Landscape population genetics and the role of organic farming.

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Organic farming is generally acknowledged for the positive effects on biodiversity and other landscape services, however the extent of this effect and its correlation with different landscape structure and different types of cultivation (intensive vs. extensive) is fairly known. We, therefore, aim to investigate the role of organic farms as genetic sources for species in the arable land by analysing the genetic diversity and population structure of wild species. The impact on the population genetic structure may vary according to the species in question depending, amongst others, on the species' dispersal ability, thus we will be focusing on the two species, ground beetle (*Bembidion lampros)* and field vole (*Microtus agrestis*). Sampling will be carried out in hedgerows between organic/organic, organic/conventional and conventional/conventional fields and it will be repeated for two subsequent years in two to three independent areas with different intensity of cultivation. Genetic analysis will be performed using 15-20 microsatellite loci per species. This will likely allow us to identify the microevolutionary processes of gene flow, drift and selection within the two kinds of farming methods in order to address the role of organic farms as gene resource. Furthermore, the empirically identified migration patterns should be used to validate migration patterns obtained from existing agent-based behaviour models (ALMaSS). This model will, afterwards, be used to investigate the potential impact of different landscape configurations on the population genetics of the two species.