

Behavioral responses to temperature changes by the Colombian freshwater crab,
Neostrengeria macropa.

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Abstract

Studying how physical and biotic factors impact a species' likely geographic distribution is central to applying physiological ecology to biogeography, and to worldwide problems across species, countries, and cultures. Projected changes to climate predicted for the next century by the last UN IPCC report indicate likely geographic changes in species' distributions, including benthic epifauna like crustaceans. Ecological changes not only impact the conservation of the crab species I will study in Colombia, but also human interests in food procurement and avoidance of parasitic diseases carried by these species. We are currently studying endemic Colombian freshwater crab species, since behavioral, ecological, and physiological data is currently unavailable for these species.

So, how do freshwater crabs fit into this paradigm? For one, crabs are a vital food source for finfish species that provide a source of livelihood for human beings. Where they occur, crabs are an integral part of the marine and aquatic food webs, and provide a number of services which keep the ecological community healthy, especially through sediment mixing and oxygenation. Second, they can affect public health by carrying human parasites if not cooked properly (*Paragonimus* sp.). This is common in Colombia, where locals drink an aphrodisiac called berraquillo that includes a live, blended crab.

In Colombia, aside from considerable taxonomic studies, the behavior, ecology, physiology and life history of over 100 native or endemic species of freshwater crabs remain unknown. These species have a wide distribution across the river systems of the country, which will allow us to test the reaction norms of behavioral and physiological tolerances within groups of species. Currently, we are investigating the effects of temperature and salinity changes on activity in the vulnerable freshwater crab *Neostrengeria macropa*, endemic to the Bogotá plain in the Eastern Cordillera of the Andes Mountains. Combined with a future MaxEnt model, we are going to build a synthesized prediction of where crabs are likely to live, and by proxy, human parasites.