



Retaining Evolutionary Potential in Restored Plant Populations

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To conserve native plants and to prevent the spread of weeds, we must understand the evolutionary potential of populations. The mechanisms by which plants adapt to new environments allow natives to persist under a changing climate and also allow invasive species to expand their ranges. Populations with low effective population size (N_e) can be vulnerable to genetic drift and are thus less responsive to selection. In annuals, variance in reproductive output, which is inversely correlated with N_e , can be easily measured in the field. Field experiments to measure the establishment success of new populations of dotseed plantain (*Plantago erecta*) were designed to examine the role of seed source soil, planting soil, and plant-plant interactions in reducing N_e . The results indicate that survivorship is extremely important to the N_e estimate, and that positive plant-plant interactions increase survivorship probabilities in annual populations. Facilitation has a positive demographic effect by increasing the numbers of plants in a population. Facilitation also results in a positive increase in N_e , above and beyond the simple outcome of greater census sizes. By reducing reproductive variance in plant populations, facilitation increases the effective population size to census size (N_e/N) ratio.

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