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The occurrence of *Eriocheir sinensis* H. Milne Edwards, 1853 (Crustacea: Brachyura: Varunidae) from the Caspian Sea region, Iran

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Abstract

Eriocheir sinensis H. Milne Edwards, 1853 has been introduced and established mainly in North East Europe and San Francisco Bay, United States from native China. This note records the first specimen of the Chinese mitten crab from the River Tazeh Bekandeh, Caspian Sea collected on 26 October 2002.

Key words: *Eriocheir sinensis*, Iran, Caspian Sea basin

Introduction

Eriocheir sinensis H. Milne Edwards, 1853 was introduced into Germany in 1912 (Panning 1939) from China by ships' ballast water and has spread subsequently throughout northern Europe. The present estimated distribution of established populations ranges from Finland (Haahtela 1963) in the north, through Sweden, Russia, Poland, Germany, the Czech Republic (Prague), Netherlands, Belgium and England, to France. Although recorded from near Oslo, Norway, this species has not become established (Christiansen 1977). The southernmost Atlantic coast record was the Golfe de Gascogne (Vigneux et al. 1993), France, and the crab extended its range via the Garonne canal system to Sigean (Petit 1960), Languedoc-Roussillon, a Mediterranean district of southern France, although it did not become established (Petit and Mizoule 1974). However, Cabral and Costa (1999) collected mitten crabs from the Tagus River, Lisbon, Portugal and this is the most southerly European record for *E. sinensis* to date. But further towards the eastern boundaries of Europe, populations of mitten crab 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).

The crab has also been reported from North America with records from the Detroit River at Windsor Ontario and Lake Erie (Nepszy and Leach 1973), and recently the St. Lawrence River (de Lafontaine 2005) Canada, the Mississippi Delta (Horwath 1989), and San Francisco Bay (Cohen and Carlton 1997), United States. *Eriocheir sinensis* has now become well established in California.

To complete this synopsis, according to Mayumi Uchida (pers. comm. via Stephan Gollasch) two crabs were collected in Tokyo Bay during 2004. The purpose of this note is to record the first mitten crab from the Iranian coast of the Caspian Sea.

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

Figure 1. Eriocheir sinensis H. Milne Edwards, 1853: dorsal view of male specimen collected from Northern Iran. Taken by Phil Hurst, NHM Photo Unit.

Figure 2. Eriocheir sinensis H. Milne Edwards, 1853: ventral view of male specimen collected from Northern Iran. Taken by Phil Hurst, NHM Photo Unit.

Material examined: 1 male cw 76.9 mm, River Tazeh Bekandeh, 37°26'54" N, 49°25'07" E, less than 6 km from Caspian Sea, 5.20 km from Ghazian Bridge, Anzali Wetland, Anzali City, Guilan Province, Northern Iran, coll. Mehiar Sakari, S Nezami Baluchi, 26 October 2002, det. Roni Robbins, NHM reg. 2002.2069 (Figures 1, 2).

Discussion

According to Aladin et al. (2002), nineteen alien species, believed to be ship-transported, have already established viable populations in the Caspian Sea since the opening of the Volga-Don Canal half a century ago. Although the canal is closed to commercial traffic between November and April, an estimated 400,000 ships have transversed this stretch of water in the last fifty years (Galil and Olenin 2002). However without DNA samples, the origins of the Iranian mitten crab can only be speculative as the Caspian is connected to Baltic Sea in the north and the Sea of Azov in the west. Both these areas have been invaded by *Eriocheir sinensis*. As for the establishment of a viable population of mitten crabs in the Caspian, this is debatable. Anger (1991) suggests that at suitable temperatures mitten crab first stage zoeas can tolerate salinities between 10 and >30‰, although the extremes cause increases in mortalities. The salinity of the Caspian Sea is ca. 12‰.

References

Aladin NV, Plotnikov IS and Filippov AA (2002) Invaders in the Caspian Sea. In: Leppäkoski E, Gollasch S and Olenin S (eds) Invasive Aquatic Species of Europe: Distribution, Impacts and Management, Kluwer Academic Publishers, pp. 351-359

Anger K (1991) Effects of temperature and salinity on the larval development of the Chinese mitten crab *Eriocheir sinensis* (Decapoda: Grapsidae). Marine Ecology Progress Series 72: 103-110

Cabral HN and Costa MJ (1999) On the occurrence of the Chinese mitten crab *Eriocheir sinensis* in Portugal (Decapoda, Brachyura). Crustaceana 72: 55–58

Christiansen ME (1977) Kinesisk ullhåndkrabbe funnet for første gang i Norge. Fauna 30: 134-138

Cohen AN and Carlton JT (1997) Transoceanic Transport Mechanisms: Introduction of the Chinese Mitten Crab, *Eriocheir sinensis*, to California. Pacific Science 51: 1–11

Galil BS and Olenin S (2002) Snakes and ladders: waterways and canals as invasion corridors. In Briand F (ed) CIESM Alien marine organisms introduced by ships in the Mediterranean and Black Seas. Istanbul, 6-9 November 2002. CIESM Workshop Monographs No 20 pp 136 Monaco

Haahtela I (1963) Some new observations and remarks on the occurrence of the Mitten Crab, *Eriocheir sinensis* Milne Edwards (Crustacea, Decapoda), in Finland. Aquilo Societas Amicorum Naturae Oulensis 1: 9–16

Horwath JL (1989) Final Rule on importation of injurious wildlife: mitten crabs. Federal Register; Rules and Regulations 54: 22286-22289

de Lafontaine Y (2005) First Record of the Chinese Mitten Crab (*Eriocheir sinensis*) in the St. Lawrence River, Canada. Journal of Great Lakes Research 31: 367-370

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

Nepszy SJ and Leach HJ (1973) First records of the Chinese mitten crab, *Eriocheir sinensis* (Crustacea: Brachyura) from North America. Journal of the Fisheries Research Board of Canada 30: 1909–1910

Panning A (1939) The Chinese Mitten Crab. Report of the Board of Regents of the Smithsonian Institution (Washington) [1938] 3508: 361–375

Petit G (1960) Le crabe chinois est parvenu en Méditerranée. Vie et Milieu 11: 133–136

Petit G and Mizoule R (1974) En douze ans le 'crabe Chinois' n'a pu réussir son implantation dans les lagunes du Languedoc. Vie et Milieu 23: 181-186

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

Vigneux E, Keith P and Noël P (eds) (1993) Atlas préliminaire des Crustacés Décapodes d'eau douce de France. Coll. Patrimoines Naturels. 14, Paris: Secrétariat de la Faune et de la Flore, Laboratoire de Biologie des Invertébrés Marins et Maalacologie Muséum National d'Histoire Naturelle, Conseil Supérieur de la Pêche, Ministère de l'Environment. pp i-vi, 1–56

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