



Skeneimorph gastropods in Neomphalina and Vetigastropoda — A preliminary report

THOMAS KUNZE¹, MARTIN HEß¹, MARTIN BRÜCKNER², FRIEDERIKE BECK¹ & GERHARD HASZPRUNAR^{1,2}

¹ Department Biologie I, Ludwig-Maximilians-Universität München, BioZentrum Martinsried, Großhaderner Str. 2, 82152 Planegg-Martinsried, Germany

² Zoologische Staatssammlung München, Münchhausenstraße 21, 81247 München, Germany.

Abstract

Until recently the systematics of the Skeneidae (type species *Skenea serpuloides* Montagu, 1808) has been solely based on shell characters, radula details and external morphology. However, methodological progress (e.g. SEM) and preliminary anatomical data suggest that this vetigastropod group represents a polyphyletic, “skeneimorph” assemblage. Serial semithin sectioning combined with computer-aided 3D-reconstruction permits the detailed anatomical investigation of such small (1–3 mm), helicoid gastropods.

The taxa for which micro-anatomical data are available include six skeneimorph species from six genera: (1) True Skeneidae, exemplified by the type species, *Skenea serpuloides* (Montagu, 1808), doubtlessly belongs to Vetigastropoda and probably rests within the Trochoidea/Turbinoidea. Apomorphies of *Skenea* and related genera include a penis formed by the right propodium. (2) *Bathyxylophila excelsa* Marshall, 1988, *Ventsia tricarinata* Warén & Bouchet, 1993 and an undetermined “skeneimorph vetigastropod” have papillate cephalic and epipodial tentacles, a single monopectinate ctenidium with skeletal rods and bursicles, a papillary left and a right excretory organ, and statocysts with several statoconia. All these characters are indicative for a position of these species inside Vetigastropoda. Distinct appearance of epipodial tentacles and the lack of a combined epipodial sense organ argue against an inclusion into Trochoidea/Turbinoidea and thus Skeneidae s.s. (being defined by the characteristics of *Skenea serpuloides*). At present, these species cannot be classified in any known vetigastropod subclade. (3) *Leptogyra constricta* Marshall, 1988 and *Leptogyropsis kalinovae* Marshall, 1988 both are characterized by smooth cephalic and epipodial tentacles, a single, left excretory organ and statocysts with one statolith. These anatomical data strongly suggest a systematic position in the likewise rhipidoglossate Neomphalina, which might be considered as an independent rhipidoglossate clade outside the Vetigastropoda.

Although we are still at the very beginning in our investigation of skeneimorph anatomies, it is clear that this polyphyletic assemblage needs to receive much more attention for a complete understanding of vetigastropod and neomphalidan phylogeny.

Keywords: Skeneidae, microanatomy, microgastropods, 3D-reconstruction, hydrothermal vents, sunken wood

Introduction

Since the erection of the taxon Skeneidae Clarke, 1858 numerous species have been formally described in this family, which usually is referred to Trochoidea within Vetigastropoda (e.g., Hickman & McLean 1990). With the exploration of the deep sea inhabitants, especially sunken wood associations and the hydrothermal vent fauna, a series of new genera were added to this family in recent decades