

MARTESIA FRAGILIS VERRILL & BUSH, 1898 IN THE NORTH-EAST ATLANTIC. OVERLOOKED AND A RECENT NEW DISCOVERY

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Abstract After the storms of 2013, a chance find of a beached coconut on the SW coast of England apparently provided the first British record of *Martesia fragilis* Verrill & Bush, 1898. However, re-examination of museum collections revealed another specimen dating from the late nineteenth century, taken from Galway, Eire. Species of *Martesia* are notoriously difficult to separate and so here we provide outline descriptions of the three Atlantic species of *Martesia* with particular attention to the mesoplax in order to assist with any future finds on British shores.

Key words *Martesia*, Britain, Ireland, *Martesia fragilis*, New record

INTRODUCTION

The prolonged westerly gales experienced across the British Isles over the winter of 2013–14 have resulted in numerous strandings of pelagic species as posted on the Facebook pages of the Porcupine Marine Natural History Society with strandings of American bivalves reported by Holmes, *et al.* (2015). Of special interest is the finding of a coconut (Fig. 1) washed ashore on the Cornish coast in which were specimens of *M. fragilis*. Until this study *M. fragilis* was not recorded in the British Isles, however, investigation of specimens of '*M. striata*' from Galway from the NMW collections were revealed to be, in fact, *M. fragilis*.

Bivalves of the genus *Martesia* are wood-boring piddocks of the family Pholadidae. Of the six recognised species, three are known from the Atlantic Ocean; *Martesia striata* (Linnaeus, 1758), *M. fragilis* Verrill & Bush, 1898 and *M. cuneiformis* (Say, 1822).

Martesia striata is a seriously destructive species commonly found throughout the tropical latitudes in Atlantic, Indian and Pacific Oceans (Turner, 1954). In the Western Atlantic it is recorded from Virginia to Brazil in floating wood (Coan & Valentich Scott, 2012). It has been recorded sporadically from northern temperate waters, including the British Isles, but only from floating timber (Turner, 1955; Devonshire



Figure 1 Coconut washed ashore at Lusty Glaze Cove near Newquay.

coast – Tebble, 1966). Currently the United Kingdom's NBN Gateway, 2015, indicates only five records from floating timber washed ashore in North Wales.

Martesia fragilis is apparently rare, recorded in the Western Atlantic from floating timbers and nuts mostly in subtropical and tropical waters from Virginia to Brazil. It has been recorded from Virginia, USA in floating wood (Turner, 1955); through to the Gulf of Mexico, from test plates off Texan coast (Turner, 1955); a coconut washed up at Freeport, Texas (Poppe & Poppe, 2006); a floating nut, from Andros Island, Bahamas (Turner, 1955). As with *M. striata* it is also recorded from the Indian Ocean and recently from the Eastern Pacific (Coan & Valentich-Scott, 2012). Oliver *et al.* (2010) indicate sporadic records from western Ireland and we record *M. fragilis* from the southwest coast of England.

Martesia cuneiformis is frequent in the Caribbean, its known distribution in the Western Atlantic is from New Jersey to Brazil (Turner 1971) and it has also been recorded recently from the tropical Eastern Pacific (Coan & Valentich-Scott, 2012). There are no records for the Eastern Atlantic.

Here we provide outline descriptions of the three species of *Martesia* known from the Atlantic Ocean and review the records of *Martesia* from the British Isles.

SYSTEMATICS

Family Pholadidae
Subfamily Martesiinae

Genus *Martesia* Sowerby 1824

Type species *Pholas clavata* Lamarck
1818=*Martesia striata* (Linnaeus 1758)

The genus *Martesia* contains mostly wood- or seed-boring piddocks in which the adult shell is divided into two parts and closed by a callum. Formation of the callum occurs once the animal has ceased to bore, regardless of size or age of the specimen. The anterior area is sculptured by radial ridges and the posterior area with concentric ridges. The shells are remarkably variable in outline within species making identification from these gross features difficult. Accurate identification requires presence of the mesoplax, the shape and sculpture of which is diagnostic.

