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Caloxanthus britannicus sp. nov. (Decapoda, Brachyura, Feldmanniidae) from the Cenomanian of England and France

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Abstract

The recently revised description of *Caloxanthus americanus* Rathbun, by Vega, Jackson and Ossó reveals significant differences from specimens earlier assigned to that species by Wright and Collins. The granulated dorsal surface of the European specimens warrants their separation and description of a new species, *Caloxathus britannicus*.

Key words: New species crab, Cenomanian, England, France

Introduction

The recent revision if *Caloxanthus americanus* Rathbun, 1935, by Vega, Jackson and Ossó (2014) not only drew attention to exceptionally well preserved and recently found material, thus allowing extensive revision of the description, and allowed detailed comparison with British specimens assigned to that species by Wright and Collins (1972). The granulated surface ornament of *C. britannicus* which contrasts sharply with the pustulate ornament of *C. americanus*, together with the marked differences between their cardiac regions are sufficient to allow separation of the two species.

Specimens prefixed NHM are deposited in the Department of Earth Sciences, the Natural History Museum, London, and those MNH LM are in the Natural History Museum "Musée vert", Le Mans, Sarthe.

Stratigraphy

The holotype of *C. americanus* is from the Upper Albian Paw Paw Formation of Fort Worth, Texas. The British carapaces assigned to that species came from the Cenomanian of Seaton and Wilmington, Devon, England. These are supplemented by one other specimen now known from Wilmington and carapaces (as *C. americanus*) were recorded by Breton and Collins (2011) from the Cenomanian of Petraval, Normandy. The stratigraphic occurrences of both the British and French specimens are discussed in detail in Wright and Collins (1972) and Breton and Collins (2011).

Systematic palaeontology

Infraorder Brachyura Latrielle, 1802
Superfamily Etyoidea Guinot and Tavares, 2001
Family Feldnanniidae Schweitzer, Feldmann, Frantescu and Klompmaker, 2012

Genus *Caloxanthus* A. Milne Edwards, 1864

Type species: *Caloxanthus formous* A. Milne-Edwards, 1864, by monotypy.

Caloxanthus britannicus sp. nov.

(Figs. 1, 2)

1972. *Caloxanthus americanus* Rathbun: Wright and Collins, p. 104, pl. 21, fig, 7; pl. 22, fig. 1.

2011. *Caloxanthus americanus* Rathbun: Breton and Collins, p. 143, fig. 1C.

Diagnosis: Carapace transversely ovate, orbitofrontal margin about two thirds carapace width, strongly arched longitudinally, slightly so transversely, cardiac region enclosed between more or less parallel grooves. Surface densely and finely granulated.

Material: Holotype, NHM IC 1176, an internal cast, fig. 1D. Paratypes, NHM 60949, LM 2010.1.10, LM 2010.1.11, an attributed chela, IC 1177.

Description: The carapace is wider than long, with the anterolateral margins bending evenly into the nearly straight posterolateral margins which converge to join the rather narrow posterior margin. The carapace is strongly arched in longitudinal and slightly arched in transverse section. The orbitofrontal margin is three fourths carapace width. Straight in frontal view, the frontal margin is slightly sinuous and divided by a fairly wide median sulcus. The orbits are large, deeply indenting the margin in plan view, the lower margin projecting in front of the upper. A smooth depression runs behind the upper orbital margins which are smooth. The lateral margins are entire, rather sharp and strongly undercut. The mesogastric lobe is just visible. On the cast small, round epigastric lobes are absorbed by shell thickness. A faint, medially transverse cervical groove defines weakly rounded mesobranchial lobes. The cardiac region is tolerably well defined, rather long, with nearly parallel sides and three small tubercles in an inverted triangle.

Attributed right chela; propodus about one third longer than high and moderately wide; upper and lower margins are gently curved; an oblique interdigital margin terminates in a circular articulating facet. Dense,

