

Mirror-image fossils reveal colony form of extinct Curaçao *Isopora*

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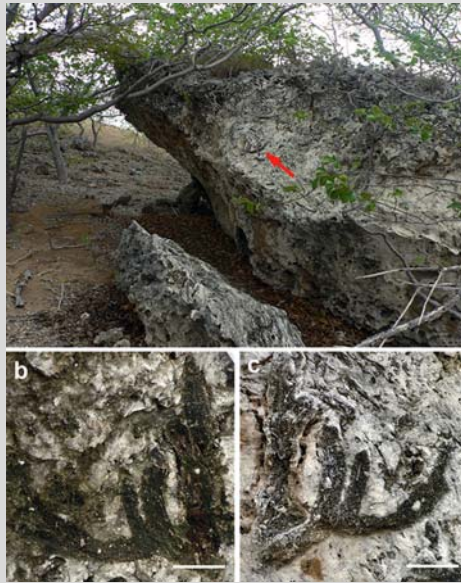


Fig. 1 **a** Carbonate rock face on Pliocene Ridges at Salina Sint Michiel, Curaçao (Site AB95-77 of Budd et al. 1998). Right-hand image of *Isopora curacaoensis* sample is shown in the centre of the image (red arrow). **b** left-hand image from fallen rock face and **c** right-hand image from intact rock face. Scale bars 50 mm

The extinct Caribbean coral species *Isopora curacaoensis* Budd and Wallace, 2008 occurred during ~6–3 Ma (Mio-Pliocene). It is found in Curaçao, Netherlands Antilles, with its congener *Isopora ginsburgi* Budd and Wallace, 2008 (~6–2 Ma). These are the earliest recorded occurrences of *Isopora* worldwide. Until now *Isopora curacaoensis* was known only from broken branches, which did not indicate any aspect of overall colony shape.

On a visit to the Salina Sint Michiel, in the Seroe Domi Formation of Curaçao, in July 2008, a large rock with a broken section was found to contain numerous fossils of *Isopora curacaoensis*, in which the axes of the corallites and some of the coenosteum had been replaced, forming casts. Some of these had been split into left and right mirror-image pieces (Fig. 1). One was a large section of colony (approx. 200 × 200 mm), showing a full branching unit including vertical branch base, horizontally extending branch and a secondary series of vertical branches (Fig. 1b, c), indicating that this colony had an open arborescent or ‘candelabra’ form, similar to that seen in some living specimens of *Isopora togianensis* in Sulawesi, Indonesia (Wallace et al. 2007).

The site is dated as early–mid Pliocene, absolute age range of 5.6–3 Ma (Budd et al. 1998). Also found here were the modern *Acropora cervicornis* and *A. palmata*, and the extinct *A. panamensis*. This indicates that conditions favouring both the extinct Caribbean genus *Isopora* and the successful modern genus *Acropora* occurred, as today in living Indo-Pacific reefs. At this point in time, *Isopora* was a dominant reef front genus in Curaçao, although it has yet to be found elsewhere in the Caribbean.

The assemblage marks a pivotal period in the turnover of the Caribbean coral fauna, where species which would persist into modern reefs co-occurred with species and genera which would become extinct due to environmental changes associated with closure of the Central American Isthmus. It is not only important to unravelling Caribbean extinctions, but also to predicting the fate of *Isopora* in the Pacific under changing oceanic conditions.

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Reef sites

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