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Diffusion in fragmented landscapes: habitat split

This talk gives an overview of some recent results concerning stage-structured species in fragmented habitats. It focus on amphibians, which need two distinct habitats in different life stages. We discuss the particular case where the habitat is split: the terrestrial habitat of the adults is separated from the aquatic habitat of the larvae. A central question is how the distance between the two required habitats affects population size and persistence in isolated fragment. We find a condition for persistence in a simple model based on diffusion equations supplemented with boundary conditions encompassing population regulation. The habitat split model improves our understanding about spatially structured populations and has relevant implications for landscape design for amphibian conservation.