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# Towards integrated management of Australian karst systems

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## Abstract

Whilst good environmental planning and management systems have been developed for some Australian karst areas, other programs have not been truly systematic in scope or approach. This is most common where more than one land tenure is found within the total karst catchment.

Tenure boundaries between different classes of public land (and between private and public land), initially poorly planned from a karst perspective, have become entrenched, particularly as the economic potential of an area has been realised and investments made in the expectation of future returns.

Codes of practice or management plans have consequently been restricted by legislation to individual tenures - with often quite divergent management philosophies - even though caves, active karst drainage networks or surface karst ecosystems cross these tenure boundaries.

Many planning systems have little in common with those controlling neighbouring tenures, resulting in an inconsistent approach to management across an entire regional karst system. Mining tenures abutting reserves, production forestry in the catchment of National Parks, intensive agriculture and grazing in catchments of vulnerable cave systems or public water supplies are examples of potential catchment-based impacts not effectively ameliorated by tenure-specific planning.

Management of cave-based activities, particularly regarding access and associated public liability, are also complicated when multiple tenures are involved. Whilst this situation is true in many environmental systems, the consequences of unplanned cross-tenure relationships have distinctive effects on karst values and processes.

Geoconservation, management of cave ecosystems, public access, soil, water and vegetation management issues in karst catchments all provide special challenges when a karst system is managed according to disparate philosophies.

Integrated karst management may be compared with well-established principles of integrated catchment management, generally developed for surface catchment areas defined by normal fluvial systems. Whilst retaining the emphasis on catchments, integrated karst management must be defined according to catchment boundaries which are often highly variable according to groundwater conditions.

This paper explores the relationships between traditional integrated catchment management principles, and those which may be more logically applied to karst systems. It also reviews past experience and trends in integrated karst management in Australia, and the regional potential for ongoing development.

A particular challenge is the development of effective integrated or sympathetic management regimes across the public-private tenures.

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