

ABSTRACT THESIS ANOUK CORMONT

Climate change influences nature. In North-West Europe species respond to climate change – increasing temperatures and weather variability – by moving northward and by showing increased population fluctuations. It is however not only important that species can move and recover from fluctuations, but also that they can do that in time, considering the current fragmentation of nature areas. This study was carried out to (1) increase our understanding of the influence of weather and climate change on demographic processes (dispersal, reproduction, survival) in faunal populations, and (2) to disentangle the interaction between the influence of weather and climate change on the one hand, and habitat fragmentation on the other hand, on demographic processes in populations. I took birds and butterflies as study species. Considering species characteristics, I showed that dispersal capacity, migration strategy, and diet type correlate to responses of species to changing weather conditions. These responses can be positive – climate change may diminish the effects of fragmentation by enhancing flight behaviour and dispersal of butterflies – or negative – advanced spring timing may lead to mismatches in food supply of passerine birds. I showed that both positive and negative responses at the individual level can lead to parallel responses at the (meta)population level. At these higher organization levels, (meta)population viability is also affected by the landscape pattern. I showed that increasing spatial cohesion, patch size, and amount of suitable habitat can enhance (meta)population viability and recovery under climate change. Such measures are already known to counteract effects of habitat fragmentation, but this study shows their additive usefulness in adapting to effects of climate change.