

# Applications

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# Abstract 22

Oral Presentation

## Identifying landscape drivers of genetic variation of a pond-breeding amphibian on multiple spatial scales

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The terrestrial landscape surrounding aquatic habitat influences the persistence of amphibian spatially structured populations (SSPs) due to its role in estivating, overwintering, migration, dispersal, and consequently the maintenance or loss of genetic diversity. To identify the landscape drivers of genetic variation, we investigated the relationship between the level of genetic variation measured within ponds of the great crested newt (*Triturus cristatus*), and the composition of the surrounding landscape at various spatial scales. Linear mixed models, with effects within and between SSPs incorporated, were used with genetic data from 40 ponds in thirteen SSPs. Model outcomes depended on spatial scale, with more significant associations between genetic variation, particularly allelic richness, and land use within radii of 50 and 100 m of core ponds. The availability of aquatic habitat had a positive effect, while tree cover, arable land and pasture had different effects depending on scale and on the genetic metric used as response variable. Total length of roads within a 250 m radius influenced effective population size negatively. Generally, the landscape affected genetic variation similarly within and between SSPs. This allowed us to provide general guidelines for the persistence of great crested newt populations, with an emphasis on the importance of the aquatic habitat.

# European Conservation Genetics Meeting



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