

IBERIAN *PODARCIS*: THE STATE-OF-THE-ART

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The lacertid lizards of the genus *Podarcis* constitute a relevant herpetofaunal element of the Mediterranean ecosystems, the Southern European peninsulas and associated archipelagos harbouring the highest degree of endemism and species richness. During the last decade, the generalisation of molecular tools is gradually revealing more evolutionary complexity than previously thought. The Iberian Peninsula, a region with high habitat diversity and complex geological history, is not an exception.

An update of the current knowledge on the evolutionary biology of the Iberian and North African members of this genus is here presented based on a multidisciplinary approach which integrates evidences coming from studies on phylogeny, phylogeography, morphometrics, ecology, behaviour, ecophysiology and GIS modelling.

The region is inhabited by as many as 12 different evolutionary lineages which, except *P. muralis*, group into a monophyletic clade. Despite the appearances, the saxicolous "*Podarcis hispanica*" as presently considered is paraphyletic with respect to *P. bocagei* and *P. carbonelli*, two currently recognised species. Nodes in the phylogenetic tree are deep, resulting from old divergences, clearly preceding the Pleistocene. Nevertheless, recent range changes after the glaciations are also evident. Although parapatry is the rule, sympatry and even syntopy are frequent but usually between ground-dwelling and saxicolous forms. Contacts between forms with similar habitat use are only punctual.

Morphological distinctiveness between lineages has been demonstrated when properly analysed. Some characters reveal strong historical influence whereas others repetitively evolve in the same way under the same environmental pressures, independently of the evolutionary lineage. Strong sexual dimorphism derives from sexual selection and is attained before sexual maturity although developmental restrictions exist. Variation between populations is also important and derives from local variation in both natural (habitat, climate) and sexual (density) selective pressures. Evidence for short term changes has already been found, particularly for insular populations. Phenotypic plasticity is now being investigated.

Reproductive isolation between syntopic forms and partner recognition within each population are based on male-male competition and female recognition by conspecific males. Both chemical and visual stimuli are used. Nevertheless, hybridisation between forms may occur although is limited. Evidence of introgression has been found. On the other hand, observations do not support current exploitative competition but behavioural interference between forms. However, morphological differentiation between those with extensive range overlap suggests character displacement in the past.

An evolutionary scenario for this group is given taking into account the geological and climatic changes since the end of the Miocene which have successively promoted vicariance and dispersal. Directions for further research are suggested.

Key words: *Phylogeny, morphometrics, reproductive isolation, Podarcis, Iberian Peninsula.*