

## The Response of the Green Toad *Bufo viridis* Larvae to Deep Water Ponds, Food Levels, Density, and Interspecific Competition

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### ABSTRACT

*Background:* *Bufo viridis* toad is a common species that inhabits a wide variety of habitats. Adaptive phenotypic plasticity allows tadpoles of *B. viridis* to exert fine control over the rate of metamorphosis in response to changes in their larval habitat. This experiment in a controlled laboratory setting provides important insights in both the degree of plasticity and the proximal environmental cues operating in the response of green toad tadpoles to pond drying, food level and competition in the natural environment.

*Aim:* It is an attempt to give obvious guidelines to factors needed to conserve, protect, restore and enhance the *Bufo viridis* species in its habitat.

*Results:* The current results do not allow defining the precise environmental cue(s) that tadpoles use to respond to a desiccating habitat. Nevertheless, they do allow defining several variables as being necessary for the developmental response (e.g., physical interactions among tadpoles and resource limitation). It was concluded that the timing of metamorphosis and size at metamorphosis were highly affected by pond duration. The effects of pond desiccation are reflected by shorter developmental duration and smaller size at metamorphosis because of increased crowding in the shallow tanks than tadpoles in the deep tanks. In all treatments, *B. viridis* raised on high food supplements grew faster than those raised on low food supplements or high population density. In the tanks with decreased water and food levels, lead the tadpoles to accelerate the development and metamorphose earlier than tadpoles in higher food and water levels. The obtained data revealed that *B. viridis* tadpoles grew faster under conditions of high population density. Actual density had limited but significant effects on tadpole size and development. It also suggests that density regulation acting on the tadpole stage was less and of short-term importance than abiotic factors. The presence of *B. regularis* tadpoles as a competitor depressed *B. viridis* growth, particularly under low food supplements.

*Conclusion:* Finally, documenting the recent results of this study, *Bufo viridis* breed in temporary ponds and exhibited plasticity in developmental duration and growth rate in response to a changing in water level, and this response varied in direct relation to the magnitude of the environmental signal.

**Keywords:** Habitat drying, Plasticity, Deep ponds, Metamorphosis, *Bufo viridis*.

### RETRACTION NOTE

The article entitled “**The Response of the Green Toad *Bufo viridis* Larvae to Deep Water Ponds, Food Levels, Density, and Interspecific Competition**” has been accepted for publication in the Annals of Biological Sciences considering the statements provided in the article are personal opinion of the author which was found to be not having any conflict or biasedness towards anything. As the article was a perspective one, the information provided by the author was considered as an opinion to be expressed through publication. Publishers took the decision to make the article online solely based on the reviewer's suggestion. However, due to some unavoidable issues and concerns on behalf of the authors, the article is being retracted from the journal.