



LANDSCAPE GENETICS OF THE ITALIAN CRESTED NEWT (*Triturus carnifex*) IN THE LEPINI MOUNTAINS

Ph.D. Student: Venusta Pietrocini / *Supervisor:* Dr. Marco Mattocchia

Cycle: XXXI *A.Y.:* 2017/2018

During the second year of my PhD study I've completed the second session of sampling and checked the presence/absence of the three newt species in 82 sites widespread on the Lepini Mountains. As for the first year, in this second session of sampling I've marked the individuals by a non-invasive method that consists by taking a photo of the ventral spots pattern which naturally makes individually recognisable all the individuals. All samplings were performed with two techniques: fishing net and baited Ortmann's Funnel Trap. Each animal's photo was compared to a photographic database in order to verify if the animal was a recaptured one or not by using the I³S Pattern+ software.

I've completed the DNA extraction from 591 *T. carnifex* samples, 115 *L. vulgaris* samples and 91 *L. italicus* samples. Twenty-one microsatellite loci were tested for all three species of newt: six of them (Tcri46, Tcri35, Tcri29, A8, D127, D5) resulted to be polymorphic for *T. carnifex* and four (Th09, Tv3Ca9, Tv3Ca19, Tv12) for *L. vulgaris* and *L. italicus* and were used for genotyping analysis. At the moment, the analysis of the remaining microsatellite loci is in progress.

Overall, the *Triturus carnifex* is present in 28 of the 82 sites, *Lissotriton vulgaris* in 7 of the 82 sites and the *Lissotriton italicus* in 9 of the 82 sites. I've tested preliminary MARK models to estimate population size for *Triturus carnifex* in 5 different sites: SEC1, SEC2, SZC1, MP1 and SP1. These preliminary results suggested the necessity of a third year of sampling that have started on February of 2018.

I collected land use digital maps with a resolution of 20 m from the ARP-Lazio database and the Digital Terrain Model (DTM) of Italy with a resolution of 20 m from ISPRA. Both of them will be used to create a Habitat Suitability Model, essential to apply the Landscape Genetics Approach.