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Beach beetle reinvents the wheel

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Prod the larva of *Cicindela dorsalis media*, and it will elegantly leap into the air, curve its body into a perfect spinning hoop and roll away from danger across the sand, propelled by the wind.

This surprising talent makes the beetle one of just a handful of non-human animals that make use of the wheel, and the only one known to use the wind for propulsion. The deserts of Namibia are home to cartwheeling spiders (*Carparachne*) that roll down dunes, and two species of moth caterpillars as well as one species of mantis shrimp are also known to roll.

[Alan Harvey](#), a biologist at Georgia Southern University in Statesboro and his student Sarah Zukoff stumbled across the remarkable behaviour when Zukoff accidentally kicked a sand dune on a coastal island in Georgia and dislodged some beetle larvae.

Intrigued by the rolling bug-mania that ensued, the researchers turned to high-speed video images. These revealed that each larva begins its flight with a high, twisting leap that helps it to orient itself to the wind and to get an extra starting boost from the stronger air currents that blow higher above the ground.

Rotary club

As it rolls, the larva appears to hold its legs out to the sides, perhaps for balance. "It seems at least possible that it's using its legs in exactly the same way I use my arms when I ride a unicycle," says Harvey.

The researchers have not yet proven what benefit the beetles get from this odd form of locomotion, but Harvey thinks they may use it to escape quickly from their main predator, a parasitic wasp that invades their burrows and lays eggs in the larvae.

Sadly, their escape mode is not faultless: it only works on flat, undisturbed sand. Any disturbance, even a footprint, is enough to block the larva's wheeling and knock it over. So as we tread across beaches, we may be interfering with the beetles' freewheeling bids for safety. This, Harvey and his colleagues speculate, could help explain why beetle numbers have been declining in recent years.

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