World Academy of Science, Engineering and Technology
International Journal of Economics and Management Engineering
Vol:13, No:01, 2019

Species Distribution Modelling for Assessing the Effect of Land Use Changes on the Habitat of Endangered Proboscis Monkey (Nasalis larvatus) in Kalimantan, Indonesia

Authors : Wardatutthoyyibah, Satyawan Pudyatmoko, Sena Adi Subrata, Muhammad Ali Imron

Abstract : The proboscis monkey is an endemic species to the island of Borneo with conservation status IUCN (The International Union for Conservation of Nature) of endangered. The population of the monkey has a specific habitat and sensitive to habitat disturbances. As a consequence of increasing rates of land-use change in the last four decades, its population was reported significantly decreased. We quantified the effect of land use change on the proboscis monkey's habitat through the species distribution modeling (SDM) approach with Maxent Software. We collected presence data and environmental variables, i.e., land cover, topography, bioclimate, distance to the river, distance to the road, and distance to the anthropogenic disturbance to generate predictive distribution maps of the monkeys. We compared two prediction maps for 2000 and 2015 data to represent the current habitat of the monkey. We overlaid the monkey's predictive distribution map with the existing protected areas to investigate whether the habitat of the monkey is protected under the protected areas networks. The results showed that almost 50% of the monkey's habitat reduced as the effect of land use change. And only 9% of the current proboscis monkey's habitat within protected areas. These results are important for the master plan of conservation of the endangered proboscis monkey and provide scientific guidance for the future development incorporating biodiversity issue.

Keywords : endemic species, land use change, maximum entropy, spatial distribution
Conference Title : ICFEFM 2019 : International Conference on Forest Economics and Forest Management
Conference Location : Bali, Indonesia
Conference Dates : January 14-15, 2019