Experimental evaluation of contemporary competition among lizard species endemic to the dunes of the middle São Fracisco River, Bahia

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Abstract

The occurrence of interspecific competition is related to overlap in resources use by species and to the lowering of resources availability for a given species due to their use or anticipated appropriation by another one. Competitive interactions may produce a distinct pattern of resources use by the species, as that previously detected between *Tropidurus psammonastes* (Tropiduridae) and the species *Eurolophosaurus divaricatus* (Tropiduridae) and *Cnemidophorus* sp n (Teiidae), species of lizards endemic to the dunes of Ibiraba, Bahia. In order to test the hypotheses that the presence of *T. psammonastes* reduces the local density of the two other species (what would indicate occurrence of strong contemporary competition) and the pattern of use of microhabitat by them (what would indicate occurrence contemporary competition, although weak), I performed a field experiment lasting 76 days during a period of the year when the potential for competitive interactions is high (i.e., between the end of dry season and the beginning of the rainy season). I manipulated the density of *T. psammonastes* by removing its individuals from four experimental sampling unities, evaluating the effect on the other two species in comparison with four unaltered sampling unities. In the control situation, the detected pattern of microhabitat use was the same as described in a previous study performed between 1995 and 1996 in the same area. Control and experimental situations were compared through randomization procedures (MRPP) based on total data and on data form the second half of the experiment. I was not able to find significant difference of densities between the control and experimental sampling unities for any of the species, indicating that, if competition occurred, it was not strong enough to generate short-term effects. I did not find significant differences of the patterns of multivariate use of microhabitat by the species between control and experiment. As microhabitat availabilities did not change between treatments, this result indicates that I was not able to detect even weak competitive interaction between *T. psammonastes* and the other species. A previous study refuted the hypothesis that the differential pattern of resource use by these species can be explained by phylogenetic inertia. The present study corroborated the pattern of microhabitat use previously described for the same species, suggesting that the pattern is not stochastic, and refuted the hypothesis that this pattern derives from contemporary competition. Therefore, this set of evidences suggests that the observed pattern may result from ecological interactions from the past, which, although untestable, is plausible, given that the species are endemic from the dunes, presenting restricted geographical distribution.

Key-words*:* interspecific competition, lizards, density manipulation, caatinga

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