

Olfactory and visual species recognition in newts and their role in hybridization

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Mating patterns between hybridizing taxa are often conditional to the mechanisms underlying species recognition. During mate choice, individuals often assess information displayed by potential mates on several sensory channels. The reliance on more than one modality is particularly expected whenever transmission conditions are variable or signals subject to wear. Determining the sensory bases of species recognition is, thus, crucial to assess the effect of the signalling environment on the hybridization process between species where mate choice occurs. We addressed this issue in two newt species, *Lissotriton helveticus* and *L. vulgaris*, that hybridize and breed in aquatic habitats disturbed by various natural processes. We measured visual and olfactory preferences in males and females. Visual and olfactory recognition was detected in *L. helveticus* males and *L. vulgaris* females. In contrast, we observed limited olfactory recognition in *L. helveticus* females and no evidence of recognition at all in *L. vulgaris* males. In addition, one single variable, body size, strongly influenced female preference. Ecological factors modulating visual signalling conditions and the body size ratio in males are, thus, likely to influence the probability of heterospecific mating. This study highlights the need to consider more largely environmental factors affecting communication in the hybridization process.

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