



## THE EFFECT OF MACROPHYTES ON THE PRESENCE AND POPULATION STRUCTURE OF THE RED SWAMP CRAYFISH *Procambarus clarkii* (Girard, 1852) IN NEOTROPICAL ECOSYSTEMS

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The red swamp crayfish, *Procambarus clarkii*, an invasive species originally from North America, has successfully established itself in various neotropical aquatic ecosystems, including the high Andean environments of Colombia. The research focused on evaluating the temporal relationship between macrophytes (*Polygonum punctatum*, *Ludwigia peruviana*, *Juncus effusus*) and the different developmental stages of development of *P. clarkii* in the cooling ponds of a thermoelectric power plant located in Paipa, Colombia. To achieve this, an innovative sampling method known as “macrophyte sweeping” was implemented, allowing for the efficient capture of specimens of all sizes during seven months of bimonthly sampling. The results indicated a marked preference of crabs for *P. punctatum*, which harbored 71.9% of the individuals collected, with an average population density of 6.48 ind/m<sup>2</sup> that peaked in September (10.4 ind/m<sup>2</sup>). This preference was particularly evident among juveniles (<60 mm), who likely found the complex submerged structure of *P. punctatum* (FD = 1.44) to be an ideal refuge from predators and adverse environmental conditions. In contrast, adults exhibited a greater affinity for the other two macrophytes, whose simpler architecture appears to offer advantages for feeding and mobility. The bimodal rainfall regime characteristic of the region seems to influence the reproductive patterns of the species, with two annual recruitment peaks observed. The findings demonstrate that macrophytes are not only essential for the survival of *P. clarkii* in these ecosystems, but that their selective management could serve as an effective strategy for controlling the spread of this decapod. This study provides valuable insights into the ecology of this invasive species and informs the development of management measures in high Andean tropical ecosystems.

**Keywords:** Habitat complexity, invasive species, plant-crustacean interaction.