

## **How useful is the meta-population concept for the conservation of plant species?**

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Anthropogenic activities cause the fragmentation of the natural habitats of most species. This fragmentation is one of the major threats for species diversity because it drives populations to small sizes and increases the isolation among populations by preventing migration. Moreover, it may also deeply change the spatial structure of how populations could be connected with each other. This is particularly true for plant, because they cannot leave their local environment. So, the species are more and more patchily distributed and only singular events of migration of seeds or pollen among patches may still be possible, which affect the likelihood of colonisations and extinctions. The dynamic of local extinctions and local colonisations is called metapopulation dynamics (Hanski & Simberloff, 1997). Models show that metapopulation dynamics depend both on the demography of each population and on the migration among patches (Levins, 1969). Thus, the viability of a metapopulation depends on the amount of suitable habitat and on spatial and other factors which influence migration, extinction rate and (re)colonization possibilities (Hanski, 1997). Finally, metapopulation models allow deriving numbers such as the Minimum Viable Metapopulation size (MVM) and the Minimum Amount of Suitable Habitat (MASH), which are particularly useful for plant conservation and for an efficient management of species.

Here, we will illustrate these issues by several examples of studies on rare plant species and highlight the importance of accounting for metapopulation dynamics and also for the possibilities of (re)colonisations to evaluate the viability of populations.