reproductive periods. In contrast, the biparental *D. raddei* and *D. portschinskii* often produce hybrids, and the parthenogenetic species *D. rostombekovi* is also found in low numbers in the same sites which suggests that they are an occasional result of hybridization. Three sympatric zones between *D. raddei* and *D. portschinskii* are known for Armenia, Nagorno-Karabakh Republic (NKR) and Azerbaijan. Likely, the reproductive isolation between *D. raddei* and *D. portschinskii* is not complete which is contributing to reticular evolution. The hybridization events between syntopic *D. raddei* and *D. portschinskii* produce lizards with intermediate scalation and coloration characters when compared to allopatric populations. Among 207 lizards from Northern Armenia 59 (28.5%) *D. raddei* and 53 (25.5%) of *D. portschinskii* displayed intermediate morphology, 6 (2.86%) were parthenogenetic *D. rostombekovi* and 4 (1.93%) triploid hybrid females *D. raddei* × *D. rostombekovi*. Of 20 lizards with intermediate morphology 53 eggs and 35 young were obtained; 12 of young were similar to *D. rostombekovi* according to their external morphology. Among 143 lizards collected in another syntopic locality with *D. raddei* and *D. portschinskii* in NKR, 24 were hybrid females of uncertain morphological ascription. Among 66 *D. portschinskii* 18 individuals displayed modified morphological characters similar to *D. raddei* while among 43 *D. raddei* 14 individuals show morphologies close to *D. portschinskii*. Therefore, the successful combination of parental species with low reproductive isolation may be considered as the main factor explaining the origin of parthenogenetic species. For next steps of reticulate evolution, the combination of biparental and parthenogenetic species is required. Namely, in the sympatric zone of biparental *D. raddei* (40% of lizards) and parthenogenetic *D. rostombekovi* (35%), *D. armeniaca* (20%) and *D. dahli* (5%), triploid hybrids arise only between *D. raddei* and *D. rostombekovi* (18 hybrid males and 6 intersexes with both hemipenises and oviducts found). *D. raddei* from this locality showed pholidosis and coloration approaching *D. rostombekovi*.

E. Argaña & N. Sillero

GIS and GPS application for the study of home ranges of sympatric Iberian lizards

Few studies have analyzed spatially the home ranges of small lizards, namely in the Iberian Peninsula. We studied the home ranges of two Iberian lacertids (*Podarcis bocagei* and *P. hispanica*) in a sympatric situation. Fieldwork was performed in a small area (Moledo beach, 0.8 ha) in the North-West of Portugal, situated within an urban area, limited by buildings, stone walls and small fields of traditional agriculture. The study area is characterized by four stones walls, and a small beach area with rocks and vegetation. Both species are in strict sympatry and present high densities. We captured 76 lizards of both species, and the exact position was geo-referenced with a professional Trimble GPS (horizontal error lower than 50 cm). We collected morphological measures, as well as tissue and blood samples; we marked the lizards with colored inks and release them in the same place of capture. We followed marked and unmarked lizards during seven days, making random paths around the stone walls and the beach. By visual contact and without recapture them, we recorded lizards' positions with the GPS and collected other information such as species, sex, age, social interactions, environmental temperature, humidity, and substrate temperature. We calculated the home ranges of marked individuals with minimum convex polygons (MCP), within a Geographical Information System. We analyzed

the relationships between males and females of different species and their movements. We recorded a total of 774 individuals of *Podarcis bocagei* (339 females and 435 males), of which 236 were marked, and 243 individuals of *Podarcis hispanica* (126 females and 117 males), of which 72 were marked. Preliminary results showed movements among distant walls and overlapping of female home ranges with the home ranges of several males.

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Analysis of the morphological evolution of mantellid frogs from Madagascar (Mantellidae): a possible case of adaptive radiation

The rapid diversification of species from a single ancestor is usually associated with adaptive radiation. The anuran family Mantellidae, with more than 200 species and endemic to Madagascar and the Comoroan island of Mayotte may represent one of those examples. In this project, morphological, molecular and statistical approaches were used to investigate the ecology, the evolution and the systematics of this family of frogs. Almost complete information about larval morphology, molecular phylogeny and ecological characteristics was available for mantellid frogs. Specific adult morphology data and comparative studies including phylogeny, morphology and ecology were missing. The aim of this thesis was to assemble a dataset for the adult morphological characters (Munich Zoological Collection) and to test through a comparative analysis the following questions: (1) Are morphological changes in adult and larval stages coupled? (2) Is there a correlation between evolutionary rate changes in adult and larval morphology? (3) In a phylogenetic framework, is there a correlation between adult morphology and ecological parameters that would characterize the evolution of the Mantellidae as an adaptive radiation? The results showed uncoupled morphological changes between adult and tadpole morphology, despite the probable correlation between the rates of change for adults and tadpoles. The correlation between ecological variables and morphology on adults, suggest a preliminary evidence for adaptive radiation in the family Mantellidae.

M. Barata, S. Carranza & D.J. Harris

Extreme genetic diversity in *Atlantolacerta andreanskyi*: another mountain cryptic species complex?

Atlantolacerta andreanskyi is a very enigmatic lacertid lizard that, according to the most recent molecular analyses, may belong to the tribe Eremiadini. It is a mountain specialist, restricted to areas above 2500 m of the High Atlas Mountains of Morocco with apparently no connection between the different populations. In this respect, the situation in *A. andreanskyi* is similar to an archipelago, with the different "islands" being represented by mountaintops. As a result of this scenario, a very high level of genetic differentiation is expected between the different populations, although it is not clear how the Pleistocenic glacial cycles might have affected this species. In fact, the relatively large and apparently disjunctive range of *A. andreanskyi*