

NICHE SEGREGATION BETWEEN TWO ARMADILLOS IN THE SOUTHERN PANTANAL

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RESUMO

The Pantanal of Brazil is the largest tropical wetland in the world and home to a high diversity of armadillos with five extant sympatric species. Among these species are the similarly sized nine-banded armadillo (*Dasypus novemcinctus*) and six-banded armadillo (*Euphractus sexcinctus*). Both species are highly specialized diggers with varying diets. I investigated how these two armadillos partitioned their resources and facilitated coexistence by exploring multiple aspects of their ecology including substrate analysis and activity patterns. Field work took place at Fazenda San Francisco cattle-wildlife ranch (MS, Brazil) in July–August 2019. Substrate and habitat preference were analyzed by comparing multiple aspects of their burrows including dimensions (height, width, depth, and direction at the entrance), location (distance to insect mound, forest, open field), and substrate size (4mm, 2mm, 0.5mm, 0.25mm, 0.125mm and below). All of these dimensions were then plotted on a PCA and analyzed together in a perMANOVA. Activity patterns were determined by placing camera traps outside of their burrows and using 1hr intervals to establish independence. Watson's two sample test of homogeneity was used to test significance between activity patterns and the overlap coefficient D_{hat4} was used to assess species overlap. Twenty-six burrows were sampled completely, 14 in open fields and 12 in forest patches. PC1 explained 25.33% of variation and PC2 explained 17.87% of variation. I found no significant difference between burrows in both locations (forest and open habitat) ($F = 1.48$, $df = 1$, $P = 0.22$). There was a significant difference in activity between both species ($U_2 = 2.201$, $P < 0.05$) with the nine-banded armadillo exhibiting more nocturnal activity and the six-banded armadillo exhibiting more diurnal activity. Both species exhibited minimal overlap in their activity ($D_{hat} = 0.41$), with the highest amount occurring during the onset of the evening. Although there was no significant difference among the burrow variables, multiple camera trap stations recorded both species using presently occupied burrows. Furthermore, burrow interactions also occurred among other species of vertebrates and invertebrates. These occurrences open more questions on the importance of armadillo burrows on the ranch. The significant difference between activity overlap suggests that temporal segregation is one ecological strategy that allows species to maintain coexistence. Although overlap was minimal, the highest amount occurred during the onset of the evening suggesting that there are other methods that facilitate coexistence. This research gives more understanding on mechanisms for coexistence and opens new research directions in areas

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of higher species overlap. As a group, armadillos are of great importance because of their strong impact on the ecosystem. Further research dedicated to their ecology may be critical in conserving biodiversity in their respective ecosystems.

PALAVRAS-CHAVE: ecology, activity patterns, coexistence, *Dasypus novemcinctus*, *Euphractus sexcinctus*