

Phylogenetic analysis of Lumbrineridae Schmarda, 1861 (Annelida: Polychaeta)

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Abstract

This study represents the first phylogenetic reconstruction of lumbrinerid genera using parsimony analyses of 38 morphological characters. Following higher-level phylogenetic analysis, *Oenone* (Oeononidae) was selected as outgroup. The analysis was restricted to type species for each genus, yielded 24 equally parsimonious trees, which after successive weighting were reduced to one tree (CI= 0.7396). The topology of this tree revealed the separation of the family into four main clades: 1. *Lysarete*, 2. *Arabellonereis*, 3. *Scoletoma*, *Lumbrineris*, *Hilbigneris* **gen. nov.**, *Kuwaita*, *Lumbricalus*, *Sergioneris* **gen. nov.** and *Eranno*, and 4. *Abyssoninoe*, *Cenogenus*, *Lumbrinerides*, *Lumbrineriopsis*, *Augeneria*, *Loboneris* **gen. nov.**, *Gallardoneris* **gen. nov.**, *Helmutneris* **gen. nov.**, and *Gesaneris* **gen. nov.**; the position of *Ninoe* is unclear. A diagnosis of each genus is provided, including the description of six new genera and three new species. A key to lumbrinerid genera is included.

Key words: Polychaeta, Lumbrineridae, phylogeny, new genus, new species

Introduction

Lumbrineridae is one of the families belonging to Eunicida; it has over 200 described species recognized in 13 genera. The group has a worldwide distribution from shallow water to abyssal depths living as burrowers in mud and sand, on rocky bottoms or algal holdfasts, and symbiotic relationships with ahermatypic corals (Pleijel, 2000). The first lumbrinerid species was described by Müller in 1776 as *Lumbricus fragilis* (currently *Scoletoma fragilis*). In the past, the group was considered by some authors as a subfamily of Eunicida but is now considered as an independent family. Commonly, lumbrinerids were regarded as comprising species with simple body shape and with reduced external morphological features. Thus, the species described were lumped in a few genera and some genera were regarded as synonyms and forgotten or not considered during the erection of new taxa (Carrera-Parra, 2001a). The taxonomic delineation of genera in the family is changing due to a different taxonomic approach based mainly on the use of maxillary characters. Some genera have been emended and others have been erected as