

## The Utility of Aerial Pan-Trapping for Assessing Insect Pollinators Across Vertical Strata

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### Abstract

Insect pollinators provide a critical ecosystem service by pollinating many wild flowers and crops. It is therefore essential to be able to effectively survey and monitor pollinator communities across a range of habitats, and in particular, sample the often stratified parts of the habitats where insects are found. To date, a wide array of sampling methods have been used to collect insect pollinators, but no single method has been used effectively to sample across habitat types and throughout the spatial structure of habitats. Here we present a method of 'aerial pan-trapping' that allows insect pollinators to be sampled across the vertical strata from the canopy of forests to agro-ecosystems. We surveyed and compared the species richness and abundance of a wide range of insect pollinators in agricultural, secondary regenerating forest and primary forest habitats in Ghana to evaluate the usefulness of this approach. In addition to confirming the efficacy of the method at heights of up to 30 metres and the effects of trap color on catch, we found greatest insect abundance in agricultural land and higher bee abundance and species richness in undisturbed forest compared to secondary forest.

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