

Thresholds for adding degraded tropical forest to the conservation estate

ABSTRACT

Logged and disturbed forests are often viewed as degraded and depauperate environments compared with primary forest. However, they are dynamic ecosystems¹ that provide refugia for large amounts of biodiversity^{2,3} so we cannot afford to underestimate their conservation value⁴. Here we present empirically defined thresholds for categorizing the conservation value of logged forests, using one of the most comprehensive assessments of taxon responses to habitat degradation in any tropical forest environment. We analysed the impact of logging intensity on the individual occurrence patterns of 1,681 taxa belonging to 86 taxonomic orders and 126 functional groups in Sabah, Malaysia. Our results demonstrate the existence of two conservation-relevant thresholds. First, lightly logged forests (<29% biomass removal) retain high conservation value and a largely intact functional composition and are therefore likely to recover their pre-logging values if allowed to undergo natural regeneration. Second, the most extreme impacts occur in heavily degraded forests with more than two-thirds (>68%) of their biomass removed, and these are likely to require more expensive measures to recover their biodiversity value. Overall, our data confirm that primary forests are irreplaceable⁵, but they also reinforce the message that logged forests retain considerable conservation value that should not be overlooked.