Martesia striata (Linnaeus, 1758)
Fig 2 A, D

Material examined One specimen, from the personal collections of David Fenwick, from a coconut in the Philippines.

We were unable to locate any specimens relevant to published records from Britain and Ireland.

Type locality Given as *Europae australis* (southern Europe) in Linnaeus (1758) and Kingston, Jamaica in Turner (1955). Turner (1955) states that Linnaeus did not have a specimen of *Pholas striata* in his collection and his only reference was Gualtieri's (1742) figure, which is missing the mesoplax. The description of *Pholas pusillus* (Linnaeus 1758), a junior synonym of *M. striata*, is based on an illustration of a specimen from Jamaica in Brown, 1756. For this reason, Turner goes on to state that they restrict the type locality to Kingston, Jamaica because they have several specimens from that location.

Mesoplax Large, circular with irregular furrows or wrinkles. The mesoplax can be very variable but is distinguished from *M. fragilis* and *M. cuneiformis* by a lack of concentric sculpture (*M. fragilis*) and a lack of a longitudinal groove and growth lines (*M. cuneiformis*).

Distribution First recorded in Britain as *Pholas nana* Pultney 1799 from Dorset. Further sporadic records from around Britain and Ireland include wood on Brixham pier; off driftwood, Devon and in water-logged mahogany near Killala, Sligo and the coast of Clare (Forbes & Hanley 1853). No doubt it has been under-recorded around the UK perhaps because it was not considered a native species.

Martesia fragilis Verrill & Bush, 1898
Fig 2B, E

Material examined 2 specimens from Rossbrig, Galway, Ireland NMW.1953.185.01919. 2 specimens found by Dr Paul Gainey and identified by David Fenwick in a coconut washed ashore at Lusty Glaze Cove, nr. Newquay, Cornwall 50°25'19 N 5°3'52 W in March 2014 and which was collected by Tracey Williams.

Type locality Off Cape Charles, Virginia, USA.

Mesoplax Oval with a dorsal depression and concentric sculpture visible in both juvenile and

