Effect of habitat alteration on canopy bird and small mammal communities in the wet evergreen forests of the Western Ghats

The tropical wet forest canopy is a highly variable environment that provides structural and functional niches for several living organisms. Much of the diversity in tropical forests is found in the canopies and yet it is one of the least studied and most threatened of terrestrial habitats. Canopy science in India is in its infancy and pioneering work in this field has been done by researchers from ATREE on pollination and frugivory at the Kalakad- Mundanthurai Tiger Reserve (KMTR). The forest canopy here is considered structurally complex and an ecologically critical system of the forest. These forests have a history of human exploitation. Tea estates were established in 1928 and subsequent selective and clear felling for timber and cardamom plantations have also modified the habitat. This has created a variegated mosaic of natural and managed ecosystems. This thesis aims to study the bird and small mammal communities across this habitat mosaic of unlogged, selection-felled and clear-felled forests. With secondary forests becoming dominant in tropical landscapes, it is important to ask, how forest communities are vertically stratified in such modified habitats. More specifically, I explore the effects of disturbance and change in habitat/canopy structure on these communities by 1) identifying the lacunae that exists in community ecological studies related to forest canopies, 2) Devising and testing effective sampling protocols for the two target taxa: Aves and Small mammals, 3) Evaluating the change in community structure and vertical stratification of bird community and small mammal communities across the habitat.

The local bird community structure along the disturbance gradient indicates a reduction in species richness and abundance in Clear-felled habitats. Guilds too are affected by the change in habitat structure. This is termed as “guild compression” and is attributed to the simplification of the habitat. For small mammals, results indicate that structural change in habitat may alter the community composition of different forest layers but they do not seem to alter greatly specific patterns of vertical habitat utilization.