

RECRUITMENT

Proatta foragers recruited workers to baits of sugar water or olive oil, and large pieces of freshly killed crickets or earthworms. Recruitment most commonly occurred for baits placed within 30 cm of a nest entrance. Ants locating baits farther from an entrance often fed at the bait but then did not recruit, or attempted without success to pull or drag the bait. In addition to the baits I provided, workers recruited to decaying fruits, such as those of *Flacourtia rukam*.

Recruitment responses were difficult to document. Typically a network of trails was quickly formed leading to different nest entrances. In one experiment in which the bait was unusually far from the nearest entrance (98 cm), the number of ants reaching the bait each minute climbed steadily to 45-50 per minute within 45 minutes. Because of the high density of foragers, ants began finding the recruitment trail and accumulating at the bait even before the recruiting worker had reached a nest entrance. Some of these ants originated from a cluster of workers on the ground. This greatly speeded the initial build-up of ants at the bait.

Recruiting *Proatta butteli* workers walked to the nearest nest entrance with their gasters touching the ground, at least intermittently. This implicated the gaster as the source of the trail pheromone. Single whole poison glands, Dufour's glands, and hindguts were dissected from workers and crushed on the tip of a sharpened applicator stick, then drawn on a 30 cm trail out from a nest entrance of a captive colony sample of 200 workers. The ants responded only to poison gland trails. The number of ants following the trail at least 10 cm during the first 5 min averaged 18.7 ± 8.8 for poison glands, 0.17 ± 0.41 for hindguts, and was consistently zero for Dufour's glands and controls ($\bar{X} \pm \text{S.E.}$; six replicates of each experiment).

EMIGRATIONS

Several emigrations were documented for captive colonies by allowing a colony's water source to dry. The ants used well-formed odor routes. Pupae tended to be transported first, and egg clusters and larvae last. For example, in one case an emigration was divided into three periods in such a way that equal numbers of brood (i.e., one-third of the total of 117 burdens) were carried during each period. The proportion of different immature stages carried (pupae : larvae : eggs) was 0.77 : 0.23 : 0.00 during both the initial third and middle third of the emigration, and 0.20 : 0.63 : 0.17 during the concluding third. Queens emigrate after most of the brood has been transferred.