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Short Communication

Diversity of freshwater crabs, their importance, threats, and conservation aspects

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ABSTRACT

*In tropics, freshwater ecosystem has a diverse endemic flora and fauna including freshwater crabs. With about 1280 known freshwater crab species, they represent one-fifth of all the World's brachyurans (true crabs). They are medicinally and ecologically important macro-invertebrate groups. They are excellent indicator of good water quality and play an important role in nutrient cycling in the freshwater ecosystem. The rapid loss and deterioration of habitat due to deforestation, alternation of drainage patterns and pollution have become an imminent threat to them. Out of 122 countries that have populations of freshwater crabs, 43 have species in need of protection. This review is focus on the freshwater crabs found in Asia and particularly on *Barytelphusa cunicularis*. Low impact forestry and unpolluted water drainages may reduce the extinction risk of endemic species of freshwater crabs. The present review highlights the importance of freshwater crabs, particularly *Barytelphusa cunicularis* along with the conservation aspects.*

INTRODUCTION

Freshwater crabs are one of the macro-invertebrate groups that belong to phylum Arthropoda. About 6,700 species of crabs are found globally, out of which more than 1,300 species are freshwater crabs (Cumberlidge et al. 2009). They belong to 8 families namely Pseudothelphusidae, Trichodactylidae, Potamonautidae, Deckeniidae, Platythelphusidae, Potamidae, Gecarcinucidae and Parathelphusidae (Rodríguez and Magalhaes 2005). Freshwater

Crabs (FWCs) are ecologically important. They are found in tropical & subtropical areas of the world. They are mostly caught in freshwater ecosystems like rivers, streams, swamps, wetlands, stagnant ponds and paddy fields (Dobson et al. 2002; Rout et al. 2022). Some FWCs like the species of genus *Potamon* Savigny, 1816 are only found in freshwater & cannot survive in brackish water. But other species like *Parathelphusa* Milne-Edwards, 1853 can survive in salt water for a short period of time (Ng et al. 2008). Some FWCs are terrestrial and live well away from freshwater sources.

FWCs are found in clean freshwater bodies & are indicators of good water quality. They are omnivorous and feed on fallen leaves, algae, aquatic insects, gastropods, dead frogs, and snakes (Dudgeon and Cheung 1990). Some FWCs are detritivores and play an important role in nutrient cycling in a freshwater ecosystem. They are considered as an integral component of food webs in aquatic ecosystems and provide food for a wide range of predators. The most common freshwater crab is *Barytelphusa cunicularis* (Figure 1).

IMPORTANCE

FWCs have always been considered as nutritious food due to the presence of proteins, carbohydrates, vitamins, and various secondary metabolites. Uncooked or semi-cooked FWCs are a threat to human health as it acts as an intermediate host of parasitic lung fluke-causing Paragonimiasis (food-borne zoonosis) in Asia. They are also a source of medicines and pharmaceuticals like chitin and chitosan. They are not only a direct food resource but are also utilized as food additives and fertilizers. Consumption of these FWCs may treat stomach ailments and physical injuries. Sometimes, FWCs are sold for the aquarium due to their bright and attractive colors (Harlioglu et al. 2018).

THREATS & CONSERVATION ASPECTS

Information on all species of FWCs is not available to date and is assessed as Data Deficient in IUCN Red List. The loss and deterioration of the habitat of FWCs play a significant role in making these species threatened. Deforestation, alternation of drainage patterns, and pollution are major threats to these crabs. FWCS are sensitive to polluted water and cannot survive if exposed to pollution (Brook et al. 2003). There is the risk of extinction of many essential freshwater species due to a lack of knowledge and conservation plans. So, there is a need to conserve these freshwater crabs due to their ecological, medicinal, and economic importance (Padghane et al. 2016). Development of strategies for national recovery plans should be done to save the threatened FWCs before they decline to the levels from which they cannot be recovered. Conservation of FWCs can be done by protecting forests and maintaining good water quality.



Figure 1: The ventral view of *Barytelphusa cunicularis*

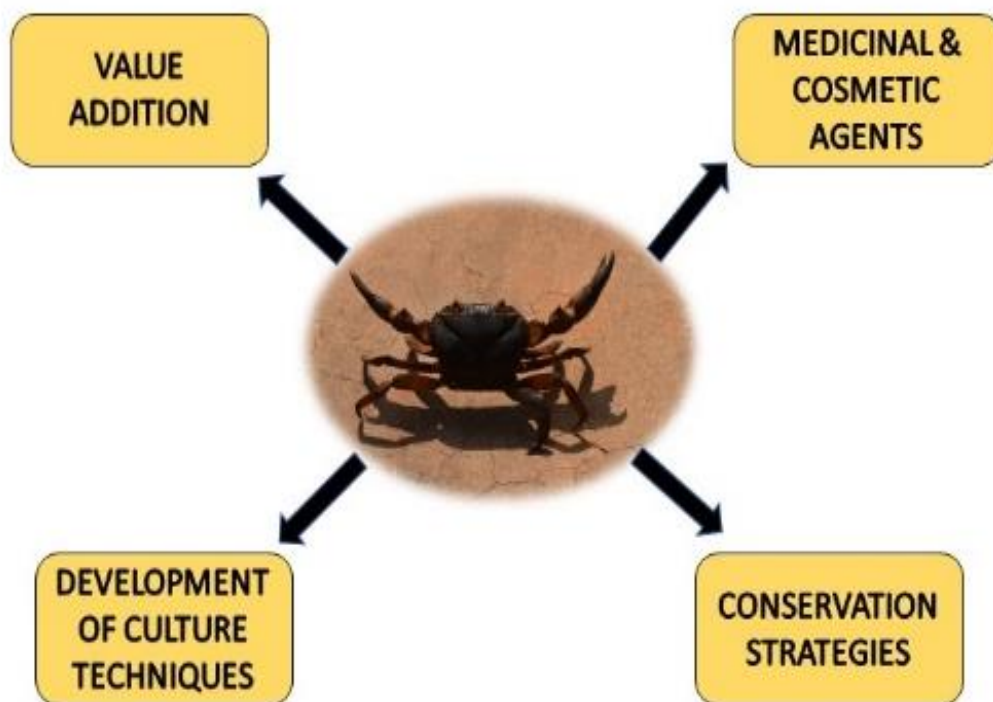


Figure 2: Future aspects of *Barytelphusa cunicularis*

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