Population genetics and the conservation of rare plants. (C08-holsinger145327-Oral)

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Abstract:

Many population genetic principles apply both to conservation of rare plants and to conservation of crop germplasm. In rare plants genetic diversity is required if populations are to respond adaptively to environmental change. In crops genetic diversity is required if plant breeders are to have the resources they need to improve agricultural crops. Factors responsible for threatening the persistence of rare plant species have more often to do with loss or conversion of habitat than with loss of genetic diversity, but loss of diversity can compound the threat. In self-incompatible species, for example, loss of self-incompatibility alleles can directly diminish the reproductive capacity of individuals in the populations. When low genetic diversity is associated with poor performance of individuals within the population, inbreeding depression is the likely cause. Thus, genetic management of rare plant populations should focus on preventing declines in individual performance caused by inbreeding depression, while long-term management of rare plant species must ensure persistence of populations that effectively represent the entire adaptive range of the species.

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