

P052

Novel partners support two-way by-product mutualism in a converted ecosystem

Kalsum Yusah, Tom Fayle, David Edwards, William Foster, Edgar Turner

Human disturbance disrupts networks of interactions, but also creates novel connections between species. Non-native species may play an important role in maintaining cooperative interactions, particularly when relationships are non-specific. We investigate this possibility by assessing how the benefits of the by-product mutualism between litter-trapping epiphytic ferns and their ant inhabitants changes when primary forest is logged and converted to oil palm plantation in the global biodiversity hotspot of Southeast Asia. We find that despite high turnover of ant species, both the level of ant protection from herbivory and the fern provision of nesting space are robust to disturbance. Indeed, as nesting space increases with fern size, the potential for partner fidelity feedbacks is enhanced for particular ant species in disturbed habitats. However, the specificity of the interaction is lower in oil palm than in forest habitats. Non-native ant species, which are widespread in oil palm, are at least as important as native ones in protecting ferns from herbivory, and are more important in driving the increase in ant abundance and species richness with fern size. We conclude that novel connections with functionally equivalent species to those that are lost after disturbance can endow by-product mutualisms with resilience to land-use change.