

The Paradox of Leaf-Riding in Tropical Leaf-Cutter Ants

Barrett Anthony Klein

Section of Integrative Biology, The University of Texas at Austin

The purpose of hitchhiking, in which minima leaf-cutter ant workers ride plant loads carried by their larger colony mates, has been attributed to protection against parasitoids, either animal or fungal. Reports suggest that in order to reduce the parasitism of major workers by phorid flies, ants recruit hitchhikers to serve as bodyguards. Additionally, it has been hypothesized that hitchhikers remove pathogens from the surface of plant loads before they are incorporated into the colony's susceptible fungal gardens. Examining the spatial and temporal dynamics of hitchhiking in *Atta cephalotes* and *A. colombica* in Costa Rica and Panama supported neither defense against parasitic flies nor pathogen removal as an exclusive explanation for hitchhiking. Temporal and spatial hitchhiker frequencies did not correlate with reported phorid fly presence. Also, replication of an observational study did not support the presumed preparation of plant material by hitchhiking ants.

Hitchhiking densities positively correlated with plant fragment surface area on which hitchhikers traveled, and not with size class of the laden worker. I detected no discernible rhythm of hitchhiker frequency, although I did find interspecific differences in hitchhiking, and mapped individual hitchhiking across space and time.