

# THE FUTURE OF AUSTRALIA'S CAVES

ADRIAN DAVEY\*

A.S.F. Commission on Conservation

## *Abstract*

*The conservation status of Australia's karst resources is reviewed in the context of three main themes: planning, management, and use.*

*One of the most difficult problems in karst conservation is to reconcile use of caves with their conservation. We must face up to the challenge that some of the most significant of the damage being done to our scarce cave resources is caused in various ways by cavers and speleologists.*

*Discussion of planning problems centres around the land use conflicts affecting caves and karst features, and the adequacy of decision-making processes.*

Karst is a specialised natural resource which offers many unusual and exciting opportunities for nature conservation and scientific research, and for recreation and tourism. Some of our karst is of considerable international significance, but karst generally is a relatively scarce and vulnerable resource in Australia (Jennings, 1975).

The continuance of the special opportunities which karst provides is at risk from physical destruction of cave and karst environments by incompatible uses, and by degradation from uncontrolled or unplanned use. Those who value caves and karst for their special natural values and recreation opportunities have a responsibility to work towards better procedures for resource management of them.

It must be recognised that there is ultimately a conflict between conservation of an essentially non-renewable resource, and recreation or other uses based on it. Virtually any use of caves will modify them to some degree. In the long run, gradual deterioration and inadvertent modification of caves is probably a far more serious challenge than the obvious threats of vandalism and suchlike. This kind of conflict is as much a problem in remote caves visited only infrequently by relatively responsible speleologists as it is in our tourist caves and other heavily visited caves (see for example, Stitt, 1977).

There needs to be more than a recognition that this is happening and that it is a real problem. All of us must face the challenge of reconciling this situation with the long-term responsibility for resource management. In an earlier paper (Davey, 1976), I explored some of the ethical and ecological problems of recreation in the cave environment, in the context of underground wilderness as well as in other situations; I also provided a tentative analysis of the sources of damage to caves - inadvertent, avoidable, and deliberate - by cavers and speleologists. The point I wish to reiterate here is simply that the credibility of speleologists will be suspect in any karst conservation controversy if they cannot demonstrate a commitment to resolution of the conservation contradictions arising from their own activities.

We should be quite wary of the justification for further exploration of caves. Until we can demonstrate a capacity to properly manage those caves we have already exposed to the depredations of investigating humans, we should

\*P.O. Box 92. O'CONNOR. A.C.T. 2601

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curb our own curiosity. And surely we have as much responsibility for leaving opportunities for discovery and exploration to future generations as we have a responsibility for conserving the resource itself?

The ecological nature of the karst concept is of crucial importance. There needs to be a greater concentration on the system context of caves than on the individual cave site. This has important implications for the kind of information we should be seeking to manage karst better, but it should be remembered that even research may have unanticipated or undesirable effects on karst systems.

Our objectives for karst resource management should take account of the relative capacities of different parts of our total resource stocks to provide opportunities for:

- o nature conservation
- o scientific research
- o aesthetic appreciation
- o recreation and
- o economic development.

We should not seek to preclude mining and quarrying and other destructive resource uses from karst under all circumstances, but rather to ensure that society adopts decision-making processes which give proper attention to all of the alternative values of such scarce irreplaceable natural assets (Davey, 1977). The biggest problem here is that in making the necessary trade-offs in such resource allocation decisions, we have only a very limited capacity to quantify the values of intangible aspects of these resources.

The challenge in providing for better management of karst is thus essentially three-fold:

- o providing an understanding of the values and dynamics of karst resources
- o protecting important resources from destruction by incompatible uses, and
- o protecting the resource from gradual deterioration.

The future of our karst resources can only be safeguarded if there is a systematic approach to all these aspects of karst resource management. The mechanisms needed for planning and management in this context fall into four categories:

1. Public resource allocation procedures.
2. Land tenure and resource ownership arrangements (the two do not necessarily coincide) which best safeguard resource allocation decisions and give adequate management powers.
3. Management planning procedures which, through consultation with the public, seek to identify the resource values and management objectives, and the means of achieving them.
4. Recognition by users of the contradictions involved in recreational use of caves.

In a so-called democracy, there can be no more permanent protection of karst resources from incompatible use than an Act of Parliament. The legal phrase "permanent reservation" means only that the reservation will remain in effect until such time as it is revoked. This situation may seem contradictory, but there is no real alternative. If the future status of karst is to be safeguarded, what matters is that decisions taken about karst resources (or, for that matter, any other resources) are fully public, and carefully considered. This applies to all aspects of the management of karst resources - be it at the regional land use planning level, or in mineral or water resource

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development, management planning, or tourism and recreation development.

Ownership of resources is one of the key questions. The depth dimension of karst raises all sorts of difficulties which do not arise as significantly in other land use contexts. Depth of title is an important consideration - many pastoral leases and freehold allotments in Australia do not extend below the surface very far, or at all. Possibilities for better management of karst beneath such titles deserve careful exploration. It is difficult, however, to find realistic means for adequate protection and management of caves and karst unless such resources are fully under public control. There are cases where the most practical protection in the short-term is to rely on responsible private owners, but it is ultimately inescapable that the responsibility for protection of such public resources be vested in governments.

