

RESEARCH AND MANAGEMENT OPTIONS FOR MANGROVE AND SALT MARSH ECOSYSTEMS

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An archaeological perspective on the development and exploitation of mangroves in the United Arab Emirates

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Abstract

The presence of the mangrove or mud crab, *Scylla serrata*, in archaeological deposits from a number of sites distributed throughout the United Arab Emirates provides important information concerning the ancient distribution of mangroves. Confirmation of the presence of *S. serrata* within the Arabian Gulf has only been recently confirmed by the authors' ongoing fieldwork project to establish a reference collection of crabs from the U.A.E.

Keywords: *Scylla serrata*, Portunidae, crab, mangrove, archaeology, United Arab Emirates, Arabian Gulf

The mangrove crab *Scylla serrata*

The mangrove crab *Scylla serrata* is the largest of the swimming crabs, family Portunidae, reaching a carapace breadth of 22-23 cm and a weight of 1.5 – 2.0 kg (Figure 1). It is widespread in the Indian Ocean and western Pacific, and in many areas is an important food species either trapped or reared in aquaculture systems. *Scylla* is strongly associated with mangroves, where it spends much of its life cycle, excavating burrows in the soil from which it emerges to forage (Apel and Spiridonov 1998; Guinot 1966; Overton and Macintosh 1997).

***Scylla serrata* at archaeological sites in the Gulf**

Remains of *Scylla serrata* are readily recognisable in archaeological deposits: the heavily calcified claws preserve well (Figure 2). *Scylla* remains are particularly abundant at several sites in the Gulf (Figure 3). In Iron Age deposits at Rafaq in the Wadi al-Qawr, 98.4% by weight of the crab remains recovered were *Scylla serrata*, much of the remainder being the swimming crab *Portunus*, probably *P. pelagicus*. In the Sasanian/Islamic levels at Kush in Ras al-Khaimah 55.1% by weight of the crab remains were *Scylla* and 35.9% *Portunus*. Other archaeological sites in the Gulf have produced relatively sparse *Scylla* remains, and are dominated by *Portunus* (Figure 4)

The abundance of *Scylla* at some sites suggests that it was a significant food species, which at Rafaq was even transported some distance from the coast (Beech 2001; Beech et al. in press). The strong association of *Scylla* with mangroves suggests in turn that human populations were dependent on mangroves.

***Scylla serrata* in the modern Gulf**

The abundance of *Scylla serrata* remains in archaeological deposits contrasts with the virtual absence of the species from the present-day Gulf (Al Ghais and Cooper 1997; Apel and Spiridonov 1998; Hornby 1997).

Although the presence of the species has been suspected from observation of burrows, or from anecdotal evidence, no firm records existed until recently, when a single

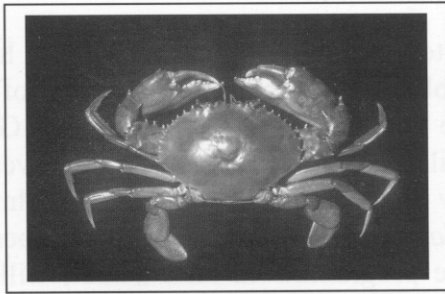


Figure 1: The mangrove crab, *Scylla serrata*

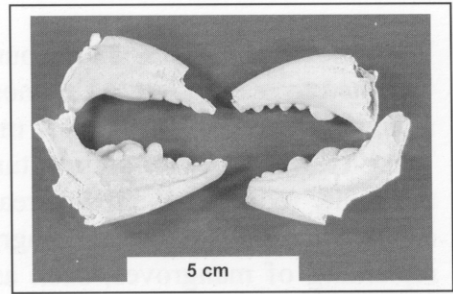


Figure 2: Claws of *Scylla serrata* from archaeological deposits at Rafaq site 2, Wadi al-Qawr, Ras al-Khaimah (1st millennium BC)

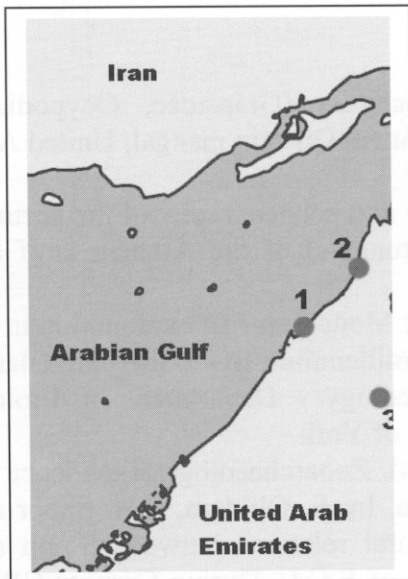


Figure 3: Map to show location of archaeological sites referred to: (1) Umm al-Qaiwain sites 1+2 (5th millennium BC midden/cemetery), (2) Kush, Ras al-Khaimah (Sasanian/Islamic settlement), (3) Rafaq site 2, Wadi al-Qawr (Iron age settlement)

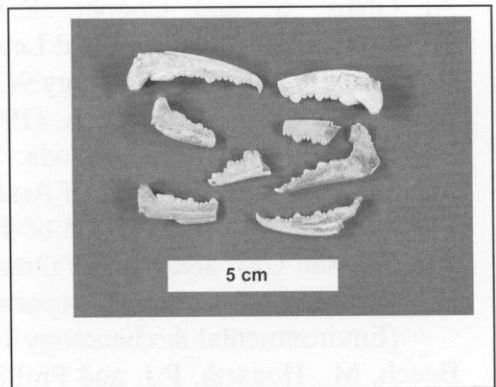


Figure 4: Fragments of claws of *Portunus*, probably *Portunus pelagicus*, from deposits at Umm al-Qaiwain sites 1+2 (5th millennium BC)

specimen was reported from Ras al-Khaimah, caught in a mangrove lagoon. This was from location UTM 393700 E / 2850300 N, near the Police Club, Ras al-Khaimah. (Hogarth and Beech 2001).

Why should a species, once abundant enough to be a significant food source, have vanished from the Gulf? The most probable explanation in this case is the loss of the mangrove habitat. In the past mangroves were much more widespread in the Gulf. Their use as timber for architecture and boat-building severely depleted mangroves in the Gulf, reducing them in area and diversity to relatively small patches, almost exclusively of the Grey mangrove, *Avicennia marina*. Possibly the deliberate replanting of mangroves, such as the extensive programme in Abu Dhabi, will be followed by a resurgence of this spectacular – and commercially valuable – species in the area.

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