

Nocturnal bird composition in relation to habitat heterogeneity in small scale oil palm agriculture in Malaysia

ABSTRACT

The expansion of oil palm cultivation is recognised as a major cause of tropical biodiversity loss. In contrast to large-scale plantations, oil palm smallholdings being more heterogeneous may support greater biodiversity. This study examined the effects of local and landscape level variables on the composition of nocturnal bird species in Malaysian oil palm smallholdings. Using visual and aural point sampling, we made 1408 encounters with nine owl and two nightjar species. The Biota-Environment-Stepwise matching analyses (BEST) indicated four predictor variables (three local variables; number of crop species, widths of roads and trenches, and one landscape variable; distance to the nearest main road) significantly influenced the community assemblages of nocturnal bird species in the smallholdings. Generalized Linear Models (GLMs) further indicated seven predictor variables (numbers of palms and houses, widths of roads and trenches, distances to the nearest forest and house, as well as palm height) significantly influenced the abundances of certain nocturnal species. These findings not only improve our understanding on habitat preference of nocturnal birds in the Sunda region but also support the argument that habitat complexity in cultivated areas may aid in biodiversity conservation, at least for nocturnal birds.

Keyword: Nocturnal birds; Oil palm smallholding; Habitat heterogeneity; Community assemblage; Malaysian owls