

Technical Bulletin #18

Monitoring vegetation change at BushTender sites



Above: ARI scientist undertaking soil sampling in a monitoring site. Photo: ARI.

Left: ARI scientist collecting floristic data in a monitoring site. Photo: ARI.

This technical bulletin outlines a vegetation monitoring program for BushTender sites and summaries the baseline data collected.

Background

The Mallee Catchment Management Authority (Mallee CMA) runs BushTender in the Mallee. BushTender is an auction-based program, funded by the Department of Sustainability and Environment (DSE) that aims to improve the quality of native vegetation on private land. Participating landholders agree

to a five year management plan, which includes actions to protect and enhance native vegetation on their site. Actions may include stock exclusion fencing and weed and pest animal control. It is expected that these management actions will improve vegetation condition, for example lead to an increase in the cover of native species and decrease in weeds.

This project will help the Mallee CMA and DSE to evaluate the effectiveness of management actions in improving the condition of native vegetation.

At a glance

- This project aims to design and implement a monitoring program to evaluate vegetation changes at selected BushTender sites in the Mallee.
- 32 monitoring sites across four Mallee landscapes were established and baseline data for vegetation condition was collected in spring 2011.
- These sites should be monitored again in five years and results analysed to assess any improvements in vegetation condition at these sites.

Table 1. Components measured during the study.

Component	Monitoring Action
1. Canopy Species Cover & Recruitment	Number and size of large canopy trees
	Number and size of logs
	Photos of canopy
	Recruitment (the amount of seedling and young plants)
2. Floristics	Floristic search (all plant species within the monitoring plot identified and their percentage cover estimated)
3. Understorey Structure	The frequency and percentage cover of all plant species, litter, bare ground and soil crust
4. Fixed Photo Points	Photos taken at the same location to record visual changes over time
5. Soil Nutrient Sampling & Analysis	Soils samples were taken and nutrient analysis carried out
6. Habitat Hectares	An assessment of the overall condition of vegetation

Method

Site selection

The project established 32 monitoring sites across four distinct landscapes: the Murray landscapes of Robinvale and the Riverina dominated by Black Box woodlands, and the Mallee landscapes of Hattah and Kulwin. Sites on private land were in areas covered by a BushTender management agreement, and were selected in vegetation that represents the dominant Ecological Vegetation Classes (EVCs) in the landscape. Control sites were also established for each EVC on adjacent public land.

Sampling method

The sampling method is based on a previous monitoring project (Duncan and Moxham 2010) and involves measuring the components in Table 1. Baseline data was collected in Spring 2011.

Key Findings

Private land sites in the Murray landscapes of Robinvale and the Riverina were often in better condition than the public land sites. These sites also had a greater

abundance of mature and juvenile woody species, most likely due to the high level of Black Box recruitment. Weeds were common in these landscapes across private and public land, most likely due to the previous land use and remnants' proximity to irrigated agriculture. Soil nutrient levels associated with agriculture (i.e. total nitrogen) were higher on private land sites.

In contrast, weeds were rare in the Mallee landscapes of Kulwin and Hattah. This is potentially due to the more isolated nature of these large remnants in this dryland cropping landscape. More trees and large shrubs were recorded in these landscapes compared to the Murray landscapes.

Woody species were more abundant on private land sites in the Kulwin landscape than public land sites, most likely due to shrub colonisation (i.e. Broombush and Acacia species).

Recent recruitment (i.e. within the last 10 years) of trees and shrubs was observed to varying degrees in all of the landscapes. There was recruitment of chenopod

species at most sites, which most likely reflects the good rainfall over the last two years.

Recommendations

At each site, all of the ecological monitoring components should be reassessed in five years, that is, in spring 2015. To complement this on-ground monitoring, management actions at each site (such as weed control) should be documented. A full data analysis can then be undertaken to examine changes in the different vegetation components.

Acknowledgments

The Mallee CMA engaged the Arthur Rylah Institute for Environmental Research (ARI) to undertake this project, with funding provided by DSE. The project team would like to thank the Mallee landholders who allowed them access to their properties.

Find out more

The information in this bulletin has been taken from 'Vegetation monitoring of BushTender MegaMurray Two sites and collection of baseline data', a report for the Mallee CMA by ARI.

For further information about the BushTender monitoring program, contact the Mallee CMA on (03) 5051 4377

References

Duncan M and Moxham C (2010). 'Quantification of the impact of land management practices on priority vegetation across the dryland Mallee landscape' Monitoring Program. Arthur Rylah Institute for Environmental Research, Department of sustainability and Environment, Heidelberg. A report for the Mallee CMA.

Project Partners



Published July 2012

This publication may be of assistance to you but the Mallee Catchment Management Authority refers readers to our Terms and Conditions, available from our website.

Printed on 100% recycled Australian paper, made from pre- and post-consumer waste.