

Dreissena polymorpha



Taxon	Family / Order / Class / Phylum
<i>Dreissena polymorpha</i> (Pallas, 1771)	Dreissenidae / Veneroidea / Bivalvia / Mollusca

COMMON NAMES (English only)

Zebra mussel

Wandering mussel

SYNONYMS

Mytilus polymorpha Pallas 1771

SHORT DESCRIPTION

Sessile bivalve mollusc, forming dense colonies on various hard substrates in fresh and slightly brackish waters. It has brownish-yellowish triangular shells (up to 50 mm) with dark and light coloured (“zebra”) zigzag banding. It is a filter feeder on microscopic plankton organisms and organic particles.



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Adult individuals of *Dreissena polymorpha*

Photo: Anastasija Zaiko

BIOLOGY/ECOLOGY

Dispersal mechanisms

During the pelagic state veligers and post-veligers are transported by currents. Secondary dispersal occurs by the drifting of post-larvae and young adults using byssal and/or mucous threads.

Reproduction

Zebra mussels have separate sexes, usually with a ratio 1:1. Fertilisation takes place externally. Synchronised spawning occurs once > 8 mm and is influenced by water temperature. A mature female may produce one million eggs per year. Spawning begins at 12-15°C, and can be profuse at 18-20°C; and may take place over a period of 3-5 months.

Known predators/herbivores

These small molluscs are preyed upon by different fish species (e.g. roach, carp, and eel) and also diving ducks, crayfish and muskrats.

Resistant stages (seeds, spores etc.)

None.

HABITAT

Native (EUNIS code)

C1: Surface standing waters, C2: Surface running waters, C3: Littoral zone of inland surface waterbodies, X1: Estuaries, X3: Brackish coastal lagoons. Large estuaries and inland waters, hard and soft bottom habitats.

Habitat occupied in invaded range (EUNIS code)

C1: Surface standing waters, C2: Surface running waters, C3: Littoral zone of inland surface waterbodies, X1: Estuaries, X3: Brackish coastal lagoons. The typical habitats colonised are estuaries, rivers and lakes, particularly where there are firm surfaces suitable for attachment.

Habitat requirements

It tolerates temperatures from -2°C to 40°C. The best growth is observed at 18-20°C. It tolerates brackish waters with salinity up to 7 ppt. Prefers moderately productive (mesotrophic) water bodies. Occurs from the lower shore to depths of 12 m in brackish parts of sea and to 60 m in lakes. It is able to tolerate low oxygen content in water for several days and to survive out of water under cool damp conditions for up to three weeks.

DISTRIBUTION

Native Range

Native to the drainage basins of the Black, Caspian and Aral Seas.

