

# Native Vegetation

*Project Fact Sheet 8:*

CTC27

## Improved vegetation planning for rural landscapes

*Investigators:*

Dr Sue McIntyre (email: sue.mcintyre@cse.csiro.au ph: 07 3214 2391)

Mr David Tongway (email: david.tongway@cse.csiro.au ph: 02 6773 3914)

Dr Robert Lambeck (email: robert@gawa.comdek.net.au)

*Host Organisations:*

CSIRO Sustainable Ecosystems, Canberra, and Brisbane

Greening Australia Western Australia, Perth

*Duration of project:*

July 2000 to June 2003

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### *Project Summary*

This project uses Landscape Function Analysis to evaluate the performance of two existing approaches to vegetation planning: the 'Focal Species Approach' and 'Thresholds Approach'.

The 'Focal Species Approach' is being applied in parts of Western Australia, New South Wales, and the Australian Capital Territory, and is used to identify the minimum amount of habitat required to support local populations of all resident fauna species.

The 'Thresholds Approach' is most relevant to grazed landscapes, especially eucalypt-dominated grassy woodlands. It considers a wide range of issues, and identifies probable upper limits (thresholds) for land use(s) that maintain biodiversity and ecosystem services.

The adequacy of these two existing approaches to vegetation planning, is being examined in terms of landscape functioning. The project is using Landscape Function Analysis (LFA) to analyse water and nutrient movement in the landscape and potential for loss of these resources from the landscape via watercourses. Using LFA, the project assesses the health of landscapes in terms of the maintenance of soil health, surface water quality and farm productivity.

Importantly, the project tests how well the 'Focal Species' and the 'Thresholds' approaches protect the critical landscape functions identified by LFA.

Careful planning and management of rural landscapes are needed if we are to ensure biodiversity and ecosystem services are maintained. Native vegetation, and the animals that live in it, represent much of the biodiversity in rural areas and provide key ecosystem functions (such as preventing soil erosion, nutrient losses into waterways, and rising saline groundwater). In some areas, native vegetation also provides the basic resource for productive enterprises (e.g. native pastures for grazing and flowers for honey).

The further development of these approaches assists in planning land use and investment that will promote sustainability of landscapes and in turn the rural economies they support.

### *Project Objectives*

The project's objectives are:

- to review the broad array of factors that influence landscape function and identify the relative importance of those processes addressed by Landscape Function Analysis;
- using Landscape Function Analysis, to examine how native vegetation helps to maintain landscape processes in the wheatbelt of Western Australia and in grazed sub-tropical woodlands of Queensland;
- using Landscape Function Analysis, to assess the 'Focal Species' and 'Thresholds' approaches to landscape planning in terms of ecosystem function; and

- to modify these two approaches to landscape planning in order to improve the overall functioning of the ecosystems in terms of soil, water and biotic processes.

Overall, the project aims to contribute further to landscape planning and management. This will be achieved by refining our knowledge of the extent, location and types of retained or reconstructed vegetation required to maintain healthy landscapes.

### *Approach and Methods*

Two study regions were selected: a landscape near Kellerberrin, in Western Australia, where the woodlands have been fragmented by clearing and cropping, and a landscape near Crows Nest, in Queensland, where the woodlands have been partially cleared and the native grasslands are grazed by cattle.

The first stage of the project provides a description of the basic functioning of each landscape. These descriptions cover the topography, lithology, soils, and vegetation, and their role in resource control, as well as the role of specific features such as fallen timber, rocks and tussocks in regulating the internal flow of resources. Land use and associated disturbances represent an overlay of influence which potentially alter the baseline functioning of the landscape. In Western Australia, winter crops and the grazing of remnant vegetation are the major management impacts. In Queensland, various combinations of tree clearing and grazing of native pastures are the major management impacts.

The second stage of the work uses LFA to determine the extent to which management practices change landscape function. The LFA monitoring procedure will be applied at sites representing the full range of land condition and the relative importance assessed for vegetation modification, patch size, and location on the landscape.

Finally, the 'Focal Species' and 'Thresholds' guidelines for vegetation planning will be reviewed

and modified to reflect the requirements for managing surface processes as identified by LFA. The aim is to determine whether LFA can be used to more specifically identify the extent, location and type of vegetation (retained or reconstructed) needed on landscapes. The modified guidelines will also take into account existing criteria relating to below-ground hydrological function, based on existing hydrological information.


### *Benefits*


The research outputs will contribute to on-going refinement of existing land management information packages (e.g. the principles and thresholds approach, the focal species approach). The target audience includes people already using such frameworks and in particular those with an interest in monitoring, for example: community landcare co-ordinators, Greening Australia regional staff, community officers, researchers and interested landholders. The project will assist in identifying the early warning signs of impending land and water degradation, and in developing strategies for the rehabilitation of degraded sites.

Researchers will also benefit from the technical and conceptual outcomes of the research through scientific articles. The broader research, farmer and extension audiences may be reached through publication of articles in interpretative publications.


## ProgramContacts


**Jann Williams, Program Coordinator**

 (03) 9925 1014



 jann.williams@lwa.gov.au



**Gill Whiting, Program Officer**

 (02) 6263 6001

 gill.whiting@lwa.gov.au

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