Abstract

Habitat destruction may cause wildlife population fragmentation and is considered an important factor in small population species extinction. As wildlife populations become smaller, threats to their stability and persistence arise as a result of demographic, environmental and genetic stochastic factors. The aim of this work was to study the effects of population fragmentation on the long term viability of Alouatta palliata and Cebus capucinus populations, at Refugio de Vida Silvestre Privado Nogal, Sarapiquí, Heredia, Costa Rica. For this we used the computer software VORTEX to run a population viability analysis (PVA) for both species. The input data of the PVA were taken from the demography structure of the RVSPN, literature sources from the species and from PVA related papers. We evaluated two sets of scenarios: small fragmented populations to reflect the population current state, and one larger and continuous population, to reflect the effect of reforestation actions followed by RVSPN to connect forest fragments. Results suggest that both A. palliata and C. capucinus can survive in isolated forest fragments. However, if different factors as inbreeding depression, catastrophes or habitat loss were incorporated to the scenarios, the small fragmented populations become unstable and the risk of extinction increased for both species. Continuous and larger populations were more robust against the threats incorporated in the scenarios when compared to the current situation of smaller and fragmented populations. The best management option for both species would be to continue reforestation efforts in the area to connect forest fragments, with the result of larger and continuous populations of both species. It is important to continue the observation of both species populations, and to promote a habitat management to reduce the negative effects of stochastic environmental events.

Keywords

Fragmented populations, PVA, VORTEX, Alouatta palliata, Cebus capucinus, Costa Rica.