



# Genetic factors in metapopulation survival - introduction to a PhD-project

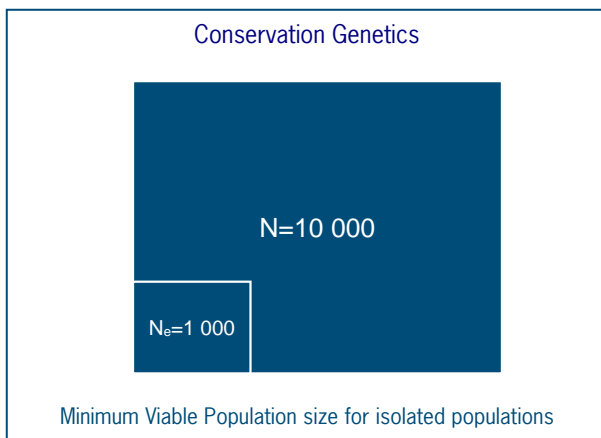
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Metapopulation theory and models have been used to understand population survival in fragmented habitats and to model optimal habitat configuration. However, population genetics of metapopulations is relatively poorly developed. Population genetics of small and isolated populations, and the consequences of loss of genetic diversity, are dealt with in conservation genetics, but this field excludes populations that occur in a metapopulation structure. This gap in understanding of genetic processes in metapopulations hinders our evaluation of the extinction risk of current structured populations. This is especially urgent in view of climate change, when range shifts or selection and adaptation should prevent population extinction.

In this PhD project we will use a spatially explicit metapopulation model to simulate genetic processes in fragmented populations under climate change for the Dutch National Ecological Network (EHS), to determine:

- whether ecological networks can sustain genetic diversity of populations in the long term, depending on species' life history traits and network characteristics.
- which investments in expansion and connectivity of areas in the EHS are necessary to prevent loss of genetic diversity under climate change.



for structured populations  
this depends on  
metapopulation dynamics

