MICROHABITAT SHAPES THE THERMAL BIOLOGY OF FOUR SYMPATRIC LIZARDS

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The ability for effective, accurate and precise thermoregulation is of paramount importance for ectotherms so as to survive even in low thermal quality habitats. In order to thermoregulate lizards employ different strategies to take advantage of their habitat including retreat into thermal shelters, shuttling between sunny and shady sites, active choice of background etc. Sympatric species have to be very cautious in habitat use to minimize interspecific competition. The decisive factor is the fine-scale choices of the appropriate microhabitat. Here we evaluated the thermoregulation effectiveness of four lacertids from the central Peloponnese, Greece (*Podarcis peloponnesiacus, P. muralis, P. tauricus and Hellenolacerta graeca)*, that have different phylogenetic background and ecological requirements but live in the very same habitat (in a narrow area of approximately 1.000 m2 at Feneos plateau, altitude 880 m). Mainland, and particularly mountain, lizards are quite effective thermoregulators. We expected that all four species would show high thermoregulatory effectiveness besides the differences that may have in partial thermal features (e.g. preferred temperatures). We assessed thermoregulation effectiveness (E) through three standard thermal parameters: body temperatures (Tb) that animals achieve in the field, operative temperatures (Te) that non-thermoregulating animals reach under natural conditions, and preferred temperatures (Tpref) that animals achieve under laboratory conditions. In line with our hypothesis, all species thermoregulated effectively, though some differences arose among them. Tpref were similar for all species but Tb and Te differed considerably due to the different microhabitats selected, probably to avoid competition. *P. tauricus* achieved the highest E value (0.88) followed by *P. peloponnesiacus* and *H. graeca* (0.76 and 0.72, respectively) while *P. muralis* received the lowest (0.67). Tbs fell well within the Tset for all species while diel variation was limited, suggesting high precision in thermoregulation. On the other hand, thermal quality of habitat was low (important difference between Tset and Te), highlighting the imperative need for effective thermoregulation.