

Publication

Local adaptation is stronger between than within alpine populations of *Anthyllis vulneraria***JournalArticle (Originalarbeit in einer wissenschaftlichen Zeitschrift)**

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Plant populations can be locally adapted and the strength of local adaptation is predicted to increase with increasing environmental distance, e.g. to be larger across than within regions. Meta-analyses comparing reciprocal transplant studies across various taxa confirmed this pattern, whereas single studies including various spatial scales are rare. We transplanted plants among locations of six populations of the herbaceous plant *Anthyllis vulneraria* in the European Alps. We assessed survival and measured aboveground biomass, reproductive allocation and flowering propensity to test for local adaptation at two spatial scales: within and between two climatically contrasting regions in the Eastern and Western Swiss Alps. Performance of transplanted *Anthyllis vulneraria* varied between spatial scales. Transplant survival did not show patterns of local adaptation. However, total aboveground biomass, reproductive allocation and flowering propensity were lowest when plants were transplanted to another region, compared with transplantations within regions and to the site of origin. These results indicate local adaptation of populations across regions, but not within regions. Our findings suggest that environmental variation across alpine regions, potentially the contrasting precipitation pattern, is a strong driver of local adaptation. A previous microsatellite study suggested that gene flow is restricted even within populations; therefore, the absence of local adaptation within regions is likely due to weak environmental variation rather than to gene flow counteracting local adaptation.

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