Evaluating the Efficacy of Sarawak's Protected Areas Network for Conserving Native Wildlife

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Abstract

Sarawak has lost most of its primary rainforest, and rainforest reserves are small and scattered as a consequence. While extensive areas of secondary forest exist, much of the terrestrial wildlife occurs outside protected areas. We examine the protected areas network in Sarawak to determine whether it protects vulnerable mammal species. We use taxon data from the IUCN database at a resolution of 10 km x 10 km. We compare the status and distribution of mammal species in Sarawak with the rest of the island of Borneo and in so doing assign conservation importance values to species in Sarawak. Using the conservation planning software Marxan, we explored the efficiency of the existing protected areas network, species richness and rarity hotspots, prime forest sites and complementary networks as alternative approaches to priority reserve selection, as well as the potential use of 'indicator' taxa. In this paper we discuss our procedures and data sources, and seek advice on how to proceed further.

Introduction

Malaysian Borneo, comprising the relatively small states of Sarawak and Sabah, has been subjected to intensive land clearing and use since the 1950s (Primack & Hall, 1992). Thus, in contrast to Indonesian Borneo (Kalimantan), Sarawak and Sabah have lost much of their primary rainforest and rainforest reserves are small and scattered as a consequence. Extensive areas of secondary rainforest exist but most of this rainforest is outside of the protected areas network (Mohd-Azlan & Lawes, 2011). Consequently, much of the terrestrial wildlife occurs outside protected areas. It is likely that the remaining forests are smaller than the critical threshold area needed to sustain and conserve larger fauna and particularly large mammals (McShea et al., 2009). In this paper we examine the distribution of mammals in Malaysian Borneo with a view to assessing the conservation efficacy of the existing protected areas network.

The life-histories and ecological requirements of mammals make them particularly vulnerable to the effects of habitat fragmented. Rainforest mammals are particularly severely affected by land-clearing and habitat fragmentation, not

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