

## Publication

Pollen dispersal and gene flow within and into a population of the alpine monocarpic plant *Campanula thyrsoidea***JournalArticle (Originalarbeit in einer wissenschaftlichen Zeitschrift)****ID** 1532658**Author(s)** Scheepens, J. F.; Frei, E. S.; Armbruster, G. F. J.; Stöcklin, J.**Author(s) at UniBasel** [Stöcklin, Jürg](#) ; [Scheepens, Johannes](#) ; [Frei, Eva Silvia](#) ; [Armbruster, Georg](#) ;**Year** 2012**Title** Pollen dispersal and gene flow within and into a population of the alpine monocarpic plant *Campanula thyrsoidea***Journal** Annals of Botany**Volume** 110**Number** 7**Pages / Article-Number** 1479-88**Keywords** Gene flow, pollen dispersal, *Campanula thyrsoidea*, European Alps, male mating success, monocarpic perenniality, paternity analysis, pollen analogues, pollination distance

**Background and Aims** Gene flow by seed and pollen largely shapes the genetic structure within and among plant populations. Seed dispersal is often strongly spatially restricted, making gene flow primarily dependent on pollen dispersal within and into populations. To understand distance-dependent pollination success, pollen dispersal and gene flow were studied within and into a population of the alpine monocarpic perennial *Campanula thyrsoidea*. **Methods** A paternity analysis was performed on sampled seed families using microsatellites, genotyping 22 flowering adults and 331 germinated offspring to estimate gene flow, and pollen analogues were used to estimate pollen dispersal. The focal population was situated among 23 genetically differentiated populations on a subalpine mountain plateau (<10 km<sup>2</sup>) in central Switzerland. **Key Results** Paternity analysis assigned 110 offspring (33.2%) to a specific pollen donor (i.e. 'father') in the focal population. Mean pollination distance was 17.4 m for these offspring, and the pollen dispersal curve based on positive LOD scores of all 331 offspring was strongly decreasing with distance. The paternal contribution from 20-35 offspring (6.0-10.5%) originated outside the population, probably from nearby populations on the plateau. Multiple potential fathers were assigned to each of 186 offspring (56.2%). The pollination distance to 'mother' plants was negatively affected by the mothers' degree of spatial isolation in the population. Variability in male mating success was not related to the degree of isolation of father plants. **Conclusions** Pollen dispersal patterns within the *C. thyrsoidea* population are affected by spatial positioning of flowering individuals and pollen dispersal may therefore contribute to the course of evolution of populations of this species. Pollen dispersal into the population was high but apparently not strong enough to prevent the previously described substantial among-population differentiation on the plateau, which may be due to the monocarpic perenniality of this species.

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