



## New *Laonice* species (Polychaeta: Spionidae) from western and northern Australia

ELIZABETH GREAVES<sup>1</sup>, KARIN MEIßNER<sup>2</sup> & ROBIN WILSON<sup>3</sup>

<sup>1</sup>Sciences Department, Museum Victoria, GPO Box 666, Melbourne, Victoria 3001, Australia. E-mail [egreaves@museum.vic.gov.au](mailto:egreaves@museum.vic.gov.au)

<sup>2</sup>Senckenberg research institutes and natural history museums, German Centre for Marine Biodiversity Research, Biozentrum Grindel, Martin-Luther-King-Platz 3, D-20146 Hamburg, Germany. E-mail [kneissner@senckenberg.de](mailto:kneissner@senckenberg.de)

<sup>3</sup>Sciences Department, Museum Victoria, GPO Box 666, Melbourne, Victoria 3001, Australia. E-mail [rwilson@museum.vic.gov.au](mailto:rwilson@museum.vic.gov.au)

### Abstract

Species belonging to the genus *Laonice* (Polychaeta: Spionidae) from continental shelf and slope depths off western and northern Australia are described. Three species are new to science (*L. lemniscata*, *L. insolita*, *L. pectinata*), two additional species of uncertain identity are recognised from incomplete material and are similar to existing species. A key is provided to allow identification of all six *Laonice* species known from Australia. Also, a new standard for the observation of hooded hooks in *Laonice* is established. One of the Australian species, *L. quadridentata*, belongs to a group of *Laonice* species with fused prostomium and peristomium. These species are of great morphological similarity and several are reported to exhibit ontogenetic and individual variability and we discuss the significant taxonomic problems that are a consequence of that variability. The faunas of the continental margin of western and northern Australia were poorly sampled prior to the extensive surveys that generated our study material; this study and other current work suggests that our present estimates of species richness of the Australian marine invertebrate fauna significantly underestimate species richness, perhaps by as much as 50%.

**Key words:** Continental shelf, continental slope, key, ontogenetic variation, hooded hooks

### Introduction

The genus *Laonice* comprises species of Spionidae with an anteriorly expanded prostomium, reduced peristomial wings, branchiae from chaetiger 2, and nuchal organs that extend posteriorly for a variable number of chaetigers. Most species also have an occipital antenna, neuropodial hooded hooks and sabre chaetae, branchiae that are separate from or partly fused with notopodial lobes, and interparapodial genital pouches. According to the parsimony analysis of Sigvaldadóttir *et al.* (1997), *Laonice* is a sister taxon to *Spiophanes*, that clade being defined by long nuchal organs and branchiae continuing to the median part of the body (though the latter are presumably secondarily lost in *Spiophanes*). Although it has been claimed that *Laonice* “appears unambiguously monophyletic” (Radashevsky & Lana 2009: 265), there has been no phylogenetic analysis testing membership of all species assigned to the genus. Nevertheless, authors have had no difficulty in consistently recognising species as belonging to *Laonice*: the 19 species recognised in Table 1 of Maciolek (2000) are those recognised by earlier authors, with a further 10 species having been described since (Aguirrezabalaga & Ceberio 2005; Radashevsky & Lana 2009; Sigvaldadóttir & Desbruyeres 2003; Sikorski 2003a,b). We assemble the current list of accepted species of *Laonice* in Table 1, also see the Discussion section following the species accounts. The new species described in this paper, also included in Table 1, have not altered the generic description, although they continue to confirm some of the ‘exceptions’ (such as a species with notopodial hooded hooks and no occipital antenna).

Although assignment of species to *Laonice* has been uncomplicated, defining species boundaries within *Laonice* has been more problematic. Characters such as the first occurrence of sabre chaetae need to be used with caution, as the most anterior sabre chaetae move posteriorly as specimens grow, therefore a full range of specimen sizes is required to ensure complete understanding of a species (Radashevsky & Lana 2009). Where sufficient