

Revegetation research in the Murray Mallee - Improving the success of revegetation for biodiversity and habitat restoration

Introduction

Direct seeding is a popular and relatively cheap method of revegetation in southern Australia. However, direct seeding often has inconsistent reliability and success, especially in dry regions such as the Murray Mallee. Wattles and hop-bushes are often the only species to survive, leaving seed from many other species to go to waste. If the aim of the revegetation is to restore habitat for biodiversity, then direct seeding cannot be relied on as the only method to use. Many key species required in biodiversity plantings are not readily available in the quantities needed for direct seeding and some will not efficiently germinate and establish from seed. Using direct seeding also limits the control over density (i.e. the number of plants per hectare) and their placement.

Seedling planting is more expensive but does have the following benefits over direct seeding:

- increased range of species can be used;
- increased control over species (and hence habitat) layout and density, especially if planted by hand.

A combination of direct seeding and seedling planting may offer a more cost-effective and appropriate approach of revegetation for biodiversity and habitat restoration.

The project

This project is investigating seedling revegetation using different types of seedling containers. The project will assess the performance and viability of each container for a number of species, at three different locations in the Murray Mallee.

Seedlings can be grown in several different types of containers. The containers used can have a big impact on the cost of a project and on seedling establishment. The cost of establishment is affected by the size of the seedling that can be successfully planted – the smaller the seedling the cheaper to both propagate and plant. Currently it is not known which containers offer the best compromise between cost, establishment and survival for planting in the Murray Mallee.

It is also not known if seedlings from any container can be established, on the various soil types in the Murray Mallee, without watering. Watering will significantly increase establishment costs if required but will be incorporated into this trial to provide some feedback on the effect it has on the results.

This research will assess whether seedling planting of local native species is a viable option for revegetation for biodiversity outcomes and it will inform the associated practical issues.



Direct seeding in the Mallee

Research Treatments

The main research treatments to be addressed are as follows:

1. Three types of containers to be tested :
 - a. Forestry tubes (50mm);
 - b. Hiko cells (40mm), and;
 - c. Mini-plugs/cells (10mm).



Hiko cells



Forestry tubes

2. The different container treatments will be tested on four key structural species:
 - *Eucalyptus socialis* (fine-seeded 'tree' species);
 - *Melaleuca lanceolata/uncinata* (fine seeded shrub species);
 - *Triodia scariosa* (grassy/tussock species – important for structure/habitat), and;*
 - *Callitris canescens* (large shrub species).

*Note: *Triodia scariosa* will be included in the trials if it can be successfully propagated.

3. With and without watering will be used as a comparison for successful establishment and effects on results for different containers. Different species and soils may also respond differently to watering.
4. The treatments will also be tested across the region at three locations, Hamilton Block (Mantung), Parrakie and Halidon.

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More Information

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