

Plant traits relating to success of exotic plant species on a regional versus a local scale

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To estimate invasiveness of exotic plant species, many studies have used regional abundance of a defined region. This measure is informative about how widespread invasive species are, however, it does not inform on local invasive dominance of the exotic plant species. Therefore, it is important to know for predicting invasions whether results from the regional scale can be adopted to predict invasiveness at the local scale.

To address our question, we used information on all exotic plant species in The Netherlands and compared traits of established exotic plants on both scales. We created minimal adequate models with plant traits predicting abundance of Dutch neophytes ($N = 111$) on regional and local scales. To investigate possible survey bias for the local plot data, we created a version of these data modified to expert opinion.

The models that predicted the success on the local and the regional scales differed. On the regional scale the plant traits correlating positively with high abundance were: non-European origin, large height, polyploid chromosome number, long flowering season, long residence time and therophyte life form. The two versions of the local dominance data both included lateral vegetative spread as a predictor, but varied for the other predictors. This indicates that survey bias is a real problem for using these data for local dominance. On the other side, none of these predictors matched with the predictors in the model for regional abundance. We conclude that different traits predict invasiveness at the regional and the local scale. This indicates the importance of studying invasiveness at multiple scales.