

## Understanding the role of arm-waving in Lizards

**Tom Haran**<sup>1</sup>, Dror Hawlena<sup>1</sup>

<sup>1</sup> Department of Ecology, Evolution & Behavior, The Alexander Silberman Institute of Life Sciences, The Hebrew University of Jerusalem, Edmond J. Safra Campus at Givat Ram, Jerusalem 91904, Israel.

Many animals perform conspicuous displays that expose them to potential predators. Aside from social contexts, why animals use such seemingly dangerous displays is still unclear. Our goal was to assist reducing this knowledge gap by focusing on the conspicuous arm-waving behavior of the lizard *Acanthodactylus boskianus*. We hypothesize that arm-waving behavior aims to entice potentially concealed predators to move and reveal themselves while lizards are vigilant. To test this hypothesis, we filmed the behavior of foraging hatchlings and adults in the field using high speed imaging, and recorded the soil surface temperatures. We encoded the different behaviors using the software BORIS to establish a highly detailed account of the frequency and behavioral context of each arm-wave. We observed that arm-waves were displayed frequently – up to three times per minute – regardless of age or sex. Arm-waves were positively associated with surface temperature. They usually occurred almost simultaneously with tail-displays, and tended to occur right after stopping or immediately before resuming movement. Our results suggest that arm-wave behavior may be used by lizards for two main purposes – to reduce predation risk and as a thermoregulatory mechanism.