

Brief 5: How to carry out population reinforcement



This brief was summarised by Yvette Harvey-Brown (BGCI) from Chapter 11 of BGCI's and IABG's Species Recovery Manual



Introduction

One of the most common forms of species recovery action is the reinforcement of the target species' population. Population reinforcement may be recommended when the population of the target species has decreased in number or genetic variability over time and continues to lose or has lost viability.

Population reinforcement carries with it risks and may be more costly to implement than alternative conservation actions, therefore these factors have to be evaluated as part of the recovery process.

Population reinforcement

The process of adding individuals to a declining/threatened wild population with the aim of enhancing its population size and genetic diversity so as to improve its viability and help its recovery.



Choice and location of source material

There are a number of factors to consider when collecting material for population reinforcement. These include:

- **The genetic variability within populations and genetic distinctiveness between populations of the target species.**
- **An estimation of the Minimum Viable Population for the target species so as to inform the decision on how many individuals need to be introduced.**
- **The origin and genetic makeup of the plants to be introduced.**

More detailed guidance can be found on collecting material for species recovery in Species Recovery Brief 3.



The role of nursery-grown plants in augmentation

Although direct seeding into the population being reinforced may be practised, seedling establishment is widely recognised as a bottleneck when using this method because of the low survival rates exhibited in the first few years. More often seed of the target species is used to generate a supply of seedlings which are grown in a nursery or other off-site facility. Even when using seedlings or other outplants, fencing and watering are often necessary interventions at the early stages of establishment to ensure good survival rates.



TOP TIP

It is important that you follow strict protocols to ensure that the material grown in a nursery is properly labelled and kept disease-free. Each individual seedling may well need to be labelled for rare species, to keep track of genetic diversity. If plants are grown on to maturity, care should be taken to avoid hybridisation.



Site considerations

Population reinforcement does not just consist of introducing new material into the pre-existing population. The micro-habitat conditions, such as topography, soil conditions, hydrology and overall condition of the ecosystem, and its state of management have to be taken into account to ensure the maximum possible chance of establishment and survival of material.



Sanitation

Care should be taken to ensure that the target population (and other taxa at the site) is not contaminated by any pathogens that might be introduced by the material used for reinforcement. The following actions that address sanitation concerns are suggested:

- **Strict sanitation and pest control measures at facilities preparing individuals for reinforcement.**
- **Strict protocols for prevention of contamination during the reinforcement process.**
- **Careful selection of reinforcement sites.**
- **Careful management of reinforcement sites.**
- **Regular monitoring of reinforcement sites for contamination.**

