Project Fact Sheet 4: CSE9	# Testing approaches to landscape design in cropping lands
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Host Organisation:	CSIRO Sustainable Ecosystems, Canberra
Duration of project:	July 2001 to July 2004

Project Summary

The project evaluates currently used methods for determining **where** revegetation should be located in the landscape for the additional purposes of determining **how much** revegetation is required, and whether revegetation designed for one group of species meets the needs of other groups of species. The project will provide guidance for people involved in large-scale revegetation and enhancement efforts in cropping lands.

The first part of the project looks at refining the 'focal species' method, which identifies the species at most risk in fragmented (cleared agricultural) landscapes. The method is being applied in parts of Western Australia, New South Wales, and the Australian Capital Territory. It is used to identify the minimum amount of habitat required to support local populations of all resident woodland birds.

The second part of the project will determine whether, with increasing fragmentation, thresholds are reached beyond which existing populations of key (focal) species are less likely to persist in the long-term. Were such thresholds to exist, there may be implications for the value (biodiversity benefits) of revegetation work that increases native vegetation cover to a point beyond these thresholds.

Much of the past and current work relevant to this project comes from focal species approach applied to avifauna (birds). This project will apply the focal species method to data from other taxa to assess whether landscapes designed and managed to meet the requirements of birds also meet the requirements of other species groups. The focus is on two target catchments located in the wheatbelts of Western Australia and the eastern states.

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 vegetation planning approaches has direct implications for planning sustainable land use.

Project objectives

The project's objectives are:

1. to provide an improved methodology, based on the focal species approach, to guide broad-scale revegetation efforts to assist the long-term survival of biodiversity;
2. to identify thresholds of fragmentation of native vegetation beyond which existing plant and animal populations are compromised, that is, to help determine how much revegetation is required;
3. to evaluate whether a focal species methodology based on birds meets the needs of other taxa; and
4. to develop guidelines and recommendations appropriate to the revegetation efforts of farmers and community groups in agricultural zones.

Benefits

At a broad level the project will generate insights for vegetation planners into the likely benefits of revegetation for biodiversity. The project will provide new tools for others to use in better designing revegetation at a farm and landscape level. Specifically, it will develop knowledge and a framework for prioritizing the location of revegetation and determining how much revegetation is needed in a particular landscape.

The project will improve the 'focal species' assessment method and report on the results of its application to taxa other than avifauna.

Recommendations will be provided for revegetation of two target catchments (in Western Australia and eastern wheatbelts) based on focal species analysis of birds identified across a broad geographic range of catchments.

The project will also provide an overview of the spatial pattern in the decline of avifauna in Western Australia, relative to the degree of fragmentation.

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