THE EFFICACY OF PATTERN MAPPING FOR THE PHOTOGRAPHIC IDENTIFICATION OF INDIVIDUALS IN NEWTS

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The ability to identify individual animals is crucial for the application of many modern mark-recapture methods that allow the estimation of various demographic parameters, such as population size, birth, death, immigration, emigration, survival and individual growth rate. Individual identification of animals also provides valuable information on their behaviour, distribution, habitat use, and home range. Natural marks, such as the spots and colour patterns of some amphibians that vary among individuals, can be used for photo-identification and constitute a non-invasive technique for identifying individuals. Pattern mapping has no negative effects on animals, thus it can be applied on species that are endangered or of conservation interest. As part of an ongoing mark-recapture study, where we already use Passive Integrated Transponders (PIT) tags, we examine additionally the use of photo-identification in two newt species, *Ichthyosaura alpestris veluchiensis* and *Lissotriton vulgaris graecus* living syntopically in a temporary pond on Mt. Helmos. Using digital photographs of each individual we investigate whether this method is efficient to successfully discriminate between individuals based on their spot patterns. To simplify the task of comparing a large number of photographs, we use the program I3S Manta that compares each individual's photograph with all photographs in a digital photograph database and locates the best-matching individuals, allowing the researcher to make the final decision for the correct match. An evaluation of this method as applied on the two newt species is presented and discussed in comparison to the available PIT-based results, along with its possible applicability on other taxa.