Abstract

Distribution of the mangrove gastropods Neritina virginea (Neritidae) and Littoraria angulifera (Littorinidae) within the Colombian Caribbean Darién Ecoregion. Gastropods are one of the most abundant groups within the Caribbean mangroves, however, little is known about the distribution of particular species at a regional scale. With this aim, we studied the geographic distribution of Littoraria (Littorinopsis) angulifera and Neritina (Vitta) virginea within the Darién Ecoregion in the Caribbean coast of Colombia, from 77 sampling stations along 609km between the Colombian-Panamá border and Córdoba State, Colombia. The fieldwork was conducted in June-August 2009, and a total of 3 963 individuals of both species were hand-picked from the ground, prop-roots and trunks along 50m transects, and shell sizes were measured. The description of geographic patterns considered surface water salinity, mangrove cover and gastropod distribution within the Gulf of Urabá. In the outer-most part of the Gulf, L. angulifera was present in 84.8% of the stations, while N. virginea was only present in 15.2% of the stations. In this part, mangroves areas were patchily distributed, and the gastropods (mainly L. angulifera) were found on woody debris along the supralittoral zone in sandy shores. In the inner-most part, in contrast, N. virginea occurred in 84.6% of the stations, mostly in estuaries, deltas and river margins, while L. angulifera only appeared in Turbo Bay (15.4%). Mean shell size also exhibited a clear geographic pattern: size range was 6-22mm in L. angulifera, and 6-12mm in N. virginea. L. angulifera was found in open-water stations with water salinities >10PSU, but it was absent in sites with lower salinities like the Atrato River Delta and other small rivers. Its presence on coastal woody debris suggests that despite of the recruitment of small individuals from the nearshore stock of larvae, populations are unable to establish due to the absence of mangroves protection. Oppositely, N. virginea was found under estuarine conditions on mangrove roots and ground. Our results confirm that L. angulifera is an esteno-tolerant marine species, and N. virginea is an eury-tolerant estuarine species, thus their geographic distribution is strongly shaped by the large freshwater discharge of the Atrato River. We hypothesize that absence or limited distribution of gastropods in various areas of the Darién Ecoregion may be further explained by the poor conservation state of mangroves.

Keywords

Mangrove gastropods, marine biogeography, shell size, estuary, Darién ecoregion, Southern Caribbean.