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BOOK OF ABSTRACTS



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***In situ* conservation strategy for wild Lima bean (*Phaseolus lunatus* L.) populations in the Central Valley of Costa Rica: a case study of short-lived perennial plants with a mixed-mating system**

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In order to propose *in situ* conservation strategy for short-lived plants with a mixed mating-system, a case study was undertaken for the wild Lima bean (*Phaseolus lunatus* L.) populations distributed in several locations of the Central Valley of Costa Rica, a diversity centre for the Mesoamerican genepool of the species. Genetic structure, gene flow, soil seed bank and demography were investigated in representative populations of the Valley with a view to identify major factors influencing the dynamics of the wild populations and to develop an *in situ* conservation strategy. Results showed a predominantly self-pollinating system, a high interpopulation variability, a small effective neighbourhood size, heterogeneous gene flow values and presence of an important soil seed bank. At any given location, populations were subject to frequent extinction, recolonization, expansion and fragmentation. The establishment of a preliminary life cycle graph allowed identification of key factors in the survival and growth of the wild populations. It is suggested that the future of wild Lima bean conservation in the Central Valley of Costa Rica will rely on the design of synthetic populations implemented in protected areas and made with seeds of nearby populations collected in their origin sites. First trials were carried out on such populations to monitor their dynamics and to establish a careful management of the most representative wild Lima bean genepool in the Central Valley. The relevance of this study for *in situ* conservation of other species with similar breeding system and life cycle is discussed. Results from these investigations can be useful to implement an *in situ* conservation programme for crop wild relatives in regions characterized by a high genetic diversity of the target species but, at the same time, a strong pressure of disturbance factors, such as growing human demography, rapid change in land use and agricultural intensification.