Abstract

This study modeled ecological niches projected as potential distributions for 313 endangered species listed in the IUCN for Mesoamerica, Chocó and Tropical Andes, of which 285 were plants, and 28 terrestrial vertebrates. Overlapping of endangered species distributions covered most of the region. Ecuador showed close to 30% of its area with 50 endangered species. Colombia, Costa Rica, Guatemala, Nicaragua and Panama showed more than 50 endangered species in < 0.5% of its area. Countries showing > 50% of its area with endangered species (21 to 50 species) were Costa Rica, Ecuador, Nicaragua and Panama. El Salvador and Honduras showed > 50% of its area with 11 to 20 endangered species, Mexico showed < 50% of its area with 1 to 5 endangered species. The distribution of endangered species on transformed areas (agriculture and urban settlements) ranged from 11 to 30%. El Salvador, Panama and Guatemala showed > 50% of endangered species in transformed areas, Colombia, Honduras and Mexico showed < 40%, and Belize and Ecuador showed < 25% of endangered species in transformed areas, respectively. El Salvador, Honduras, Panama, Nicaragua and Mexico showed a high proportion of endangered species in transformed areas for the Classes Amphibia, Liliopsida, Polipodiopsida, and the Orders Asterales, Fabales, Laurales, Myrtales, Scrophulariales and Rubiales. Less than 35% of endangered species occurred in transformed areas for the Orders Campanulales and Rosales. Endangered species occurring in protected areas ranged from 12 to 19%, endangered species from the Orders Fabales, Laurales, Myrtales and Rubiales showed wide distributions in protected areas, while endangered species from the Orders Campanulales and Asterales, and the Class Liliopsida showed marginal distributions in protected areas. Belize and Costa Rica showed the highest representation of endangered species in protected areas. We identified the Cordillera of Talamanca in Panama and Costa Rica, the Paramos and Cordilleras of the Andes, and the tropical rainforest of Ecuador as high priority areas for holding high endangered species diversity.

Keywords

Ecological niche models, threatened species, potential distribution, natural protected areas, natural habitat, transformed habitat.