

## Ants on Stilts Help Show Bugs Have "Pedometers"

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How do ants return home in a straight line, even after improvising random, twisty routes to find food? To find out, scientists attached tiny stilts to some insects and half-amputated others.

Hunting for food, ants roam haphazardly. But when they find it, they use celestial cues, perhaps from the sun, to head back to their nests more or less in a straight line—rather than retracing the tortuous journeys they'd made on their outbound searches.



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So how does an ant know when to stop running?

It must not be based on seeing the nest entrance, because a returning ant rarely runs straight down into its hole. Instead, when they think they're in the right area, they stop running, make a U-turn, and pace back and forth until they find it.

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Instead, a new study suggests that ants have internal "pedometers," or step counters, that help them gauge how far they have traveled.

### Stilts and Stumps

After watching ants in Africa's Sahara, Harald Wolf, of the University of Ulm in Germany, decided to put the pedometer idea to the test in the laboratory.

Food was placed about 33 feet (10 meters) from an ant nest. When ants found the food the researchers collected the insects before they had time to carry it back to the nest.

Twenty-five of the ants were then put gently on their backs. Scientists glued stilts made of pig bristles to the insects' legs—a delicate procedure that had to be done quickly so the

ants wouldn't forget what they were doing and fail to return home.

"You have to be very careful," Wolf's colleague Matthias Wittlinger, said by email.

Another 25 ants had their legs surgically shortened by chopping off part of the bottom segment. This procedure, Wolf said, is not as cruel as it sounds, because ants do not experience pain, "at least not in a sense even remotely comparable to what we mean by that term."

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