Aquatic Invasions (2006) Volume 1, Issue 2: 51-54
DOI 10.3391/ai.2006.1.2.1

Research article

The first record of *Eriocheir sinensis* H. Milne Edwards, 1853 (Crustacea: Brachyura: Varunidae) from the Basrah Area of Southern Iraq

Paul F. Clark[1], Ibtsam M. Abdul-Sahib[2] and Muhamed S. Al-Asadi[2]
[1]*Department of Zoology, The Natural History Museum, Cromwell Road, London SW7 5BD, England*
E-mail: p.clark@nhm.ac.uk
[2]*Department of Biology, Marine Science Centre, University of Basrah, Basrah, Iraq*
E-mails: Ibtsam_tomi@yahoo.com ; ahalasadi@hotmail.com

Received 26 February 2006; accepted in revised form 26 April 2006

Abstract

The capture of *Eriocheir sinensis* H. Milne Edwards, 1853, the Chinese mitten crab is reported for the first time from Southern Iraq, in the Shatt Al Basrah Canal, 20 June 2005, south of the Euphrates and Tigris Rivers (Iraq, Syria and Turkey) and west of the Karun River (Iran).

Key words: *Eriocheir sinensis*, Shatt Al- Basrah Canal, Iraq

Introduction

Recently Robbins et al. (2006) reported the first Chinese mitten crab from Central Asia. The specimen was a male collected from the River Tazeh Bekandeh, 37º26'54"N. 49º25'07"E., less than 6 km from Caspian Sea, 5.20 km from Ghazian Bridge, Anzali Wetland, Anzali City, Guilan Province, Northern Iran, Baluchi, on 26 October 2002. The authors considered that the origins of the mitten crab from Iran, in the absence of DNA samples, could only be speculative as the Caspian Sea is connected to the Baltic Sea in the north and the Sea of Azov in the west via the Volga-Don Canal. Populations of mitten crabs appear to have become established in the Black Sea (Zaitsev and Öztürk, 2001), and the Sea of Azov (Murina and Antonovsky, 2001). Recent captures from this region include mitten crabs from the Volga River Delta and, the Cheboksary and Rybinsk Reservoirs (Slynko et al. 2002). Baltic Sea records of *Eriocheir sinensis* were first reported from Germany, Poland, Lithuania, Estonia, Sweden and Finland by Boettger (1934), Linnaniemi (1933) and Panning (1938).

The purpose of this paper is to record a second mitten crab from Central Asia that was captured ca. 900 km to the south Guilan Province, Northern Iran, from the Shatt Al-Basrah Canal, South Iraq (see Figure 1).

Abbreviations used: carapace width = cw; coll. = collected; determined by = det; Natural History Museum = NHM; registration number = reg.

Material examined: 1 female, non ovigerous, cw 47.2 mm, Shatt Al-Basrah Canal, 30º15´41.25"N. 47º48´56.91"E., Iraq, coll. Ibtsam Abdul-Sahib, 20 June 2005, det. Paul Clark, NHM reg. 2006.98 (see Figures 2, 3, 5). Some physico-chemical parameters were recorded from the area of capture on the Shatt Al-Basrah Canal, 20 June 2005 - Air Temp. 35ºC, Water Temp. 27ºC, Salinity 3.1‰, DO 6.12 mg/L, TDS 3.741 g/L, texture of the substratum - clay.

