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Nutrient addition changes taxonomic composition but not trophic functions in a tropical leaf-litter ant assemblage

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In tropical forests, leaf-litter ants are abundant and diversified. From a functional point of view, they present a wide variety of diets and degrees of specialization that can be categorized into feeding groups. Carbon (C), nitrogen (N) and phosphorus (P) are limiting in the leaf-litter food web, from microorganisms to arthropods. In a previous nutrient addition experiment, we pointed out the differential response of ants according to their feeding groups but only in terms of density.

In the present study, we examined the response -in terms of taxonomic richness, and taxonomic and feeding group composition- of leaf-litter ants of an Ecuadorian premontane tropical forest to a 6-month nutrient addition experiment (+CN, +CNP).

The taxonomic richness of the ant fauna was similar in control and fertilized plots, although the taxonomic composition changed significantly. While the overall trophic structure was unaffected by fertilization, taxonomic dominance changed within each group. *Solenopsis*, the dominant genus among omnivores in control plots, was numerically replaced by *Pheidole* in nutrient-treated plots. The same trend was observed among fungus and yeast eaters with *Cyphomyrmex* and *Myrmicocrypta*, among nectar and honeydew eaters with *Acropyga* and *Crematogaster*, and among predators with *Hypoponera* and *Strumigenys*.

Our results suggest that the relative abundance of ant taxa was differentially affected by fertilization. While the feeding functions were maintained among the ant assemblage with the nutrient supply, a taxonomic shift occurred within each feeding group, suggesting that the trophic functions are maintained in a changing environment, even if they are fulfilled by other taxa.