

## **Effects of vegetation structure on avian biodiversity in a selectively logged hill dipterocarp forest**

### **ABSTRACT**

Southeast Asian tropical rainforests are shrinking at an alarming rate largely due to anthropogenic activities such as logging and agricultural expansion. The loss of tropical rainforests from human exploitations caused devastating and irreversible impacts on avian biodiversity. The establishment of protected areas is an effective tool to mitigate further forest biodiversity loss. However, the ability of degraded rainforest to support avian biodiversity is still remain little known. Here, we assessed bird assemblages in a hill dipterocarp forest in Peninsular Malaysia which was selectively logged almost three decades ago. We examined the effects of site-level attributes, particularly vegetation structure on bird community composition, species richness and abundance of selected feeding guild groups (i.e. insectivorous, carnivorous, and frugivorous). Generally, we found that a selectively logged hill dipterocarp forest can still support a large proportion of forest birds, including those species with high conservation values. Our data also revealed that avian biodiversity was positively related to the number of fallen snags, number of standing snags, number of shrubs, number of trees with DBH < 5 cm, and elevation. In contrast, avian biodiversity was negatively linked to canopy cover percentage, number of palms, and number of trees with DBH 30–50 cm. Our findings suggest the importance of post-harvest site-level attributes management in order to improve avian biodiversity in logged hill dipterocarp forests. Above all, urgent actions are needed to incorporate hill dipterocarp forests, including those already disturbed by logging into protected area networks in Peninsular Malaysia to mitigate forest biodiversity loss.

**Keyword:** Forest biodiversity; Protected area; Community assemblage; Species richness; Birds