



Caribbean Freshwater Crustaceans

*Fish and Aquatic Conservation Initiative,
Caribbean Ecological Services Field Office*



Puerto Rican freshwater crab (Epilobocera sinuatifrons), credit UPR-RP/O. Pérez-Reyes



Spinning basket shrimp (Atya lanipes), credit UPR-RP/O. Pérez-Reyes



Cascade river prawn (Macrobrachium heterochirus), credit UPR-RP/O. Pérez-Reyes



Big claw river shrimp (Macrobrachium carcinus), credit UPR-RP/O. Pérez-Reyes

Overview

Studies of Caribbean freshwater crustaceans started back in the 1800s and the interest in studying their biology, ecology and role in the aquatic ecosystems has increased greatly during the recent years. They are diverse, widely distributed and commonly found in rivers, streams, creeks, riparian storm water guts, and permanent freshwater pools. Species of Caribbean freshwater crustaceans include shrimps, crabs and crayfish.

Habitat and Life Cycle

Caribbean freshwater shrimps inhabit the river mouths as well as high altitude mountain streams. Their life cycle is complex and all species have migratory behavior; they move downstream to marine or estuarine environments during different life stages. Adults mature and reproduce in headwater streams and the larvae are transported downstream to estuaries and marine environments where they develop further. The larvae may spend several months in estuarine or marine ecosystems and then migrate back upstream as juveniles.

The only endemic species of freshwater crab present in Puerto Rico is commonly known as the Puerto Rican freshwater crab or “buruquena” and it has been reported also in the the U.S. Virgin Islands. Unlike freshwater shrimps, the Puerto Rican freshwater crab does not have migratory behavior since it is restricted to freshwater habitats and adjacent riparian zones. In addition, the larval stages are completed within the eggs which are held under the mother’s abdomen until they hatch. According to a genetic study, the populations of this species are significantly differentiated among rivers of the island.

Native Freshwater Crustaceans

A total of 18 species of crustaceans belonging to the order Decapoda have been identified in Puerto Rico and many of these species have been reported in the U.S. Virgin Islands: 17 species of shrimps belonging to eight genera and three

families and 1 species of crab. Many of these species and others occur elsewhere in the Caribbean.

Ecology

These freshwater crustaceans have a variety of food preferences that include deposit feeders, filter feeders, scavengers, omnivores and predators. Many species are food source for larger predators such as shrimps, crabs, fish and other riparian and terrestrial fauna. They vary in size and some species can reach a length of a foot. Several species are important for local recreational fisheries and are part of the diet of human communities.

Threats and Conservation Measures

Freshwater crustaceans face a variety of threats due to changes in their environment. Anthropogenic activities result in ecosystem degradation and loss of fauna. Dams, water intakes, river channelization, culverts and other road crossing structures can disrupt the connectivity of the migratory fauna affecting the ecosystem integrity. Land cover and land use due to unsustainable agricultural practices and urban development is a major threat to these species causing alterations in the physicochemical parameters of water, increasing sedimentation, and changing the habitat composition.

The negative impacts of exotic species such as the Australian red claw crayfish (*Cherax quadricarinatus*) that was illegally introduced to Puerto Rico in 1997 have not been quantified but it poses a threat to the native fauna and could affect the ecological integrity of the ecosystem. In addition, freshwater decapods are important for human consumption and overharvesting might be an issue if fishery data is not well documented.

The USFWS Fish and Aquatic Conservation Program collaborates with partners to successfully restore aquatic habitats by the removal of physical barriers, replacement of culverts and road crossing structures, construction of fish ladders, and rehabilitation of stream

banks for the benefit of the aquatic species. On-going efforts to minimize threats to aquatic ecosystems include the following: development of conservation strategies for high priority species to maintain stable populations, restore and enhance aquatic habitats, control of invasive species, and public outreach to educate the people in the importance of aquatic resources and our conservation mission.

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