XX European Congress
of Herpetology
Milan, 2-6 September 2019

PROGRAM & ABSTRACTS

Museo di Storia
Naturale di Milano

HOW (WILL) ECTOTHERMS COPE WITH CHANGING ENVIRONMENTS? A TEST WITH A LIZARD UNDER CONTRASTING ECOLOGICAL PRESSURES

NINA SERÉN
CIBIO/InBIO Research Center in Biodiversity and Genetic Resources, University of Porto, Vairão, Portugal
RODRIGO MEGÍA-PALMA
CIBIO/InBIO Research Center in Biodiversity and Genetic Resources, University of Porto, Vairão, Portugal
FABIO M. GUARINO
University of Naples Federico II, Naples, Italy
ANAMARIJA ŽAGAR
National Institute of Biology, Ljubljana, Slovenia
TATJANA SIMČIČ
National Institute of Biology, Ljubljana, Slovenia
CATARINA PINHO
CIBIO/InBIO Research Center in Biodiversity and Genetic Resources, University of Porto, Vairão, Portugal
MIGUEL A. CARRETERO
CIBIO/InBIO Research Center in Biodiversity and Genetic Resources, University of Porto, Vairão, Portugal

Understanding how species respond to ever-changing environmental conditions is a major topic in evolutionary biology and can the key for planning species conservation strategies. However, comprehensive studies integrating several sources of evidence (e.g. physiology, genomics) are still uncommon for non-model organisms in natural settings. One way to overcome this gap is to focus on populations across steep environmental gradients. These gradients are likely to promote phenotypic responses (either short-term plastic responses or long-term evolutionary shifts) to local conditions. Our model for this study is the endemic Canarian lizard from Tenerife (*Gallotia galloti*), which occurs from sea-level to an elevation of approximately 3700 meters. We sampled populations along this altitudinal interval and obtained spatial patterns of phenotypic variation on multiple traits (size, growth rate, age, telomere length, potential metabolic activity, corticosterone, parasites, thermal preferences and hydric loss). Our results indicate that lizards conserve the same daily patterns of preferred temperatures and water loss rate across altitudes suggesting plasticity of thermal and hydric ecology in the field. However, telomere length (a proxy for physiological stress) decreased with increasing altitude and potential metabolic activity was lower in the populations from 3500, 2200 and 100 meters above sea-level. This provides some evidence of physiological stress in extreme altitudes, but some between-population differences were not necessarily linked to elevation. Ongoing genomic analyses and translocation experiments will shed light on the drivers of these responses disentangling the roles of phenotypic plasticity and adaptation in coping with environmentally extreme settings in this lizard system.