



The Wimmera Mallee Ecosystem Function Project



Arthur Rylah Institute
For Environmental Research



Understanding & Improving Ecosystem Function in the Murray Mallee & Wimmera Bioregions.

The agricultural landscapes of Victoria's Mallee & Wimmera produce considerable quantities of cereal crops & other food for domestic & export markets.

But all is not well in Australia's foodbasket. Over large expanses of the region, native vegetation cover is less than 5%. These massively altered ecosystems are also increasingly susceptible to current & emerging threats, including drought, rising groundwater/ salinity, accelerated climate change & weed invasions.

In order to ensure the future ecological, social & economic viability of rural communities, it is important that we better understand the natural resource base that underpins rural lifestyles, and develop cost effective methods for improving ecosystem function over broad areas.

The North Central & Mallee Catchment Management Authorities have commissioned an important new project that aims to do this. The project, jointly undertaken by Arthur Rylah Institute for Environmental Research (DSE), Birchip Cropping Group and CSIRO Sustainable Ecosystems (CSE), will provide much needed information about current landscape health and the benefits we derive from remnant vegetation.

Importantly, through identifying parts of the landscape in better health, the project will result in more strategic investment & higher success rates from revegetation & remnant restoration programs, such as those funded by Landcare, Natural Heritage Trust & National Action Plans.

Does Ecosystem Function Affect Me?

Ecosystems provide many "services" from which humans benefit. As part of this project, members of the community in the North West will come together to create an "inventory of ecosystem services" within the Wimmera Mallee region, (see Project Fact Sheet 2- Ecosystem Services.)

What Will This Project Achieve?

An important goal of the project is to develop both a conceptual understanding and a practical plan toward improving ecological function in the Murray Mallee & Wimmera bioregions.

The Key Outcomes;

- **A description of current ecological function throughout the study area, related to biophysical characteristics, past & present land use & landscape context.**
- **An inventory of current & potential ecosystem services provided by the remnant vegetation of the study area.**
- **A set of recommendations for revegetation techniques & management of existing native vegetation, prioritising where in the landscape these activities would be best placed for minimum cost & maximum multiple benefits (eg biodiversity conservation, landscape hydrological control, provision of agricultural pest management by native fauna.)**
- **Establishment of monitoring sites to measure changes in vegetation condition & function.**
- **Engagement with farmers throughout the project so as to ensure their valuable input of knowledge & to maximise useful extension of findings & implementation of recommendations.**

What is Ecosystem Function?

Ecosystems are a dynamic complex of humans, other species & the non living environment, interacting as a functional unit. Within healthy, self-sustaining ecosystems, critical processes or functions such as soil formation & stability, nutrient cycling, water infiltration & holding capacity, as well as pollination & seed production are naturally regulated.

In comparison, highly simplified agricultural landscapes, including small remnants within them, often require increasing external inputs in order to maintain a given level of function.

Healthy ecosystems are characterised as resilient or having a high degree of function. Highly functional landscapes may be better able to respond to natural & imposed disturbances such as fire & drought, or provide stable yields without requiring increased inputs.





**A collaborative
research &
development project
between
Birchip Cropping Group,
Arthur Rylah Institute &
CSIRO Sustainable
Ecosystems**

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