

THE ALIEN GULF WEDGE CLAM (*RANGIA CUNEATA* G. B. SOWERBY I, 1831) (MOLLUSCA: BIVALVIA: MACTRIDAE) IN THE POLISH PART OF THE VISTULA LAGOON (SE. BALTIC)

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ABSTRACT: Live specimens of the gulf wedge clam (*Rangia cuneata*) were for the first time found in the Polish part of the Vistula Lagoon in 2011. The species is native to the Gulf of Mexico and the Atlantic coast of North America. First records of its introduction in Europe were reported in 2005 from Belgium and then in 2010 from the Russian part of the Vistula Lagoon.

KEY WORDS: *Rangia cuneata*, alien species, Vistula Lagoon, Poland

Rangia cuneata originates from the Gulf of Mexico (HOPKINS & ANDREWS 1970). In 1960s it was recorded from the Chesapeake Bay on the Atlantic coast of North America and, in the late 1980s, spread to the Hudson River, New York (PFITZENMEYER & DROBECK 1964, ABBOTT 1974, WAKIDA-KUSUNOKE & MACKENZIE 2004). According to HOPKINS & ANDREWS (1970), *R. cuneata* may have occurred on the United States coast earlier, become extinct probably in the Pleistocene, and reappeared in the 1960s. PFITZENMEYER & DROBECK (1964) believe that the species has always been present there, but before the 1960s was overlooked. In Europe it was first found in the pipes of the cooling water system of an industrial plant in the Antwerp harbour, Belgium, in August 2005 (VERWEEN et al. 2006). There are however some observations suggesting that the species was introduced in Antwerp earlier, probably in 2000 (KERCKHOF et al. 2007). At present *R. cuneata* is common in Belgium in the brackish waters of the Noordzeekanaal (province of North-Holland) and the the Kanal Terneuzen-Gent (province of Zeeland) (NECKHEIM 2013). In the Vistula Lagoon *R. cuneata* was found for the first time in 2010, in the Russian part of the lagoon (RUDINSKAYA & GUSEV 2012). Based on the shell lengths (i.e. age) of specimens found in 2011 (20–40 mm) these authors suggested that the introduction of

the species into the lagoon took place at least two to three years earlier. It is unknown how the species travelled from the Gulf of Mexico in North America to Europe. The most plausible explanation is that specimens were transported in vessel ballast water (PFITZENMEYER & DROBECK 1964, CARLTON 1992, VERWEEN et al. 2006, RUDINSKAYA & GUSEV 2012).

In the Polish waters of the Vistula Lagoon live specimens of *R. cuneata* (Figs 1–2) were found for the first time in July 2011, on the muddy bottom, at the depth between 2 and 3 m. The southernmost point of their distribution was 19°37.779'E, 54°22.231'N. The specimens found in the Polish part of the Vistula Lagoon were identified using VERWEEN's et al. (2006) identification key to all European Mactridae. The identification was kindly checked by Professor ANDRZEJ PIECHOCKI, University of Łódź. The shell length of the specimens varied from 13 to 35 mm, which, like in the Russian part of the lagoon, indicates that introduction took place earlier. The maximum length of shells was similar to that given for *R. cuneata* in Belgium and Russia (VERWEEN et al. 2006, RUDINSKAYA & GUSEV 2012, EZHOVA 2012). In North America the shell length reaches 60–90 mm (e.g. FAIRBANKS 1963, HOESE 1973) and along the eastern Mexico coast – 30–70 mm (WAKIDA-KUSUNOKI & MACKENZIE 2004). According to TARVER (1972), “a combination of low



Figs 1–2. *Rangia cuneata* found in the Polish waters of the Vistula Lagoon: 1 – lateral view, 2 – inside view. Scale bar – 10 mm. Photo: KATARZYNA HORBOWA

salinity, high turbidity and a soft substrate of sand, mud and vegetation appears to be the most favourable habitat for *R. cuneata*". Such conditions can be found in the Polish part of the Vistula Lagoon (CZUBARENKO & MARGOŃSKI 2008) which should support dynamic development of the population (see also: RUDINSKAYA & GUSEV 2012).

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