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FIRST NOTES ON THE ORIENTATION OF *PACHYPHALERIA CAPENSIS* LAPORTE, AN ENDEMIC TENEBRIONID BEETLE OF THE SOUTH WESTERN AFRICAN COASTS

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The halophilous tenebrionid beetle *Pachyphaleria capensis* Laporte lives on the sandy beaches of South Western Africa not far from the sea (10-50 m). It has twilight and nocturnal habits, and feeds on stranded kelp. Specimens released experimentally on the wateredge move slowly landward following a winding path; but, if they meet some debris while on their way they hide underneath.

We carried out quantitative tests releasing one animal at a time in the centre of a circular arena divided into 16 sectors. We prevented the animals from seeing any landmark, as they move towards shadow areas or dark objects when they are under sunshine.

Specimens tested on their own beach showed an oriented behaviour which persisted when the arena was placed on a sloping plane. Tests carried out on different beaches and at a different distance from the seashore showed that the escape directions were not related to the shoreline nor to the proximity to the sea. The escape directions shifted during the daytime in the opposite direction to the azimuthal position of the sun. When the sun was clear at intervals, the animals were disoriented.

Santschi's technique confirmed the determining role of the sight of the sun in the orientation in *P. capensis*: the escape direction is connected with a negative phototactic reaction to the sun. Tests carried out indoors with an artificial light source placed in different sides of the arena confirmed once again this type of orientation and its maintenance during a cycle of 24 hr. Only when the light was placed above and pointing to the centre of the arena did the animals exhibit disoriented reactions in all tests. Even specimens trained under a dark-light regime shifted 12 hr showed the same phototactic reaction.

Specimens tested during foggy mornings on the beach produced an unexpected result: the escape direction was towards North. Tests with a plexiglass corridor oriented either N-S or E-W confirmed this tendency. On the contrary, in two tests, one carried out before sunset with an overcast sky and the other after sunset with clear sky, *P. capensis* moved towards South.

Skototaxis and negative phototaxis to the sun seem to be the most important components in the orientational mechanisms of this species. There is no proof of a chronometric component, which would involve a constant escape direction. Lastly, the tendency towards the axis N-S under fog or with cloudy sky is particularly interesting as it can be explained as a non-sense orientation.