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Fog basking by Namib Desert weevils

Namib Desert darkling beetles (*Onymacris unguicularis*) capture water droplets from fog using a highly specialized behavior called “fog basking”. This has applications in biomimetics (the study of biology-inspired technology, which can be utilized to solve complex human problems). In short, synthetic surfaces that mimic the external texture of fog-dependent organisms can be used to extract water from the atmosphere, thereby helping to address the critical and growing human demand for water in arid regions.

In April 2019, my colleagues and I visited a site within the Namib Sand Sea approximately 18.7 km due east of the Atlantic seaboard,

near Walvis Bay. At the time, heavy fog was being carried over the dunes by a westerly breeze. Near the base of a large sand dune, we encountered several clumps of dune grass (*Stipagrostis sabulicola*) and observed many Namib Desert weevils (*Leptostethus marginatus*) clinging head-down about halfway up the grass stems. All of the weevils had drops of water collecting within the pits on their wing cases and thoraxes from the fog.

The surface architecture of the weevils, characterized by concave impressions of pits and grooves, is nearly opposite from that of the darkling beetles, distinguished by bumpy convex features. This observation could stimulate biomimetic research and further advances in developing artificial surfaces that can capture water from atmospheric sources.

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