From rainforest to oil palm plantations: Shifts in predator population and prey communities, but resistant interactions

Abstract

Anthropogenic habitat change can dramatically alter biotic communities in tropical landscapes. Species that persist in human dominated landscapes are therefore likely to modify the way they interact. Although human impacts on community composition are relatively well studied, changes in species interactions are less well documented. Here we assess how logging of rainforest and conversion to oil palm plantations affects the populations of the ant-specialist giant river toad (Phrynoidis juxtaspera), and the availability and composition of its ant prey. We measured canopy cover as an estimate for the degree of disturbance and found that toad abundance decreased with increasing disturbance, and that retaining riparian vegetation should therefore help conserve this species. Both abundance and species richness of local ground-foraging ants increased with disturbance, and ant community composition was altered. Despite these changes, composition of ants consumed by toads was only weakly affected by habitat change, with the exception of the invasive yellow crazy ant (Anoplolepis gracilipes), which was positively selected in oil palm plantations. This suggests that predator–prey interactions can be mostly maintained with habitat disturbance despite shifts in the community composition of potential prey, and even that some predators are capable of exploiting new prey sources in novel ecosystems.