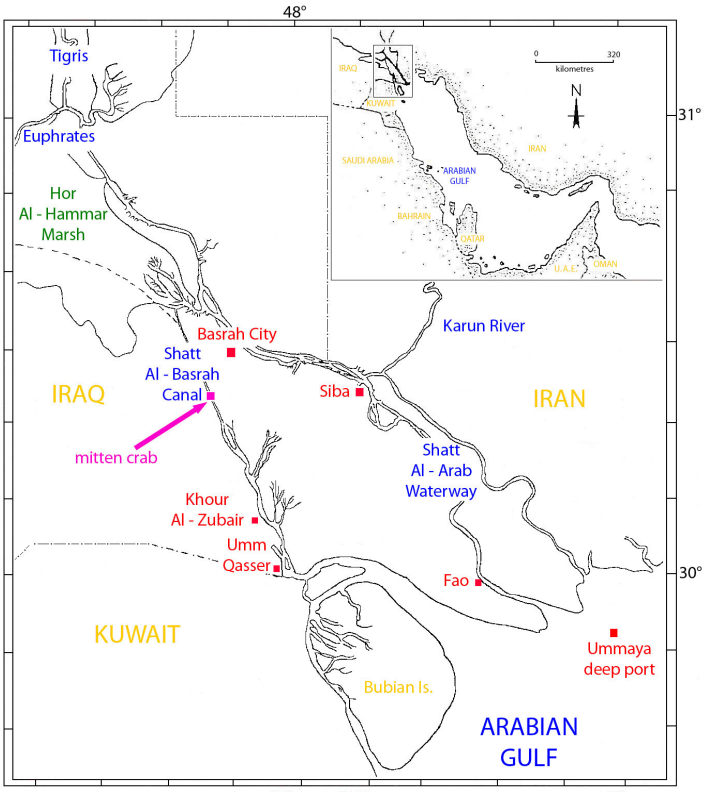

Figure 1. Southern Iraq showing the Euphrates, Tigris and Karun Rivers forming the Shatt Al-Arab Waterway and flowing southwards into the north Arabian Gulf

Figure 2. *Eriocheir sinensis* H. Milne Edwards, 1853: dorsal view of female specimen collected from Shatt Al-Basrah Canal, Iraq. NHM reg. 2006.98. Taken by Phil Hurst, NHM Photo Unit

Figure 3. *Eriocheir sinensis* H. Milne Edwards, 1853: ventral view of female specimen collected from Shatt Al-Basrah Canal, Iraq. NHM reg. 2006.98. Taken by Phil Hurst, NHM Photo Unit

Figure 4. *Eriocheir sinensis* H. Milne Edwards, 1853, left chela of male showing dense setal mats (mittens) completely circumventing the claw. Taken by Phil Crabb, NHM Photo Unit

Figure 5. *Eriocheir sinensis* H. Milne Edwards, 1853, left chela of female showing the reduction in setal mats (mittens) not completely circumventing the claw. NHM reg. 2006.98. Taken by Phil Hurst, NHM Photo Unit

Figure 6. *Eriocheir sinensis* H. Milne Edwards, 1853, Carapace quadrate (squarish). Taken by Phil Crabb, NHM Photo Unit

Figure 7. *Eriocheir sinensis* H. Milne Edwards, 1853, frontal margin between the eyes with central cleft and four spines. Taken by Phil Crabb, NHM Photo Unit

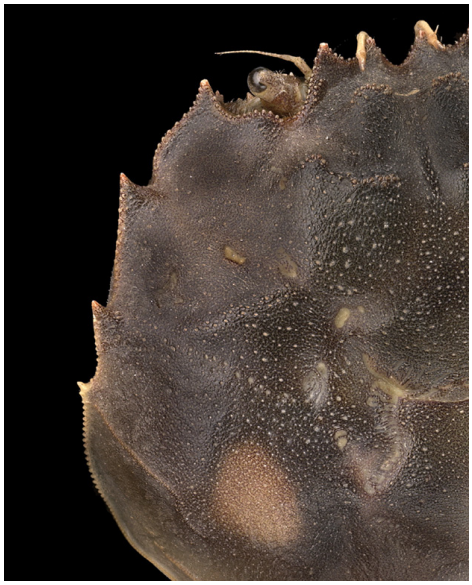

Figure 8. *Eriocheir sinensis* H. Milne Edwards, 1853, antrolateral lateral carapace margin with four teeth. Taken by Phil Crabb, NHM Photo Unit

Discussion

This mitten crab from Iraq is considered to be a ship-borne invasive as there are a number of ports along the Iraqi Arabian Gulf coast including Fao for merchant shipping, Umm Qasser is a port for oil tankers and there is a deep water oil port at Ummaya (see Figure 1). The latter two ports are considered to be the most vulnerable to exotic species because tankers arrive empty at the port and probably discharge ballast water before or during the procedures of taking on oil. However, the origin of the crab from the Shatt Al-Basrah Canal is unknown and without DNA samples it seems pointless to speculate.

