

## Monitoring the success of revegetation works in the Mallee 2010



Above: Tubestock at 12 months. Photos: Mallee CMA.



**Biodiversity is a key asset within the Victorian Mallee community. To enhance this asset, native revegetation works are being undertaken as part of a targeted program by the Mallee Catchment Management Authority (CMA) Land and Biodiversity unit.**

These works have focussed on recreating links between existing remnant vegetation in order to improve connectivity and provide habitat to enhance biodiversity value.

As part of the Mallee CMA 2009/10 revegetation program, a total of 17 sites, covering 200 hectares were established. These sites have since been monitored at three, six, nine and 12 months since planting to assess their success. This fact sheet presents a summary of the latest results.

### **Background**

The Mallee region's biodiversity is unique and contains a range of highly specialised plants and animals. Vegetation clearing has had a significant effect on this biodiversity and has resulted in major changes to the way in which flora and fauna have survived over the past 100 years. These changes have included large declines in species richness and resulted in localised extinctions of some species.

The Mallee CMA has undertaken a targeted approach of revegetating sites to their past vegetation type. These revegetation works have focussed on improving connectivity and increasing habitat values from a biodiversity protection and enhancement perspective.

Monitoring the success and long term impact of these works is essential

because it allows managers to use methodologies that are effective for long-term programs.

### **Method**

During 2010, a monitoring methodology was developed. This aimed to assess the impact that revegetation works can have on improving the region's biodiversity values and to evaluate the effectiveness of different revegetation methodologies.



### At a glance

- Revegetation works across 17 sites were completed in June 2010, covering 200ha;
- 260km of direct seeding was completed, using 150kg of native seed;
- 33,500 tubestock trees were planted;
- On average, tubestock survival rate was 86% at the nine month monitoring session and 85% at 12 months;
- All sites will be monitored at 18 months and two years following establishment.

The monitoring was undertaken before works, during works and after the works were completed.

Information recorded at the sites at the monitoring session following the completion of revegetation works included survival rate (tubestock and direct seeding) and quality; threats such as weeds, rabbits, hares, stock, kangaroos, goats, pest insects and salinity; threatened flora and fauna; and site management.

Tubestock was initially watered-in following planting; however, limited follow-up watering was required at any sites during 2010 and 2011. One site did not have tubestock planted.

Two of the 17 sites had no direct seeding planted.

**Results**

*Tubestock*

The survival rate of the tubestock at sites ranged from 45% to 100%, with an average survival rate of greater than 80% at both the nine and 12 month monitoring visits (Figure 1).

*Direct seeding*

There were variable results for sites that had been directly seeded. Some sites had no germination at three months, whereas others had high germination within a 10 metre area of the seeding line. At the nine month monitoring session, germinates were evident at 10 sites; however, only three sites had germinates evident at 12 months. This may be attributable to the high abundance of mice in the area, or to some hot days.

**Threats**

Weed cover was an issue for the developmental stages of both the

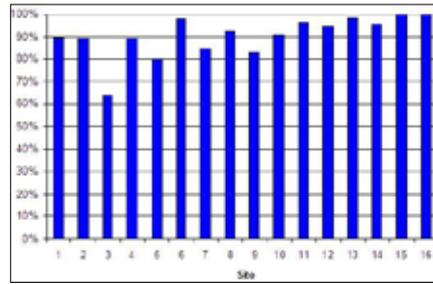


Figure 1: Average percentage of survival of tubestock at 16 sites at 12 month monitoring.

tubestock and direct seeding lines. Ongoing management of weeds is important in order to reduce competition for soil moisture and nutrients.

At both the nine and 12 month monitoring sessions, weed coverage of revegetation sites was very high with all sites having greater than 40% weed cover and an average of 88% and 74% at the nine and 12 month monitoring period respectively (Figure 2). This was a consistent result across all sites possibly due to the above-average rainfall across the catchment. A reduction in weed cover from the nine to the 12 month monitoring session is a positive result of the in-kind management provided by landholders.

Rabbit numbers were reported as being low on all sites during both the nine and 12 month monitoring periods.

High numbers of mice were experienced across the Mallee region in recent months and affected some sites. However, numerical values were not recorded for this threat at this stage of monitoring.

**Conclusion**

There are many influences on revegetation success and on the contribution of revegetation to improving biodiversity within the Mallee. Monitoring of the revegetation works can highlight

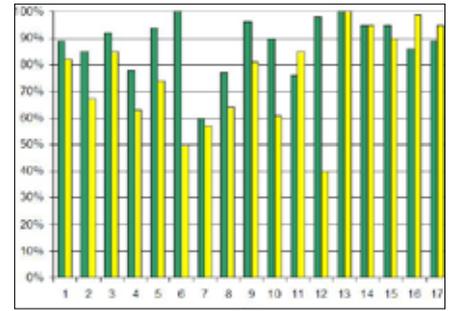


Figure 2: Average percentage of weed coverage at 17 sites at 9 (green) and 12 (yellow) month monitoring.

some of these factors and is important for ensuring the best possible outcome for the works that have been undertaken. The information obtained from monitoring these sites will not only quantify the impact the works have had on the condition of the site but also help to evaluate if this method of revegetation is the best strategy for future programs.

**What's next?**

The Mallee CMA will continue to monitor the revegetation sites at 18 months and two years from planting. Following two years of intensive monitoring, a sub-selection of sites will continue to be monitored at five and 10 years from planting. This will assess the ecological impact of the works on improving the biodiversity of the Mallee region.

**Acknowledgements**

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**Find out more**

Further information is available from the Mallee CMA on 03 5051 4377.

**Project Partners**



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