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“Development on the margin”

Vegetation Types in the Dieng Mountains and their Effects on Bird and Mammalian Species Richnesses

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Abstract

For centuries, human activities in Java's uplands have been known to cause deforestation and severe habitat degradation, thus diminishing the role of montane forests in sustaining the ecosystem function, including their role as wildlife habitats. The change in landscape as a result of human activities, particularly farming-related ones, in the Wonosobo District part of the Dieng Mountains was observed by analysing the vegetation structure and floristic composition of three types of vegetation found in the area: woodland, shrubland, and grassland. The numbers of bird and mammal species were measured and used to value each vegetation type as a habitat for wildlife. Vegetation data were collected using concentric circular plots of various sizes. Data on the mammalian community were collected using indirect methods employing strip transects on the three habitat types and structured interviews. Bird community surveys were conducted using point transect distance sampling on the same habitat types, as well as on agricultural land. Woodland showed a relatively low density of trees with a poorer regeneration compared to that of shrubland, while shrubland displayed a typical transitional structure with a high density of saplings and regenerating trees. The species richnesses of trees and saplings were low in all vegetation types, but the species richnesses of shrubs and herbs were high. Bird species richness decreased from woodland and shrubland to agricultural land and grassland. Woodland, shrubland, and grassland had similar number of mammal species. The results suggest that 30 years after the reforestation effort, the woodland structure has not shown a sign of recovery to a state comparable to its original condition. The current condition of the shrubland and grassland may indicate that recovery still has a long way to go. This condition may not be favourable for wildlife populations. Considering the importance of the Dieng Mountains ecosystem, further land conversion should be prohibited and effective measures to improve the ecosystem should be carried out immediately.

Keywords: Bird, Dieng Mountains, land use, mammal, montane forest