



## Termites forage along polarized trails

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Many species of higher termites (Termitidae) are central-site foragers. They build a nest which houses the reproductives and brood, and in some instances food stores or fungus gardens, but workers have to leave this nest and travel along foraging trails to gather food in foraging territory. The sternal gland is the sole source of trail pheromones, which may perform orientation and recruitment functions. Additionally, many species "pave" intensely used trails with fecal deposits, which serve as long-lasting orientation cues. Whereas the sternal gland pheromone may last for a few hours, fecal "pavement" may still elicit following behaviour after a long time. "Paved" trails often run for long distances separating the nest and the food sources. A potential difficulty for termites is to know which direction is that of the nest, and which one leads to the food. Being blind, Termitidae workers and soldiers cannot rely on visual cues. Here, we tested the hypothesis that workers of *Nasutitermes lujae* could identify directional cues in the "pavement" itself. Isolated termite workers were submitted to a "paved" trail (or a control), and the direction chosen was recorded. Faced with a "paved" trail, a highly significant majority of workers selected the direction towards the nest. Control experiments showed that termite choices were triggered by properties of the "pavement" itself rather than by any property of pheromone. We can therefore conclude that the "pavement" is responsible for the trail polarization: not only does it prevent termites from getting lost between nest and food, it also indicates which way returns to the nest. This is a very original finding, as former reports of foraging trail polarization do not exist for termites, and are extremely scarce for ants. Further investigation is now needed to uncover the cues used by termites to assess trail reveal polarization.