



**RESISTANCE TO EVAPORATIVE WATER LOSS AND THERMAL PREFERENCES IN *Podarcis bocagei* AND *P. guadarramae***

Marco SANNOLO<sup>1</sup>, Frederico M. BARROSO<sup>1,2</sup> and Miguel A. CARRETERO<sup>1</sup>

1. CIBIO Research Centre in Biodiversity and Genetic Resources, InBIO, Universidade do Porto, Campus Agrário de Vairão, Rua Padre Armando Quintas, Nº 7. 4485-661 Vairão, Vila do Conde, Portugal, Email: [marco.sannolo@gmail.com](mailto:marco.sannolo@gmail.com)

2. College of Medical, Veterinary and Life Sciences, Graham Kerr Building, University of Glasgow, Glasgow G12 8QQ, Scotland, UK

*Podarcis bocagei* and *P. guadarramae* are sister taxa overlapping geographically in north-western Spain and northern Portugal. These two species are often found in syntopy, although they differ in morphology and habitat use. In particular, *P. guadarramae* is characterized by a flat body, possibly associated with more saxicolous habits with respect to *P. bocagei*, a ground-dwelling species. From a physical point of view, it can be hypothesized that *P. guadarramae* will lose more water than *P. bocagei*, given the higher surface to volume ratio of its body. Alternatively, since *P. bocagei* is restricted to Atlantic climate while *P. guadarramae* may also occupy Mediterranean areas, it can be hypothesized that the second might be more resistant to water loss and prefer higher body temperature. During summer, we collected adult male lizards in Moledo, northern Portugal, where the two species are syntopic. Lizards were tested in thermal gradients and water loss was assessed using incubators with three temperature treatments (27, 32 and 37 °C). Results suggested that the two species only slightly differ in thermal preferences. However, when exposed to different thermal regimes, they lost water at different rate. In particular, while at 27 °C the two species are similar, *P. guadarramae* is more resistant to water loss at higher temperatures. Our experiments did not support a purely physical hypothesis. The results corroborate the hypothesis that in these two species there has been physiological divergence in resistance to water loss. In comparison with *P. bocagei*, *P. guadarramae* might live in more arid habitats and be associated with bigger rocks and more exposed surfaces when in syntopy. Ecological differences between these two species are at least partly associated with physiological resistance in water loss. In contrast, the absence of a neat difference in thermal preferences might suggest that preferred temperature is a conservative trait in these sister taxa.