GROUND SPIDER COMMUNITIES UNDER TROPICAL LAND-USE CHANGE

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Study Description

Deforestation and land-use change in tropical regions result in habitat loss and extinction of species that are unable to adapt. The effects of tropical land-use change on ground spiders, a major group of invertebrate predators, are poorly known. With two methods, we showed >50% decline in spider density, species richness, functional diversity, and community predation between rainforest versus oil palm and rubber monocultures. Spider diversity was best explained by structural complexity of the habitat, such as the amount of litter, understory density, and understory height. Practices improving these characteristics in monocultures could sustain natural predation in plantation systems.

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Fig. 1. Panorama views of rainforest, rubber monoculture, and oil palm monoculture show different aspects of structural complexity of these habitats. Photo credit: Anton Potapov.

Fig. 2. Structure of the habitat and environmental variables affect spider appearance and functional traits. The spider on the left side is uniformly colored and inhabits cryptic habitats, such as leaf litter in rainforest. The three spiders on the right side have patterned coloration and high mobility, dominating open plantation systems. Photo credit: Nadine Dupérré.

These photographs illustrate the article "Functional losses in ground spider communities due to habitat-structure degradation under tropical land-use change" by Anton M. Potapov et al. published in *Ecology*. https://doi.org/10.1002/ecy.2957