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The amathiiform Ctenostomata (phylum Bryozoa) of New Zealand —including four new species, two of them of probable alien origin

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Abstract

The status of the vesiculariid ctenostome genus *Amathia* in New Zealand has been evaluated on the basis of all known material, including historic specimens in museums and those newly collected during formal surveillance of ports, harbours and vessels for possible alien species. Eight species are recognised, four of them new to science. *Amathia gracei* n. sp. and *Amathia zealandica* n. sp. are the only apparently endemic species. *Amathia chimonidesi* n. sp. appears to be a previously unrecognised alien species and is known only from shipping harbours and/or yacht marinas and some nearby beaches. *Amathia similis* n. sp. has been known in the Auckland area since the 1960s but was confused with *A. distans* Busk. *Amathia bicornis* (Tenison-Woods), *A. biseriata* Krauss, *A. lamourouxii* Chimonides and *A. wilsoni* Kirkpatrick are Australasian species that occur naturally on both sides of the Tasman Sea. Of this latter group, *A. bicornis* was discovered only at a single locality on the southwest coast of North Island in 1983 on a furoid seaweed and it may be relatively recently self-introduced. A specimen of *A. lendigera* (Linnaeus) in the Museum of New Zealand, purportedly from Napier, is considered to be based on a misunderstanding or a labelling error and does not represent a failed alien introduction. The *Amathia*-like vesiculariid *Bowerbankia citrina* (Hincks) sensu lato is newly recorded for New Zealand. Keys are provided to the amathiiform (i.e. *Amathia* and *Amathia*-like) Ctenostomata of New Zealand and to the worldwide species of *Amathia* and *Bowerbankia* with zooid clusters spiralled on stoloniform axes.

Key words: Bryozoa, Ctenostomata, *Amathia*, *Bowerbankia citrina*, new species, introduced species

Introduction

Amathia Lamouroux, 1812 is a well-known genus of Vesiculariidae that has been reported from all continents except Antarctica. All species have branching colonies, dendroid, bushy or repent, that are made up of stolon segments, separated by septa at nodes, which bear clusters of autozooids. The distinctive feature of the genus, reflected in a later junior synonym (*Serialaria* Lamarck, 1816), is that the autozooids are seriated in the clusters, occurring in actual or slightly offset pairs that are connate with adjacent autozooids for a considerable part of their height, the connate wall being slightly (or considerably) more cuticularised than the extensible distal part. The genus is known from the latest Mesozoic (Maastrichtian), based on a bioimmured fossil, *Amathia immurata* Voigt, 1972, which preserves the imprint of spiralled autozooid clusters about a stoloniform axis. *Amathia* is nested within the confamilial genus *Bowerbankia* Farre, 1837 in gene trees (Waeschenbach *et al.* 2012), with an unnamed *Amathia* species sister to *Bowerbankia citrina* (Hincks, 1877) from Wales. After accounting for synonyms (Prenant & Bobin 1956; d'Hondt 1983; Chimonides 1987; Souto *et al.* 2010), there are at least 31 valid, previously described *Amathia* species, 16 of which exhibit some degree of spirality of the autozooid clusters on the stolon segments and the balance have the autozooids in more or less straight series (Table 1). Two species of *Bowerbankia*—*B. citrina* and *B. pustulosa* (Ellis & Solander, 1786)—also have a somewhat spiral disposition of autozooidal clusters and hence appear ‘amathiiform,’ but these zooids are not connate nor are the lateral walls differentially cuticularised.