

THE SIZE-GRAIN HYPOTHESIS: DOES LENGTH INFLUENCE ANTS ABILITY TO MOVE IN RUGOSE AREAS IN THE NATIONAL FOREST OF CAXIUANÃ, BRAZIL

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Abstract: The size-grain hypothesis tells that as the body size of an organism is decreasing, the landscape the organism is facing will appear as more rugose for the organism. For a large organism, the world will appear as relatively two-dimensional and with low complexity. In case of a small organism, the world will appear more three-dimensional and with high complexity. A world with more complexity will have more challenges related to locomotion, and a smaller body size might give advantages, as it makes it easier to manoeuvre in-between obstacles in the landscape. In this article we're observing how the body length of ants seems to affect their ability to move in different levels of rugosity. In the first experiment three levels of rugosity were studied. The three levels of rugosity were made by manipulating areas with different amounts of leaves. In the second experiment two levels of rugosity were observed, this time with either none or many leaves. The body length of the pioneer ants reaching the baits varied from 0.8mm to 12.9mm. In the first experiment there were no significant differences in the pioneer ants at different levels of rugosity. The results in the second study on the other hand showed a significant difference among pioneer ants at different levels of rugosity ($T = 2.0874$, $df = 27.865$, $p\text{-value} = 0.04612$).

Key words: *Allometry; Ants; Body size; Caxiuaná; Scaling*