Zootaxa 1558: 1–28 (2007)
www.mapress.com/zootaxa/

ISSN 1175-5326 (print edition)
ZOOTAXA
ISSN 1175-5334 (online edition)

Taxonomy of sympatric New Zealand species of *Platynereis*, with description of three new species additional to *P. australis* (Schmarda) (Annelida: Polychaeta: Nereididae)

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Abstract

Metamorphosed, sexually mature *Platynereis* adults captured swimming nearshore at night off the New Zealand coast had major morphological differences that indicated four similar sympatric species existed, where previously only *P. australis* had been known. Simultaneous reproductive swarming of all taxa was possible at a locality. The three hitherto cryptic species are described as *Platynereis mahanga* **sp. nov.**, *P. kau* **sp. nov.**, and *P. karaka* **sp. nov.**. Paragnath arrangement and chaetal morphology are near identical in all four species. Homogomph notopodial falcigers, which are distinctive in shape in some *Platynereis*, are lacking in adults of this group of species. Pigmentation pattern differences and other minor variations are present in life in atokous (unmetamorphosed) benthic forms, but museum specimen atokes cannot be unambiguously separated into species by morphology. Heteronereid (metamorphosed) natatory forms of the four New Zealand species are distinct in several characters, including morphology of sperm papillae groups in males, and number of pre-natatory anterior segments in both sexes. Differences in size, habitat, peak spawning season, interbreeding, and juvenile development are noted. Morphology and biology are discussed in relation to other *Platynereis*. Presence of the *P. australis* group species beyond the continental shelf seas adjoining the three main islands is now undetermined except for *P. australis* at Chatham Islands, *P. mahanga* at the subantarctic Auckland and Campbell Islands, and *P. karaka* at Wanganella Bank; all prior reports of *P. australis* outside the New Zealand region need re-evaluation from specimens.

Key words: Polychaeta, *Platynereis*, heteronereid, Nereididae, taxonomy, cryptic species

Accepted by B. Sket: 12 Jun. 2007; published: 24 Aug. 2007