction

The marine biogeographic regions of southern South Africa that are influenced by the Benguela and Agulhas currents have long been recognized as areas of high endemism. Extensive work on the octocoral fauna of this Cape Endemic Region in the late 1980s and early 1990s (e.g. Williams 1992a, b) highlighted the high species diversity of this group as well as very high levels of endemism at both species and genus levels. Over 50% of the species and eight of the 15 genera of soft corals (families Alcyoniidae, Nephtheidae and Nidaliidae) recorded from South Africa are endemic to the region (Williams 1992b; 2000). These numbers are, however, likely to be underestimates, as several of the cosmopolitan genera reported from South African waters are badly in need of revision. For example, new genera endemic to South Africa have subsequently been established for species that had previously been placed in *Alcyonium* (Williams 2000), and it is very likely that additional South African species currently housed within this and other widespread, morphologically heterogeneous genera (e.g. *Eleutherobia*) will be found to have been misclassified.

Capnella Gray, 1869 is a genus of approximately 18 nominal species of soft corals (family Nephtheidae) that are found in both warm and cold-water regions of the southern hemisphere, from southern Australia and South Africa to the tropical Western Pacific and Indian Oceans (Verseveldt 1977). Two species currently placed in *Capnella* occur in the cold waters of southern South Africa, *C. thyrsoidea* (Verrill, 1865) and *C. susanae* Williams, 1988. Upon examination of recently collected material of these two species plus several new species described herein, we concur with Verrill (1922) that the endemic South African species are generically distinct from *Capnella*, and reinstate his genus *Eunephthya* Verrill, 1869 for this group. This decision is supported by molecular phylogenetic analyses that place the South African species in a clade distinct from the type species of *Capnella*, *C. imbricata* (Quoy & Gaimard, 1833), and from other tropical and cold-water members of *Capnella sensu* Verseveldt, 1977.