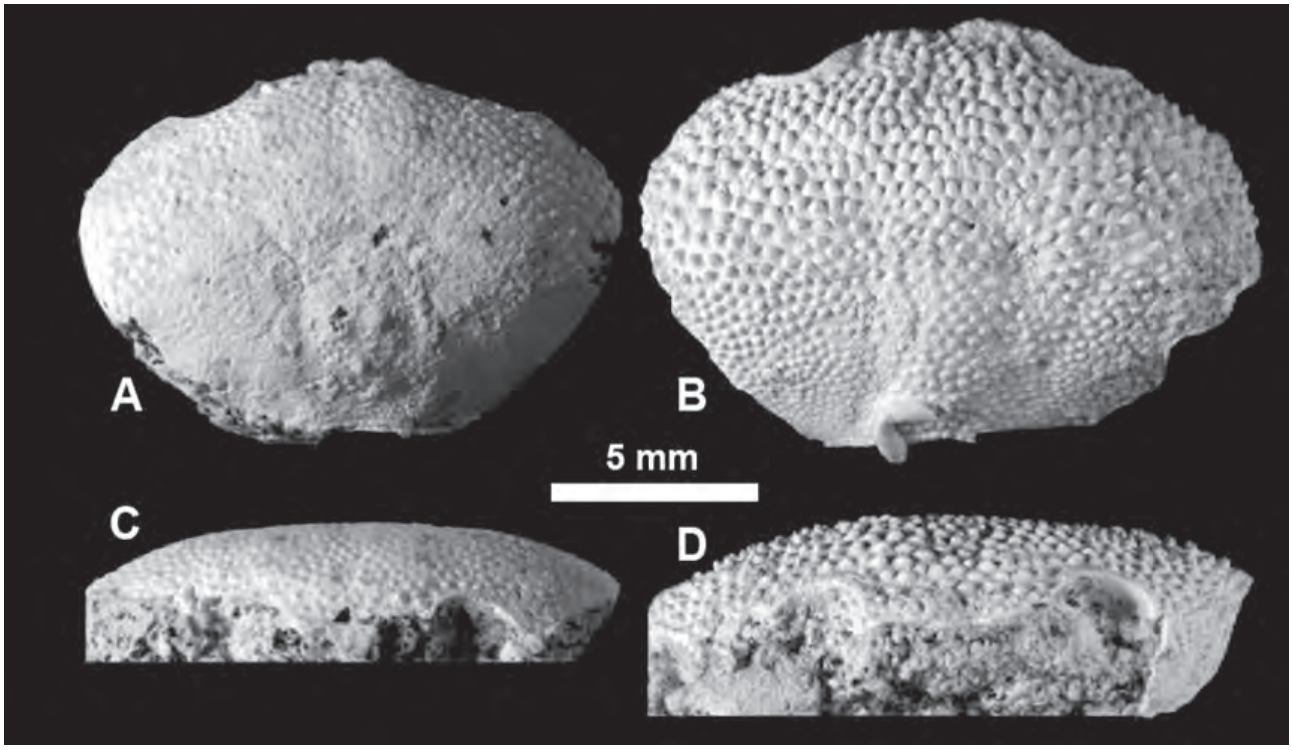


Fig. 1. A, C. *Caloxanthus britannicus* sp. nov., LM 2010.1.10. Cenomanian Craie glauconieuse Fm, Petreval, Annouville-Vilnesnil, Seine-Maritime, France. Dorsal and frontal views. Photo G, Breton, B, D. *Caloxanthus formosus* A. Milne-Edwards, LM 2010.1.5, Cenomanian, Craieglauconeuse Fm., La Cour Beumont, Coudehard, Orne, France, Dorsal and frontal views, Photo G. Breton.

even-sized granules crowd the outer surface. The smooth fixed finger is about as long as, and in line with the manus; the lower margin is bounded by a weak groove; matrix obscures the occludent margin. The dactylus has a proximal group of granules on the upper margin which is bounded by a very fine groove bounds the lower margin and a shallow median depression is lined with setae pits.

Discussion: Although rather similar in carapace outline, the granulated dorsal surface of *C. britannicus* sp. nov. readily distinguishes that species from *C. americanus*. Also, rounded furrows, rather than parallel, enclose a wider, ovate cardiac region. *Caloxanthus formosus* a coeval form, differs in being longer in relation to width, in having a more conspicuous cervical furrow, the lobes are noticeably more tumid, cardiac tubercles are wanting (albeit faintly visible in some decorticated specimens) and the dorsal surface is more coarsely granulated. The propodus of the left cheliped if *C. americanus* figured by Vega et al. (2014, figs. 3f, g) is more robust, the interdigital margin is sigmoidal and the surface ornament is pustulate similar to the carapace.

Four Santonian specimens referred to *C. formosus* by Wright and Collins (1972, p. 105, pl. 21, fig. 9) were later described as *Caloxanthus wrighti* Collins and Breton, 2011. Also referable to the Group of *C. formosus* is *Caloxathus purleyensis* (Withers, 1922) from the Coniacian or basal Santonian of Surrey, England.

