

Birds associated with different tree species and structures in oil palm agroforestry landscapes in Malaysia

ABSTRACT

The expansion of oil palm (*Elaeis guineensis*) cultivation has been recognised as a major threat to tropical biodiversity. Smallholdings, however, unlike large-scale conventional monoculture oil palm plantations, often practice polyculture which may resemble an agroforestry system. These private holdings provide more heterogeneous vegetation which may support greater a greater diversity of birds. This study compared species richness and abundance of birds detected perching in oil palm (both dead and living trees) and seven other planted crop species within oil palm smallholdings. Using transect line surveys, we recorded a total of 816 birds of 39 species from 20 families. Our results indicate that bird species richness and abundance differed significantly between oil palm and the other planted tree species. Non-oil palm trees cumulatively increased bird species richness and abundance. Although birds overall perched more frequently on living oil palm trees (probably reflecting relative abundance), other species including breadfruit, mango, papaya, banana, and coconut, as well as dead trees, were also used. By measuring effect size, we also found that both bird species richness and abundance rely on tree structure and type of tree species. These findings tentatively suggest that providing a larger diversity of tree species within intensively managed oil palm plantations may support a wider variety of local bird species compared to monocultures.

Keyword: Abundance; Avian; Biodiversity; Crop; Smallholding; Species richness