

Systematic Revision of Australian and Indo-Pacific Lucinidae (Mollusca: Bivalvia): *Pillucina*, *Wallucina* and Descriptions of Two New Genera and Four New Species

EMILY A. GLOVER AND JOHN D. TAYLOR

Department of Zoology, Natural History Museum, London SW7 5BD, United Kingdom

emily.glover@dial.pipex.com

j.taylor@nhm.ac.uk

ABSTRACT. This taxonomic revision concerns the Australian and Indo-Pacific species of small lucinid bivalves possessing a deeply inset internal ligament. Nine species of *Pillucina* are recognised of which four occur around Australia including the two new species, *P. pacifica* and *P. australis*. Two other new species are described; *P. denticula* from South Africa and *P. mauritiana* from Mauritius. *Pillucina vietnamica* is common along the Queensland coast and *P. symbolica* the only species previously recorded from Australia is considered conspecific with the wide ranging species *P. pisidium*. A new genus, *Chavana*, includes two species; *C. striata* is widely distributed in the Indo-West Pacific including eastern and western Australia, while *C. erythraea* is restricted to the Arabian Peninsula. Two species of *Wallucina* live around Australia, *W. assimilis* is endemic occurring at southerly locations from New South Wales to North West Cape, while the tropical species, *W. fijiensis*, is found in island habitats of Queensland but is widely distributed in the Indo-West Pacific. Another new genus, *Funafutia*, is proposed for the species, *F. levukana*, recorded from Australia for the first time. Details of anatomy are provided for *Pillucina vietnamica*, *W. assimilis* and *C. striata*. Symbiotic bacteria are confirmed for the first time in the lateral zone of gill filaments of *Pillucina vietnamica* and *Wallucina assimilis*.

GLOVER, EMILY A., & JOHN D. TAYLOR, 2001. Systematic revision of Australian and Indo-Pacific Lucinidae (Mollusca: Bivalvia): *Pillucina*, *Wallucina* and descriptions of two new genera and four new species. *Records of the Australian Museum* 53(3): 263–292.

The discovery of the symbiotic association between lucinid bivalves and sulphide oxidising chemoautotrophic bacteria has attracted much recent biological interest (Reid, 1990; Distel, 1998). The symbiosis has now been confirmed in at least 30 species of Lucinidae representing 18 different genera from several distinct clades (Taylor & Glover, 2000) and from this may it be extrapolated as present in most, if not all, living taxa. This biological interest highlights the neglect of lucinid systematics at all levels, with most taxa being rather poorly defined (e.g., Chavan, 1969) and known only from shells. The last major taxonomic review (Bretsky, 1976) was largely restricted to north American taxa and no

phylogenetic analyses, either morphological or molecular, provide an evolutionary framework for the group. Additionally, recent studies of tropical lucinids show that the family is much more diverse than has been previously realised (Glover & Taylor, 1997; Taylor & Glover, 1997a,b) and many small species remain undocumented.

During a search for lucinids on the Queensland coast we discovered populations of an abundant *Pillucina* species, not previously reported from Australia, living on the outer fringes of mangroves at Port Douglas. On attempting to identify this species (*Pillucina vietnamica*) it soon became clear that the taxonomy of *Pillucina* and related genera was