

Majors of *A. ferox* are involved in attacks on intruding ants, and, as in *A. notabilis*, a role as seed millers is probable. During my limited observations on this species majors were not observed holding or carrying brood.

Majors probably never forage. In the captive colonies, majors of both species were invariably at the nest unless there was a disturbance serious enough to cause the ants to disperse. The only major seen away from the nest site in the field was an emigrating *A. ferox* individual.

Although seed milling has yet to be confirmed by direct observation, this activity very likely represents a primary function of the major caste. Oster and Wilson (1978) point out that seed specialists tend to be monomorphic or at most weakly polymorphic, while ants that have a broad diet consisting only partially of seeds are most likely to be polymorphic, with an extreme miller caste. Strongly dimorphic *Acanthomyrmex* ants have diets composed of small prey and scavenged material as well as seeds, and thus adhere to this rule.

In *Acanthomyrmex* only a very few individuals of the major caste are present in any one colony. Indeed, majors form only a small fraction (less than 10%) of the total worker population, even though the colonies as a whole are very small. This is as would be predicted on the basis of ergonomic theory (Wilson 1968, Oster and Wilson 1978). Because the morphology of *Acanthomyrmex* majors is so specialized, they would be expected to be very efficient at those specialized behavioral acts which they do perform. Therefore, relative to a species in which majors are anatomically less deviant from the minors, fewer individuals are necessary to perform the specialized tasks.

Ergonomic theory also predicts that the more specialized the anatomy of the major, the more specialized its behavior, and the more limited should be its behavioral repertoire (Wilson 1968, Oster and Wilson 1978). It is therefore somewhat surprising to find that *A. notabilis* majors, perhaps anatomically the most extreme majors of any dimorphic ant, perform at least five social behaviors, among them holding and carrying brood.

Wilson (1984) has shown that in *Pheidole*, majors normally perform a more or less restricted set of behavioral acts. However, they can expand their repertoire to nearly equal that of the minor workers if the ratio of majors to minors is increased experimentally to beyond a set threshold value. This occurred within an hour of the