

**PROCEEDINGS OF THE AUSTRALIAN RANGELAND SOCIETY
BIENNIAL CONFERENCE**

Official publication of The Australian Rangeland Society

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The reference for this article should be in this general form;
Author family name, initials (year). Title. *In*: Proceedings of the nth Australian Rangeland Society Biennial Conference. Pages. (Australian Rangeland Society: Australia).

For example:

Anderson, L., van Klinken, R. D., and Shepherd, D. (2008). Aerially surveying Mesquite (*Prosopis* spp.) in the Pilbara. *In*: 'A Climate of Change in the Rangelands. Proceedings of the 15th Australian Rangeland Society Biennial Conference'. (Ed. D. Orr) 4 pages. (Australian Rangeland Society: Australia).

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The Australian Rangeland Society

**THE CLASSIFICATION AND DISTRIBUTION OF
SEMI-ARID WOODLAND TYPES IN SOUTH-EAST AUSTRALIA**

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INTRODUCTION

The native vegetation of the semi-arid woodlands of south-east Australia provide the basis of a pastoral industry. The composition and distribution of these woodlands is however poorly understood. This lack of knowledge is contributing to the degradation and decline of the natural vegetation which in turn contributes to the diminishing returns of the pastoral industry in the area.

Detailed vegetation mapping of much of the area is lacking. Two previous studies of the vegetation within the region have been undertaken. Beadle (1949) provided a map and classification of the vegetation at the scale of 1:1,000,000 for the whole of Western N.S.W., and Fox (1991) has produced a map for the Ana Branch 1:250,000 map sheet only.

These two studies provide an overview of the general vegetation types present within the area. However both are limited by the scale of mapping. As a consequence a great deal of information is obscured, in the mapping procedure such that large areas are described as 'mosaics' of various communities, and some communities are omitted.

To enable conservation and management for sustainable use it is essential that all communities are defined and accurately mapped.

STUDY AREA

The study area is a rectangle at approximately 139 30 E to 143 30 E, and 32 S to 34 S, extending into Victoria, N.S.W. and S.A. covering an area of approximately 100,000 sq.km. within the Murray Darling Basin.

In N.S.W. and S.A. the dominant land use is pastoral lease-hold, and in Victoria it is a mixture of cropping, and conservation reserves with a history of grazing.

VEGETATION COMMUNITY DEFINITION

The various woodland types and communities are being defined, based on an intensive and extensive quadrat survey. The quadrat data is being analysed using a computer based Flora Information System (F.I.S.) (Gullan, 1975). The F.I.S. produces two-way tables and provides the basis for definition of communities and sub-communities.

Vegetation "health" is being recorded at each site. Health in this instance is a combination of empirical measurement of species presence or absence together with a subjective assessment of plant condition. Both measures are referenced to similar communities in the study area which are considered to be relatively undisturbed and healthy.

Each quadrat is located (+/- 30m.) using a Global Positioning System (GPS).

VEGETATION COMMUNITY MAPPING

Vegetation mapping is undertaken to provide a range of information which can be quickly assimilated by the reader depending on their knowledge and biases.

A vegetation map can provide information about: what an area looks like; which plant species are, and may be, present; which animal species may be present; and as a basis for subsequent management decisions.

A mapping system must reflect the end use of the information. As the end use (and end user) becomes more sophisticated so the map must provide more sophisticated information and at an appropriate scale.

To provide the type and scale of information required for management, the use of Landsat Thematic Mapper (TM) satellite image data is being investigated. The Landsat TM data has a ground resolution of 30m. and can differentiate between landcover types (communities), cover abundance attributes, and health of those communities (although this is more difficult to interpret). The end mapping scale will be 1:100,000 with individual mapping units of around 1ha.

The Landsat TM interpretation is being undertaken with the aid of the microBRIAN image processing system.

INFORMATION STORAGE

All of the vegetation information derived from the classification of communities and the subsequent mapping will be stored in the computer based Environmental Resource Management System (ERMS) - a Geographical Information System developed by the New South Wales National Parks and Wildlife Service. The ERMS will allow the recall of data in map form at any scale desired, and the inclusion of additional data as it becomes available. The data relating to N.S.W. will be incorporated with the ERMS database held by the Western Region of the Department of Conservation and Land Management.

The end product of the research will be a map of the non-eucalypt semi-arid woodlands to an accuracy of +/- 100m. (1 ha. units). Each vegetation unit will be defined and where possible relative health will be included.

The study is part funded by the Murray-Darling Basin Commission through an NRMS grant.

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