

The effect of drying on paedomorphosis in *Triturus alpestris*

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Paedomorphosis consists in the retention of larval characters in adult individuals. It has been observed in several species of newts and salamanders. Optimality models were proposed to explain why it occurs in a large range of aquatic habitats. These models predict that paedomorphs can be advantaged in two situations as contrasted to favourable habitats (paedomorph advantage) or harsh habitats where the newts can benefit from delaying metamorphosis provided that competition with metamorphosed individuals is relaxed (best-of-a-bad-lot hypothesis). This last tactic implies that the habitats are stable enough to ensure the survival of individuals that can not leave the pond. In this respect, our aim was to describe behaviour of paedomorphic alpine newts *Triturus alpestris* dealing with lake drying. We studied a population from an Alpine lake that splits into two parts during summer, one of them then drying totally. We analyzed age structures by means of

skeletochronology and capture-marking-recapture. Paedomorphs and metamorphs showed similar age structures with sexual maturity occurring at 4-5 years, suggesting that most paedomorphs did not metamorphose. CMR data revealed that a great proportion of the paedomorphs marked in the drying part of the lake did not metamorphose and survived the drying. We also carried out laboratory experiments using two-compartment aquaria to simulate lake drying. These experiments proved that paedomorphic newts could cross terrestrial habitats to reach a pond. Thus paedomorphic newts can migrate on land while keeping their larval attributes rather than metamorphosing when their pond is drying up. Such a tactic appears adaptive because polymorphism in such a deep lake reduces competition between individuals (pers. obs).

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