Who are the winners in the race against desiccation – phenotypic plasticity in a fossorial toad

SZÉKELY D 1 2 3, SZÉKELY P 1 3, DENOËL M 2 4, COGĂLNICEANU D 1 5

1 University Ovidius Constanţa, Faculty of Natural Sciences and Agricultural Sciences, Constanţa, Romania.
2 Behavioural Biology Unit, University of Liège, Liège, Belgium.
3 Universidad Técnica Particular de Loja, Departamento de Ciencias Naturales, Loja, Ecuador.
4 F.R.S.-FNRS Senior Research Associate.
5 Universidad Nacional de Loja, CITIAB, Loja, Ecuador.

Phenotypic plasticity is one of the major means that enables species to persist in unpredictable environments. Using as model a neotropical anuran species, the Pacific horned frog, *Ceratophrys stolzmanni*, inhabiting the Tumbesian dry forest, we investigated if the tadpoles are capable of timing their metamorphosis in order to escape a drying aquatic habitat, and also the consequences of metamorphosis plasticity on the immediate and mid-term fitness of individuals. We exposed 36 tadpoles to one of three water levels treatments: high, low and decreasing. Tadpoles that were raised in decreasing or low water level metamorphosed faster, but at a lower body size and mass than the ones raised in high water level. In a complimentary experiment, we evaluated the effects of body size at metamorphosis on trophic and locomotory performance parameters of contrasting sized metamorphs. We determined their growth rate and survival over the course of an activity season. Our results support the assumption that bigger size at metamorphosis is correlated with better survival chances and performance. Survival rate of large individuals was 95% while for small individuals it was only 63.6%. Locomotor activity was also positively correlated with size, larger animals being significantly more mobile. When provided with ad-libitumfood and favorable environmental conditions, smaller individuals were capable of achieving higher growth rates compared to larger individuals. This indicates that, although size at metamorphosis has a profound impact on immediate fitness, smaller individuals might be able to compensate with an increased growth rate.

Autor corresponsal: diana@butanescu.com
Palabras clave: fitness, metamorphosis, survival.

I Congreso Argentino-Paraguayo de Herpetología

XVII Congreso Argentino de Herpetología
II Congreso Paraguayo de Herpetología

26–30 de Septiembre 2016

- - - LIBRO DE RESÚMENES - - -