

Abstract

Growth, maturity and activity patterns of the manicou crab, *Eudaniela garmani* (Rathbun, 1898).

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The Manicou or Mountain crab, *Eudaniela garmani*, is a freshwater land crab belonging to the family Pseudothelphusidae found at high elevations in the forests of Trinidad, Tobago, Margarita and Eastern Venezuela. Prior research has found that the Manicou crab reaches sexual maturity at an unusually large size, and, by implication, at a relatively old age. This has serious consequences for the management of the species since removal of large animals from the population by crab hunters could have deleterious effects on the breeding stock.

The objectives of the study were to determine the size at maturity of the species and to estimate the time it took for the species to attain this size. Field activity surveys were carried out to answer basic questions about the ecology of the species, since much of the data prior to this research was anecdotal.

Examination of the growth increment and intermoult period data was used to estimate the time it took for the species to become mature. Breakpoint analyses and analyses of covariance (ANCOVA) of field data were used to determine the morphometric or structural maturity while gross and histological examinations of ovaries were used to determine the onset of sexual maturity in female crabs. Field activity data was examined to determine whether or not there were differences between different size classes, and to identify any correlation between field observations and the environmental parameters measured.

Morphometric or structural maturity was determined at about 42 and 47 mm carapace width in female and male crabs respectively. Female morphometric maturation ceased at about 67 mm carapace width, about the same size as the onset of female sexual maturity (69 mm). A period of about 3 years was found necessary for female crabs to reach sexual maturity. A minimum size of capture is thus recommended at between 75 and 80 mm carapace width for female crabs. In terms of activity patterns, the species was found to be active throughout the year, more so during the onset of the rainy season. The crabs may also be capable of reproducing year round, gravid females and females bearing young were found on most of the fortnightly surveys. It is also recommended that further investigation into the reproductive biology of the species be done, no breeding season having been determined.

Keywords: Luke Victor Rostant; *Eudaniela garmani*; Pseudothelphusidae; growth increment; intermoult period; breakpoint analyses; ANCOVA; correlation; morphometric maturity; sexual maturity; minimum size of capture, activity.