dispersion capacity. Barriers, such as roads and rivers as well as unsuitable vegetation types, are affecting the dispersion speed. Spatially explicit data about current and past occurrence of species is based on inventories. From the inventories, the presence of a viable seed bank is derived. First model runs show that plant species, depending on their dispersal capacity and their presence in a seed bank, may become isolated and are not able to reach new suitable habitats due to the lack of connectivity of the landscape. Populations that are not large enough may become locally extinct. This process may be enhanced due to climate change.

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Estimation of association responses for soil pH

In vegetation assessment, vegetation modelling and the estimation of critical loads Ellenberg indicator values are still widely used, despite major drawbacks. Based on the response of the species to soil pH we estimated the response of the syntaxa, from class to sub-association level. To this end, we used a dataset of 160,000 syntaxonomically identified relevés. For each relevé, we calculated the expected pH value as the mean of the pH optima of the species present. Response curves per syntaxon were estimated based on the estimated pH values per relevé. Percentiles values were used to define amplitudes per syntaxon. We were able to estimate a response for almost all associations occurring in The Netherlands. Regression to the mean causes contraction of the response axis. We offer a solution by directly estimating the optima of a small number of associations with sufficient data, and using this to correct the indirectly estimated optima and percentiles. The lower pH percentiles can be used as a minimum value for the occurrence of the association, e.g. to determine the critical load for acid deposition.

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Species mobility and coexistence – are there any 'rules' we do not know yet?

Although the mechanisms underlying non-random coexistence patterns of plant communities have been examined for over a century, little is known about the role of clonal growth in generating these patterns. We studied the variation in annual rhizome increment and community-wide Clonal Mobility (sum of average annual mobility of species weighted with their relative cover) in a coniferous forest, represented by young and old stands. The observed pattern of CM indicates the differential response of plants with different growth forms to disturbance, in terms of annual rhizome increment and different representation of them in old and young stands. We propose a distinction between two kinds of species in perennial plant communities. Matrix forming species (hemirosette- and rosette-forming species), exhibiting limited clonal mobility, represent a stable component of the community. 'Running-around' species (erosulate forbs) represent the mobile component of plant communities, consisting either of species with high vegetative mobility or species regenerating from seeds. These species respond rapidly to disturbances and may decline or perish temporarily and afterwards re-colonize the space between matrix forming species. We propose that within a given species pool, coexistence of species within a limited space is determined by their spatial mobility and by the time since disturbance.