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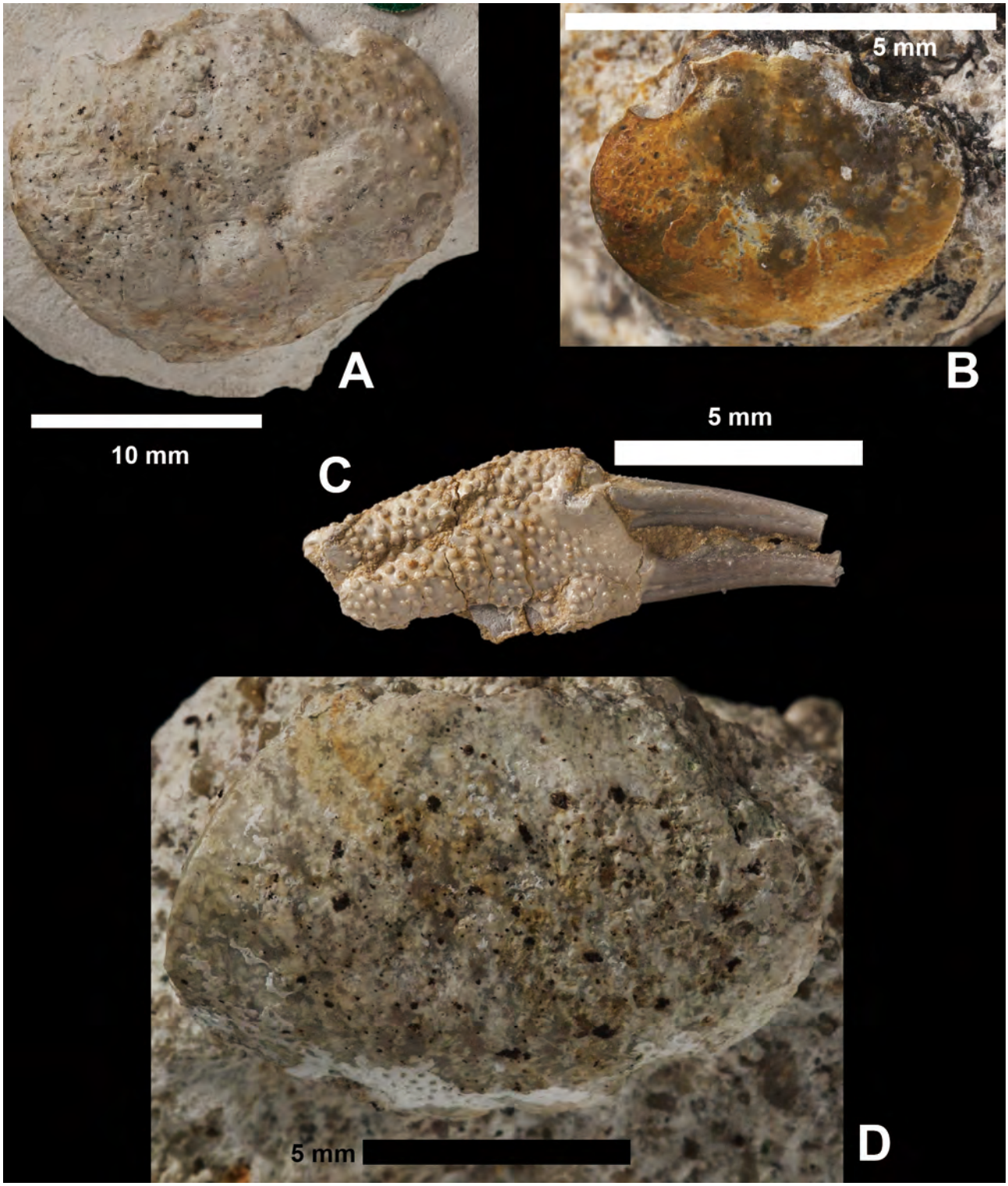


Fig. 2. A. *Caloxanthus purleyensis* (Withers), NMH In 27330, Upper Chalk, Coniacian or basal Santonian, *Micraster cortestudinarium* Zone, Purley, Surry. B. *Caloxanthus britannicus* sp. nov, paratype, decorticated surface, NHM 60949, Cenomanian limestone, *C. naviculare* Zone, Havencliff, Seaton, Devon. C. *Caloxanthus britannicus* sp. nov. NHM IC 1177 an attributed chela, as above, D. *Caloxanthus britannicus* sp. nov., holotype, NHM IC 1176, an internal cast, Cenomanian sands, *M. mantelli* Zone, White Hart pit, Wilmington, Devon.

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