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POLLINATION STUDIES ON SNOWBED PLANT SPECIES OF THE NORTHEASTERN CALCAREOUS ALPS OF AUSTRIA

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Calcareous snowbed communities are a peculiarity of the European Alps. Fragmented distribution patterns and high proportions of regional endemics make them especially susceptible to climate change effects.

The ability of snowbed plants to adapt to a changing environment will, among other things, depend on their reproductive strategy. In general, late flowering alpine plant species like snowbed specialists are considered to rely predominantly on selfing. Empirical knowledge on reproduction strategies of calcareous alpine snowbed plants is scarce, however.

The aim of this study is to test the hypothesis that snowbed specialists are predominantly selfers by analysing mating system strategies of seven typical calcareous alpine snowbed forbs. Field-pollination experiments were conducted in order to study the effects of pollinator exclusion (bagging; all study species), emasculation and manual self- and cross-pollination (subset of study species) on seed set and seed:ovule ratios. Additionally, data on floral traits associated with the reproductive system such as anther and ovule numbers and pollen:ovule ratios were collected.

Results demonstrate the study species to display a wide range of mating system types, from predominately outcrossing to predominately selfing. A high degree of spontaneous selfing is thus not a general trait of snowbed specialists. The different reproductive strategies practiced by regional snowbed plants are discussed with relation to the species' ability to cope with potential effects of climate change such as progressive habitat fragmentation.