



New species of Scalibregmatidae (Annelida, Polychaeta) from the East Antarctic Peninsula including a description of the ecology and post-larval development of species of *Scalibregma* and *Oligobregma*

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Abstract

A large collection of scalibregmatid polychaetes from the east Antarctic Peninsula in May 2000 has yielded specimens of three new species of *Scalibregma*, *Pseudoscalibregma*, and *Oligobregma*. The new species of *Scalibregma* is represented by more than 400 specimens that include post-larval and juvenile forms which, for the first time, provide data on the sequence of development of key characters of a scalibregmatid. These data demonstrate that taxonomic characters including the form of the prostomium and presence of branchiae develop late in ontogeny and that small specimens cannot be reliably referred to a species or genus without a growth sequence. Juvenile morphology is also presented for the new species of *Oligobregma*. The new species of *Scalibregma* is compared with five northern hemisphere species and differs in details of the peristomium, upper and lower lips of the mouth, dorsal and ventral cirri, and nature of the short spinous setae of setiger 1. The new species of *Pseudoscalibregma* is unique in the nature of asymmetrical ventral cirri of posterior setigers. The new species of *Oligobregma* has large acicular spines in both noto- and neuropodia and these are present in juveniles. However, the final adult configuration of the prostomium is not evident until late in development. The taxonomic significance of the timing of development of post-larval and juvenile morphology elucidated in this study is discussed in relation to the validity of certain taxa and the current system of genera used in the family.

Key words: Scalibregmatidae, *Pseudoscalibregma*, new species, Antarctica, Larsen Ice Shelf, Weddell Sea; reproduction, juvenile morphology

Introduction

Scalibregmatids are burrowing infaunal deposit feeding worms that are widely distributed but not commonly collected. They range from the intertidal to the deep-sea, with most species occurring deeper than 1000 m. Superficially, the bodies of most scalibregmatids have a rugged appearance because the cuticle is areolated with up to six annulated rows per segment. Their bodies are either elongate (arenicoliform) or maggot-shaped, and often inflated anteriorly. They typically have a bifid or T-shaped prostomium with frontal horns, which for *Polyphysia crassa* (Örsted, 1844) has been found to assist burrowing through the sediment (Elder 1973). Scalibregmatids have biramous parapodia that bear simple setae, including capillaries, lyrate setae, and acicular spines, some of which are large and conspicuous. Because scalibregmatids largely occur in deep water, little is known about their biology.

Scalibregmatids from Antarctic seas are generally well documented (Hartman 1967; Blake 1981; Schüller & Hilbig 2007; Schüller 2008). Collectively, these authors have reported 13 species from Antarctic and subantarctic locations distributed in the genera *Asclerocheilus* (1), *Oligobregma* (6), *Pseudoscalibregma* (3), *Scalibregma* (1), *Sclerocheilus* (1), and *Axiokebuita* (as *Kebuita*) (1). Of these 13 species, 12 are endemic to the Southern Ocean; the one species of *Scalibregma* has been referred by these and other authors to *S. inflatum* Rathke, 1843, the type-species.

A large, well-preserved collection of scalibregmatids was collected as part of a geological and biological survey along the eastern side of the Antarctic Peninsula in May 2000. Included among the more than 450 specimens is a full size range representing post-larval forms, juveniles, and fully developed and mature adults of a