

# Thorny devil found to drink through its skin with assist from gravity

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Thorny devil (*Moloch horridus*) at Great Central Road (WA). Credit: Wikipedia

A team of researchers with Aachen University in Germany has found that the thorny devil lizard is able to supplement its water intake by covering its body with sand and then using straw-like folds in its skin to pull in water, which is then directed to its throat. In their paper published in *the Journal of Experimental Biology*, the team describes experiments they carried out with several lizard specimens, what they observed and the means by which the odd-looking lizards survive in the arid desert region of Western Australia.

The thorny devil lizard is well known in Australia—its short, barb-covered body, camouflage colors, and a tail it carries in the air like a scorpion make it stand out, at least when it crosses a road. The lizard is not a threat to humans, however. Instead, it feeds only on ants, but it represents rather a mystery. Researchers discovered long ago that because its mouth has evolved to eat ants, it cannot sip or even lick [water](#) from a source—instead it has to rely on other means. Prior research had found that the lizard has tiny folds on its skin that overlap, creating tube-like structures capable of carrying water—the [tubes](#) all lead to the back of the mouth. It was noted that setting the lizard in a small bucket of water caused the tubes to fill and the lizard to start swallowing. But what has remained a mystery is how such a technique could work in the desert, where there are rarely puddles to stand in. To solve the mystery, the researchers captured some specimens and took them back to their lab for study.

In the lab, the researchers first tried allowing the lizards to stand on sand that had been wetted—this resulted in some water being drawn into the tubes, but not enough to get the lizard to start swallowing, which meant it wasn't enough. The answer, it turned out, was the lizard's habit of pushing sand onto its back—this caused any water from recent rains or even from dew to move slowly downward, due to gravity. Eventually, it would reach the skin, where it would be sucked into the tubes like a child with a straw. At some point, the tubes would fill and the lizard

would swallow it.

The researchers note that such a drinking technique is likely merely supplementary—most of the water they get comes from the ants they eat; thus, using skin for drinking would likely only occur during extreme draught conditions.

**More information:** Philipp Comanns et al. Cutaneous water collection by a moisture-harvesting lizard, the thorny devil, *The Journal of Experimental Biology* (2016). [DOI: 10.1242/jeb.148791](https://doi.org/10.1242/jeb.148791)

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