ROLES OF LEAF CUTTER ANT FORAGERS AND HITCHHIKERS (*ATTA CEPHALOTES*) WITH RESPECT TO LEAF SELECTION AND PREDATOR DEFENSE

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Leaf cutter ants have a caste system that divides the ants into various sizes and roles. The forager ants typically are responsible for taking leaves back to the nest to serve as a substrate for their fungal garden. The minims seem to have a variety of roles that include predator defense and leaf decontamination. Several nests of the leaf cutter ant *Atta cephalotes* were investigated in order to determine the roles of minims and foragers in predator defense, and the forager's role in leaf selection. To investigate their role in predator defense a forager ant was taken off the trail and irritated to induce alarm pheromones and the response of the minims and foragers was observed over a few minutes. I found that proportionally more minims responded than foragers ($P<0.0001$) given their relative abundances along the foraging trail. Additionally the responses of both minims ($P<0.0001$) and foragers ($P<0.0001$) to the irritated ant decreased as the distance from the trail increased. Minims may be more likely to respond to threats because they are more likely to come into contact with the alarm pheromones because they take a meandering route along the trails and are less energetically costly to produce. Their responses likely diminish with distance due to the source of the alarm pheromone and other signals being farther away and harder to detect. To examine if foragers would select for leaves that were less contaminated by fungus I took leaf fragments and contaminated some with talcum powder, others with bread mold, and left some uncontaminated as controls. I then shuffled the fragments and placed them on the trail. The uncontaminated leaves were taken on average much faster than the talcum powder or mold leaves ($P<0.0001$). Additionally there was a significant correlation between the leaf type and where it was placed ($P<0.0001$). The uncontaminated leaves were taken to the nest much more than they were taken to the trail edges whereas the talcum powder and mold leaves generally exhibited the opposite trends. These observations likely mean that the foragers have some way of detecting contaminants on a leaf whether they are fungal or otherwise which would be important for preventing contaminants from reaching their fungal garden.