

3. POSTER COMMUNICATIONS

Genetic diversity and population structure of metamorphic and paedomorphic Pyrenean brook newts (*Calotriton asper*).

Oromi N.^{1,2,*}, Denoël M.^{2,*}, Valbuena-Ureña E.^{3,4}, Soler-Membrives A.³, Amat F.⁵, Camarasa S.¹, Carranza S.⁶, Steinfartz S.⁷, Sanuy D.¹

¹Departament de Ciència Animal (Fauna Silvestre), Universitat de Lleida, Avinguda Rovira Roure, 191, 25198, Lleida, Catalonia, Spain.

²Laboratory of Fish and Amphibian Ethology, Behavioural Biology Unit, Freshwater and Oceanic Science Unit of Research (FOCUS), University of Liège, 22 Quai van Beneden, 4020 Liège, Belgium.

³Unitat de Zoologia, Facultat de Biociències, Universitat Autònoma de Barcelona, 08193 Cerdanyola del Vallès (Barcelona), Catalonia, Spain.

⁴Centre de Fauna Salvatge de Torreferrussa (Catalan Wildlife Service – Forestal Catalana). Finca de Torreferrussa, Crta B-140, Km 4,5. 08130, Santa Perpètua de la Mogoda, Barcelona, Catalonia, Spain.

⁵Àrea d'Herpetologia, Museu de Granollers, Ciències Naturals, Francesc Macià 51, 08402 Granollers, Catalonia, Spain.

⁶Institut de Biologia Evolutiva (CSIC-Universitat Pompeu Fabra), Passeig Marítim de la Barceloneta 37-49, 8003 Barcelona, Spain.

⁷Department of Evolutionary Biology, Zoological Institute, Technische Universität Braunschweig, Mendelssohnstr. 4, 38106 Brunswick, Germany.

*the first two authors contributed equally to this work.

In the Pyrenean brook newt (*C. asper*), the occurrence of facultative paedomorphosis was reported in three lake populations whereas only metamorphosis was found in streams. The paedomorphs of this species retain some larval traits (e.g. gills or gill remnants) but often at lower extent than in pond-breeding newts whereas metamorphs are fully metamorphosed. The aim of this study was to characterize the genetic diversity and the structure of 14 populations that include four lakes, including the two remaining ones with facultative paedomorphosis and their neighbouring stream population. Our objective was specifically to test whether lakes, and particularly those with paedomorphosis are more genetically isolated and differentiated than streams or lakes devoid of paedomorphs. Our results show that the genetic diversity among populations of *C. asper* was affected by geographical distribution (Western and Central Spanish Pyrenees) and habitat type. The population structure was clearly grouped in two main clusters: Western and Central Pyrenees, showing isolation by distance pattern. The genetic differentiation between lake and nearby stream populations was relatively low, indicating the presence of gene flow between them. However, STRUCTURE analysis showed that both populations with paedomorphs were well separated from the others when considering each main cluster separately (i.e. Western and Central Pyrenees) without isolation by distance pattern. These results suggest that paedomorphosis could be due to the isolation of the populations and as a local response to environmental cold features in lakes where it is expressed. The differentiation of populations with paedomorphs from the other Pyrenean populations, show also that they represent evolutionary significant units and are important patterns of diversity to protect.



ABSTRACT BOOK

Simposi sobre l'ecologia del tritó pirinenc (*Calotriton asper*): coneixements, conservació i reptes futurs

Studies on the ecology of the Pyrenean newt (*Calotriton asper*): knowledge, conservation and future challenges.

Institut d'Estudis Catalans, 15 de maig de 2017, Barcelona

