



Intraspecific diversity, a hidden decline: A focus on paedomorphic newts in the context of fish introductions

(Oral)

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Intraspecific variation such as polymorphisms, significant evolutionary units, and local adaptations are essential parts of biodiversity. However, conservation assessments and guidelines usually focus on the species level making therefore intraspecific variability less considered. This is particularly the case for common species that are far from extinction but not from intraspecific homogenization. Facultative paedomorphosis is a polymorphism expressed in some newt populations and which is considered of major importance in both micro and macro-evolution. Whereas most localities have only metamorphosing individuals, some have also individuals remaining aquatic all their life by retaining larval traits such as gills at the adult stage. By doing long-term surveys in the main facultative paedomorphic populations of three newt species in ponds and lakes across several European countries, we showed that paedomorphs became extirpated from most sites during the last decades (1-3). The common phenotype, the metamorph, often persisted but also declined and sometimes disappeared afterwards. The main frequent cause of decline was the introduction of alien species, specifically fish. There is some hope as resilience of paedomorphs was shown in ponds, but not yet in lakes suggesting a possible definitive loss of paedomorphosis. Globally, the situation is dramatic, particularly in a few Balkan countries where all the main populations of paedomorphs, i.e. those that received a subspecific status, disappeared from the only mountain lakes where they were described. Consequently, both management actions to remove threats, such as alien fish, and an improvement of tools to preserve intraspecific diversity of common species are urgently needed.

Cited references:

1. Denoël M, Džukić G, Kalezić ML. 2005. Effect of widespread fish introductions on paedomorphic newts in Europe. *Conservation Biology* 19:162-170.
2. Denoël M, Ficetola GF, Ćirović R, Radović D, Džukić G, Kalezić ML, Vukov TD. 2009. A multi-scale approach to facultative padomorphosis of European newts in the Montenegrin karst: distribution pattern, environmental variables and conservation. *Biological Conservation* 142:509-517.
3. Denoël M, Winandy L. 2015. The importance of phenotype diversity in conservation: Resilience of palmate newt morphotypes after fish removal in Larzac ponds (France). *Biological Conservation* 192:402-408.