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How do agricultural practices in South China affect ant communities?

Cong Liu, Benoit Guenard, Evan Economo

Understanding the effects of habitat change on species diversity and community structure is fundamental to conservation planning. In South East Asia, one of the primary hotspots of ant biodiversity, natural habitat transformation to agricultural fields such as rubber plantation has tremendously increased over the past decades. In this context, understanding how habitat modification affects species assemblages is crucial for biodiversity conservation. Here, we investigated responses of ant species richness and composition to habitat change in Xishuangbanna, a tropical region of southwest China (21° 55' N, 101° 15' E). We studied the response of leaf litter inhabiting ants across different sites of primary (12 sites) and secondary forest (14 sites) and rubber plantation (14 sites), collected with Winkler extraction. In total, over 20,000 specimens from 58 genera and 237 morphospecies were collected. Secondary and primary forests were the most diverse habitats with respectively 143 and 119 species while 103 species were collected in rubber plantation. At the site scale, species richness of secondary forest and primary forests was similar, but the average number of species collected in rubber plantation was significantly lower. The composition of ant community within rubber plantation was also more distinct from the composition of primary and secondary forest. Our findings indicate that habitat transformation strongly affect ant communities, probably due to the frequency of disturbance observed in such habitat. For future directions, we will investigate the effect of anthropogenic disturbance on genetic diversity of ant communities and its implication for biodiversity conservation.