Another major complication with karst resources is that land ownership (or reservation) does not necessarily imply full control of mineral, energy or water resources. This would not be a problem if Australian legislation in this field provided for a reasonable level of public involvement in decision-making. If the future of Australia's limited karst resources is to be protected at all, this is a crucial area for conservation action.

In many nature conservation initiatives, there has been too little attention given to the protection of habitat as well as species, and this certainly applies to many of the important animals in cave environments. The species can only be conserved if there is adequate habitat protection. The strong functional link between individual caves and their surrounding karst context is another example of the need for protection to extend far beyond the feature of immediate concern. There are obvious political and practical difficulties in the case of karst areas with very large catchments (for example, the vast Nullarbor karst, or the small fragmented Buchan karsts within an enormous drainage basin) but the principle involved needs to be kept prominent in land use and resource management decision-making. One of the problems here is that we often know so little about the precise nature and extent of karst drainage systems. If anything, this increases the responsibility for conservative management.

We need both permanency and flexibility in our land utilisation decisions. We are certainly not in a position to make any precise prescription now of the conditions which will prevail in the future, so our resource management mechanisms should recognise the necessarily incremental nature of decision-making. Within such constraints, there is still a need for expectations about use and management of resources to be safeguarded until there is a public decision for change.

The implications of all this are that the future of Australia's caves and karst may best be safeguarded if we work energetically towards the following ideal, rather than concentrating exclusively on particular resource use conflicts:

As much as possible of the functionally-related system of which any important karst area is part should be reserved by Act of Parliament; there should be explicit public procedures before such reservation, and before it can be amended or revoked; and there should be active management by a responsible agency with clearly specified powers and in accordance with a regularly updated management plan which is arrived at after explicit public procedures. Within the framework of management controls, users must be able to demonstrate that their activities are fully consistent with long-term retention of the characteristics for which the resources are being protected and managed.

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Cave conservation is not just about opposing quarries or dams; unless there is a move to much better public procedures and systematic planning, there will always be the kinds of conflicts which plague us at present. The future of our caves will be much better provided for if we are able to make a rational assessment of the values and objectives of all of our karst resources than if we concentrate on responding to each crisis arising from someone else's initiative.

The real dilemma here is that people's energies are much more readily harnessed for tangible and obvious conflicts involving resources that they personally can relate to, than is the case for a long-running strategic campaign aimed at changing the way we make decisions about the use and management of our irreplaceable natural assets. This paper, and two earlier contributions on related themes (Davey, 1976 & 1977) are in response to this need; too often, in our attitudes to cave conservation, we cannot see the karst for the caves.

The preceding discussion should not be taken as suggesting that legislative protection and management by a responsible agency will be enough to secure the future of our caves. They are an essential beginning, but as I stressed at the outset of this paper, the contradictions of continued use of caves for recreation and other purposes needs careful attention also. Australian speleologists, having formally adopted a Code of Ethics, should start actually applying its principles, and take active steps to encourage all persons who visit karst areas, for whatever purpose, to do likewise.

Education of all cave users, whether in organised caving groups or not, about the full range of values associated with karst is one of the most pressing challenges. The Australian Speleological Federation has a responsibility to better organise itself to undertake this daunting task, and to assist management agencies in natural resource oriented education and interpretation programmes. Such co-operation with government departments needs considerable development for wider purposes as well. For far too long there has been considerable suspicion on both sides. As long as the necessarily different functions of government agencies and special interest groups are recognised by both parties (see Clark, 1974), in the long-term it can only lead to better understanding and better karst management. The more professional the input from speleologists the better.

In short, the future of Australia's remarkable but limited karst resources is as much dependent on the ability of concerned speleologists to contrive better decision-making mechanisms about those resources (and to contribute substantially to those processes, both technically and politically) as it is on the ever-present necessity for activism. Australian speleologists have responded with quite remarkable skill and energy to serious conflicts at such places as Mt. Etna, Bungonia, Precipitous Bluff, and many more. But let us make sure that such essential battles do not overshadow the higher purposes and greater difficulties of safeguarding all that is valuable about our karst resources for the future.

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## OVERUSE OF CAVES — AVOIDING AND REPAIRING : A CASE STUDY

RAY HART\*

Western Australian Speleological Group

### *Abstract*

*Moondyne Cave (Augusta, W.A.), a former tourist cave, was studied to assess the potential for avoiding and repairing damage due to "normal wear and tear." The potential for repair is limited and it is necessary to avoid damage before the repair stage is necessary. This conclusion is applied to the more difficult problems of cave management in wild caves.*

\*18 Violet Grove, SHENTON PARK. W.A. 6008

## RECREATIONAL CAVING IN W.A. : SOME HARD DATA

RAY HART\*

Western Australian Speleological Group

### *Abstract*

*The annual number of visits to caves in W.A. has been estimated for paying tourists, the adventurous public and speleologists. The high number of visits to wild caves by the public presents some serious problems of management. This is contrasted with the problems of less intensive but more extensive use of caves by speleologists.*

\*18 Violet Grove, SHENTON PARK. W.A. 6008