

## Systematics of the *Perinereis nuntia* Complex (Polychaeta: Nereididae) in South-eastern Australia

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**ABSTRACT.** Biochemical and morphological analyses show that two species in the *Perinereis nuntia* group occur in south-eastern Australia. The two species are distinguished by fixed differences at 4 of 8 enzyme loci, by non-overlapping ranges of paragnath counts and by qualitative differences in the types of paragnaths present. Previously, all material from south-eastern Australia had been referred to a single species, *Perinereis nuntia*, with two nominal varieties: *P. nuntia vallata* and *P. nuntia brevicirris*. Analysis of intraspecific variation shows that these varieties have no taxonomic significance. Differences between populations, especially those from markedly different sediments, exaggerate intraspecific variation in paragnath counts. Size related variation of paragnath counts is relatively unimportant.

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Sixteen nereidid genera and about 350 species carry chitinous denticles, “paragnaths”, on the eversible proboscis (Fauchald, 1977); this amounts to about 40% of all genera and 80% of all species in the family. In most genera paragnaths are arranged in a regular grouping (Fig.1a,b), and counts of paragnaths in each numbered group are the most important character system used by taxonomists to describe and distinguish taxa. Although this system of meristic characters is ideally suited to statistical analysis of intraspecific and interspecific variation, there has been little work of this nature that could guide taxonomic decision-making. Barnes & Head (1977) and Barnes (1978) provided detailed statistical analysis of the ecological significance of variation in paragnath number in several populations of *Nereis diversicolor* Müller, 1776 (also referred to in the literature as *Hediste diversicolor*) but they studied

only that species and did not attempt a taxonomic analysis. No taxonomic studies of nereidids have used statistical methods.

*Perinereis nuntia* and related species comprise a group characterised by an arc of short bar-shaped paragnaths on group VI of the proboscis (Fig.1a). At least 18 nominal species and varieties have been described, of which *P. nuntia* is by far the most widely reported, being recorded from all continents except Antarctica, North America and northern Europe (Wilson & Glasby, 1993). Published descriptions indicate considerable variation in morphology within and between populations, and trinomens have been widely used to identify supposed morphs and geographical races (Fauvel, 1932; Hartman, 1954; Knox, 1960a; Imajima, 1972). Among recent authors, only Paik (1975) and Hutchings & Turvey (1982) have attempted a more critical appraisal of