

Chinese mitten crab

Eriocheir sinensis



Photo courtesy of Chesapeake Bay Program.

This medium-sized burrowing crab was first reported in the San Francisco Estuary in 1992 and is currently only established in California, although individuals have been reported in several East Coast areas such as the Chesapeake Bay and the Hudson River. Its presence in North America is concerning due to the significant negative impacts experienced after its introduction and spread throughout Europe.

Species Description

The Chinese mitten crab is easy to identify by its “mitten-like” claws. Both sexes have dense patches of bristled hairs on the claws, although they tend to be fuller in males. Juveniles may not have any hair. Adult crabs range in size from 30-100 mm (1-4 in.) and have legs about double the length of the torso. The carapace differs from other crabs in the same order in North America; it is convex and very uneven, with four pairs of spines located on the side edges. Mitten crabs range in color from a light brownish-orange to a greenish-brown and the tips of the claws are usually white. They also have a small notch between the eyes.

Native & Introduced Ranges

Native to southeastern Asia, the Chinese mitten crab has been introduced throughout the eastern and northern parts of Europe and the United States. Currently, California is the only U.S. state with a confirmed population of Chinese mitten crab. While there is no evidence they are established in the Great Lakes, specimens have been collected in the Detroit River, Lake Erie, and the Mississippi River Delta. Several crabs have been reported along the East Coast, including the Delaware River and Delaware Bay in Pennsylvania; however, it is unclear if these are reproducing populations.



Biology & Spread

While Chinese mitten crabs were probably introduced by ballast water transfers, they are also becoming popular in seafood markets, especially in New York. These crabs are often illegally released by purchasers in non-native areas to establish a fishery or local food resource. The crabs can easily disperse because they are skilled at walking on land, allowing them to bypass dams and other natural obstructions. They have also been known to cling to ship barges and hulls during transport.

Habitat

Adults typically inhabit the bottoms and banks of freshwater rivers and estuaries before migrating to brackish and salt water estuaries to reproduce. Late larval stages exist in the upper levels of the water column and are carried by currents towards the mouth of estuaries where they settle to the floor and develop into juvenile crabs. Juveniles begin upstream migration via main river channels where they then enter smaller rivers and streams with slower-moving waters.

Impacts

Threat to Biodiversity

Chinese mitten crabs are opportunistic feeders that will eat anything from algae and plant material to fish carcasses and invertebrates. For this reason, large populations have the potential to alter the food chain and affect the abundance and growth rates of various species. In California, there is large concern over the numerous endangered or threatened species present in the San Francisco Estuary and mitten crabs are reportedly occupying important spawning areas and feeding on the eggs of these vulnerable species.

Economic Costs

Chinese mitten crabs interfere with normal operations at water treatment facilities, fish passage facilities, power plants, and pumping stations because the crabs clog intake pipes. Their burrowing activities damage dykes, coastal protection systems, and harbor installations. High densities can also damage soft sediment banks, leading to increased erosion and repair expenses. Because they feed heavily on bait and fish caught in nets, they can also impact the commercial fishery by reducing harvest. They often become entangled in gear, increase handling time and cause damage to fishing nets. They also have the potential to impact rice crops by consuming young rice shoots.

Photo courtesy of Christian Fischer, Wikipedia.org.



Photo courtesy of California Department of Fish and Game.

Health

The Chinese mitten crab is considered a health concern as it is the secondary host for the Oriental lung fluke (*Paragonimus westermani*). Mammals, including humans, are the final host of the lung fluke, which has symptoms resembling tuberculosis. There is also concern that mitten crabs can bioaccumulate contaminants, as they have been known to inhabit agricultural ditches and other areas that may contain elevated levels of contaminants.

Prevention & Control

A high abundance of crabs with high reproductive rates, and a wide range of physiological tolerances make control of the Chinese mitten crab difficult. Once the crab develops a self-sustaining population, most management approaches are unsuccessful and eradication programs have limited effectiveness. Physical control, such as trapping, is not effective in reducing damage caused to river banks and the feeding on trapped fish. In California, management goals include preventing the spread of the mitten crab to new areas, and reducing the negative impacts of existing populations. The Chinese mitten crab is listed as an injurious wildlife under the Federal Lacey Act, which makes it illegal to import, export, or transport between states in the U.S. without a permit.

References:

Chinese Mitten Crab Control Committee. 2002. A draft national management plan for the Genus *Eriocheir*. Aquatic Nuisance Species taskforce.

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