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The Chinese mitten crab *Eriocheir sinensis* – an immigrant from Asia in the Gulf of Gdańsk

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Abstract

The present paper reports the occurrence of the Chinese mitten crab *Eriocheir sinensis* H. Milne Edwards, 1854 in the coastal waters of the Gulf of Gdańsk, and attempts an initial characterization of the crabs occurring in this area.

The appearance of an intentionally or unintentionally introduced species to the ecosystem is not without significance for its functioning. The many positive as well as negative aspects that usually arise out of such a situation are the subject of much discussion among ecologists. One of the non-native species to be found in the Gulf of Gdańsk is the Chinese

mitten crab *Eriocheir sinensis* (Żmudziński 1961), which comes originally from eastern Asia. Along with *Rhithropanopeus harrisii* ssp. *tridentatus* and *Carcinus maenas*, it is the third alien crab species to have been recorded in these waters (Żmudziński 1961, Skóra 2000). In recent decades *E. sinensis* has become more abundant in western Polish waters (Normant et al. 2000, Czerniejewski & Filipiak 2001a, b). Moreover, it has propagated rapidly to eastern Polish coastal waters (Vistula Lagoon) and in the last few years has been caught in increasing numbers in the Gulf of Gdańsk (personal communication). The majority of specimens have been netted near the ports in Hel and Kuźnica, on both the open-sea and Puck Bay sides, in both shallow coastal waters and deep areas of the sea. Chinese mitten crabs have also been recorded near the pier at Puck (B. Arciszewski pers. comm.). The crabs caught in fyke nets in the Gulf of Gdańsk are mostly large specimens: some are egg-carrying females (Skóra unpubl.), although males have made up the majority in catches made there. Males were also predominant in catches from Lake Dąbie and the Szczecin Lagoon (Normant et al. 2000, Czerniejewski & Filipiak 2001a). Population studies, however, are not possible, because of the insufficient numbers of specimens caught in the Gulf of Gdańsk (the local fishermen set up very few fyke nets) and the considerable distance from the North Sea where, according to Haahtela (1963), the species breeds.

The carapace width of 17 specimens (16 males and 1 female) collected in the summer months of 1998 and 1999 varied from 42.5 to 69.0 mm (av. 52.8 ± SD 6.0 mm), while the wet weight ranged from 96.1 to 232.5 g (av. 146.3 ± SD 33.0 g). The claw content in this wet weight was on average 21 ± 5%. Many crabs from the Gulf of Gdańsk were covered with barnacles. According to Panning (1939), this could be an indicator of extreme exhaustion, rendering them unable to rid themselves of their passengers.

Consideration should be given to the potential consequences arising from the presence of the Chinese mitten crab in Polish waters. So far, more disadvantages than advantages have made themselves apparent: competition for food with native species, and damage to fishing nets and their contents. Moreover, large numbers of these crabs could reduce populations of native species and alter the structure of benthic communities. On the other hand, the presence of *E. sinensis* has increased the biodiversity of the Gulf of Gdańsk. In tidal regions, Chinese mitten crabs usually burrow into beach zones between the high and low tide marks, thus causing substantial erosion of the shore. In Germany, for example, burrows were reported to be up to 50 cm deep and caused considerable damage in many places (Panning 1939). In tideless areas this burrowing activity is less extensive. Such behaviour has not yet been observed in Poland. A further point against these crabs

is that they are one of the intermediate hosts of oriental lung flukes, one species of which – *Paragonimus westermani* – occurs in mammals, including humans (Ingle 1986). Fortunately, none of the freshwater snail species that are primary intermediate hosts of the fluke has been recorded in Polish waters. It is possible that some native species act as host species, but to confirm this would require separate, extensive parasitological research. The chances of human infestation are therefore quite low; indeed, for this to happen one would have to eat raw or poorly cooked crabs. *E. sinensis* is not a common source of food for humans in Poland, although Czerniejewski & Filipiak (2001b) reported that its consumption there is rising. This exotic species is a commercial commodity in Asia, and in North America its price can be as high as $30 per kg. In comparison to the commercially harvested crayfish *Pacifastacus leniusculus* and *Astacus astacus*, *E. sinensis* contains less flesh. Even so, its interesting appearance contributes to its frequent use as a culinary decoration.

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