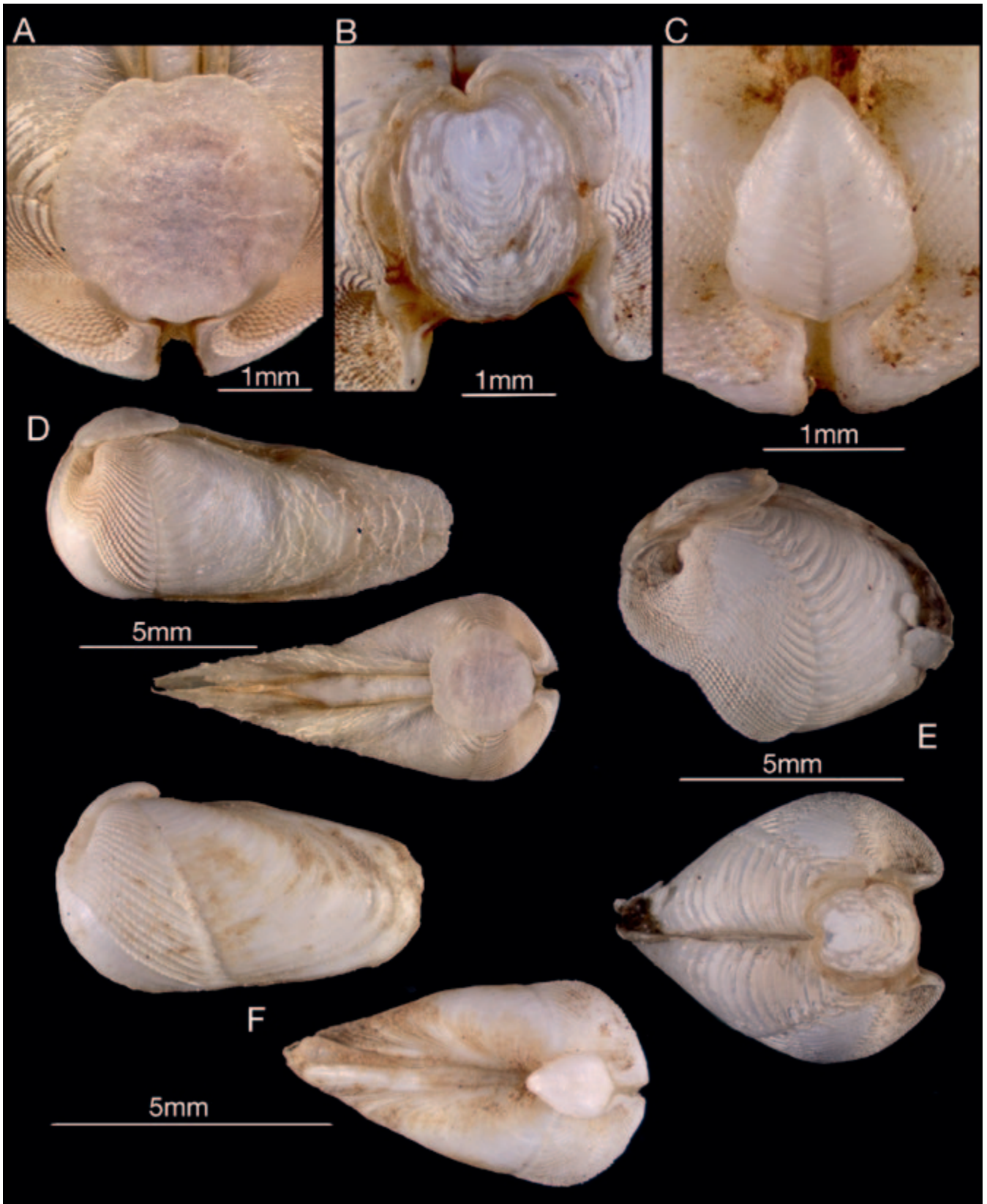


Figure 2 Mesoplax A *Martesia striata*. B *M. fragilis*. C *M. cuneiformis*. Dorsal and lateral views of D *Martesia striata* E *M. fragilis* F *M. cuneiformis*.

adult specimens. Described as a new subgenus – *Martesia* (*Martesiella*) *fragilis*.

Distribution Records are from floating timber and nuts in Atlantic, Indian and eastern Pacific Oceans. This is the first record for *M. fragilis* in the UK.

Martesia cuneiformis Say, 1822
Fig 2C, F,

Material examined Florida Keys, USA, National Museum of Wales collections NMW. Z1955.158.18610.

Type locality Charleston, South Carolina, USA.

Mesoplax Wedge-shaped with a central groove and growth lines. The shape varies between individuals but the mesoplax always has a pronounced posterior protrusion (to give the wedge-shape) and to a lesser extent an anterior one. The central groove may be barely perceptible in some specimens, but the growth lines are always visible.

Distribution A tropical Western Atlantic species but there are several records from Eastern Pacific. Not yet recorded from the UK.

REMARKS

The recent storms of winter 2013–2014 resulted in a large amount of flotsam being washed ashore around Britain and Ireland including coconuts, large pieces of bamboo and even bait pots from the eastern United States (Holmes *et al.*, 2015). The preferred habitat of *M. fragilis* appears to be floating wood and nuts and records may increase with further strandings following storms. *Martesia striata* is known from structural timbers and wooden ships and thus may actually have declined since wood was replaced by concrete and steel. *Martesia* species are most often found in tropical and subtropical waters but the early records, especially that from Brixham pier, suggest that *M. striata* was established in southern England.

This is the first record of *Martesia fragilis* in Britain and although *M. cuneiformis* had not yet been discovered in our waters we include it as a comparison to the other two species. In the event of it being washed ashore its distinctive

mesoplax makes it easily recognisable from the other two species.

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