

Amphibians and reptiles in South American extreme environments

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South America encompasses environments that display reduced species-richness in comparison with more moderate environments along the gradients they represent. These environments exhibit acute values of physical variables, and water availability and thermal regime may act as main limiting factors for the dispersion and ecological radiation of the fauna. Yet, such environments have been colonized by amphibians and reptiles, though different patterns are evident. In some cases few lineages colonized the environment and radiated after, becoming characteristic of such environments. In other cases, diverse unrelated lineages colonized the same extreme environment through independent evolutionary events and alternative mechanisms. This second possibility is the focal point of this talk. I discuss the extent to which physiological adjustments, ecological associations and modifications of behavior may have contributed to the colonization of some extreme South American environments by amphibians and reptiles. I concentrate on Paramos and Patagonian Steppes, as well as the semi arid Brazilian Caatingas (Brazilian semiarid) and sand dunes. I discuss diverse examples to conclude that both evolutionary convergence and divergence in physiology, as well as differences in behavior and ecological associations, have played a fundamental role in the colonization of these environments by herpetological fauna.