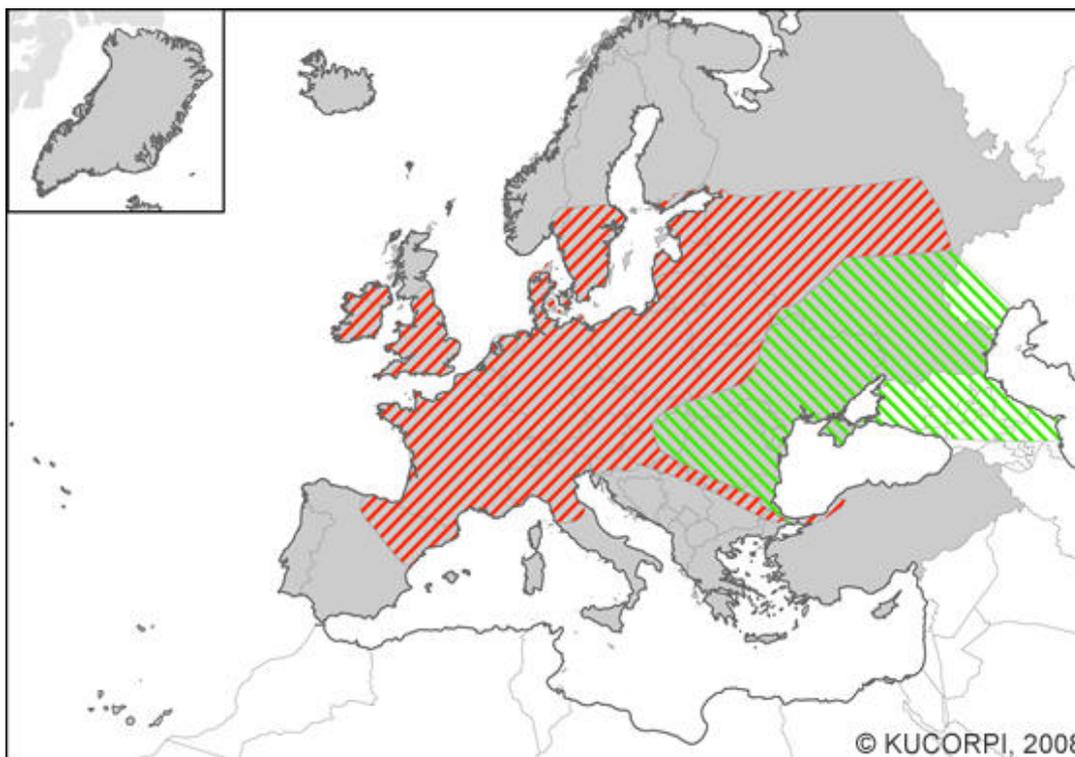
Known Introduced Range

Introduced to north-west Russia, central and western Europe, Scandinavia, Britain, Ireland and North America. During the 19th century the zebra mussel occupied most of inner water systems of western and central Europe, in the 1920's it appeared in Sweden, in the 1960's it was found in alpine lakes around the Alps and reached Italy in 1977, Ireland by 1994 and Spain by 2001. In 1988 it first appeared in Lake St. Clair and rapidly spread throughout the Great Lakes of North America.

Trend

Further range expansions are expected in temperate latitudes of the Northern Hemisphere. Future expansion to South America, South Africa, Australia and New Zealand is possible.

MAP (European distribution)



Legend

	Known in country		Known in CGRS square		Known in sea
	Native in country		Native in CGRS square		Assumed native range

INTRODUCTION PATHWAY

The most likely introduction vector is shipping (ballast water and hull fouling of vessels). Also could be transported with timber or river gravel and overland transport. Larval dispersal may occur.

IMPACT

Ecosystem Impact

It competes for space and food with native mussels and other filter-feeding organisms. Bioaccumulates pollutants. Its high consumption of phytoplankton results in increased water clarity. It is a food source for birds and benthophagous demersal fish. It causes severe habitat alterations.

Health and Social Impact

The sharp shells may cause injuries in recreational areas.

Economic Impact

Multiple economic impacts, including: fisheries (interference with fishing gear, prey for commercial fish, alteration of fish communities), aquaculture (fouling of cages); water abstractions (clogging of water intake pipes); aquatic transport (fouling of ship hulls and navigational constructions). Invasion of the zebra mussels to

the North America is causing annual multimillion losses to the economy. Zebra mussels also have been used as fishing bait, for fish meal production and feeding complements for poultry.

MANAGEMENT

Prevention

Preventing overseas transfer can only be achieved by mid-ocean exchange or by suitable disinfection of ballast water. Appropriate control measures (inspection, removal of attached mussels, drying, etc.) should be taken to minimise risk of inoculation by transfer of boats, fishing gears, etc.

Mechanical

Removal (scraping, mechanical scrubbers in pipes), thermal, UV light and electric currents have been used.

Chemical

Using anti-fouling paints and surfaces, metal-organic chemicals, chlorine, etc.

Biological

Control through predators.

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Author: Anastasija Zaiko and Sergej Olenin

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