Abstract

The crocodylids Crocodylus acutus is found in the Central Pacific of Costa Rica only in small populations, and the species is protected by law. RAPD was used to analyze 70 DNA samples of Crocodylus acutus from the rivers Jesus Maria, Tarcoles and Tusubres in the Central Pacific of Costa Rica in order to estimate genetic diversity, differentiation among populations, gene flow and genetic distance between them. Genetic diversity was low in the three rivers, H = 0.2201 in the Jesus Maria river, 0.2358 in the Tarcoles river and 0.2589 in the Tusubres river. Among the three populations there is a metapopulational dynamic (GST = 0.0367), mainly between the populations of the Jesus Maria and Tarcoles rivers. The value of gene flow (Nm = 13.1361) and the number of individuals reported for each river in 2004 suggests that the population of the Tarcoles river is the source and those from Jesus Maria and Tusubres are the drains. There was a direct relationship between the genetic distance and the geographical distance (z =1.1449, r =0.9731, p< 0.0010). A conservation strategy for these crocodiles must consider the existence of the metapopulation between the three rivers and the importance of studying the genetics of the American Crocodile in the rest of the Pacific coast of Costa Rica, as well as over the entire distribution range of this species. Rev. Biol. Trop. 56 (3): 1471-1480. Epub 2008 September 30.

Keywords

Crocodylus acutus, genetic diversity, gene flow, genetic distance, metapopulation