Mitten crabs are known to spend most of their life in fresh water, but must return to the sea to breed. These crabs can migrate long distances. For example Schellenberg (1928) stated that juvenile mitten crabs could migrate ca. 1000 km while growing to adult size. Adema (1991) notes that *Eriocheir sinensis* has been found 1500 km inland in China, and that in the River Elbe, Germany crabs have been found 700-780 km upstream as far as Prague in the Czech Republic.

Three rivers feed the Shatt Al-Arab waterway in Iraq - the Euphrates, Tigris, and Karun. The origins of the Euphrates and the Tigris are in eastern Turkey and both flow to the Arabian Gulf via Syria and Iraq. The Euphrates is approximately 2800 km in length compared with the Tigris, ca. 1800km. Rising in the Zagros Mountains, West Iran, the Karun River flows south for about 720 km to meet the Shatt al Arab on the Iraqi border. All three watersheds would be vulnerable to *E. sinensis* with a catadromous life cycle were it to become established in the region.

The significance of this single, non-ovigerous female crab is uncertain. Is it just a one off capture or part of a larger population? Has the mitten crab already invaded the Hor Al-Hammer Marsh, which was, until recently, being drained by the Shatt Al-Basrah Canal? Whatever the situation, the region should be closely monitored and diagnostic characters of *Eriocheir sinensis* are provided to facilitate identification. These characters include setal mats on the chelae (Figures 4, 5), quadrate (squarish) carapace (Figure 6), frontal margin with deep central cleft and four spines (Figure 7) and four teeth on the carapace anterolateral margin (Figure 8).

References

Adema JPHM (1991) Krabben van Nederland en Belgie. [Crabs from Holland and Belgium]. Leiden: Nationaal Natuurhistorisch Museum, pp. xii + 244

Boettger CR (1934) Die Ausbreitung der Wollhandkrabbe (*Eriocheir sinensis* Milne Edw.) in Europa. In: Sitzungberichte der Gesellschaft naturforschender Freunde zu Berlin 1933: 399-415

Linnaniemi WM (1933) Kiinalainen villakämmenrapu (*Eriocheir sinensis* M.-E.) Suomessa Luonnon Ystävä 37: 196-201

Milne Edwards H (1853) Mémoires sur la famille des Ocypodiens. Annales des Sciences Naturelles série 3 (Zoologie) 20: 163-228

Murina VV and Antonovsky AG (2001) Chinese crab, *Eriocheir sinensis* is an invader into the basin of the Sea of Azov. Ekologiia Moria 55: 37-39

Panning A (1938) The Chinese Mitten Crab. Annual Report of Smithsonian Institute, pp 361-375. Smithsonian Institute

Robbins RS, Sakari M, Nezami Baluchi S and Clark PF (2006) The occurrence of *Eriocheir sinensis* H. Milne Edwards, 1853 (Crustacea: Brachyura: Varunidae) from the Caspian Sea region, Iran. Aquatic Invasions 1: 32-34

Schellenberg A (1928) Krebstiere oder Crustacea. II. Decapoda, Zehnfüßer. Die Tierwelt Deutschlands und der angrenzenden Meeresteile. Jena: Verlag Gustav Fischer. 10:iv+146

Slynko YV, Korneva LG, Rivier IK, Shcherbina KH, Papchenkov VG, Orlova MI, Therriault TW (2002) Caspian-Volga-Baltic invasion corridor. In: Leppäkoski E, Olenin S, Gollasch S (eds) Invasive Aquatic Species of Europe. Distribution, Impacts and Management, pp 339-411. Kluwer Academic Publishers, Dordrecht

Zaitsev Yu and Öztürk B eds (2001) Exotic species in the Agean, Mamara, Black, Azov and Caspian Seas. Turkish Marine Research Foundation, Istanbul, Turkey, pp 265