

RESOURCE MANAGEMENT OF THE NULLARBOR CAVES

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Abstract

The Western Australian Environmental Protection Authority recently commissioned a study team from the Australian Speleological Federation to carry out a resource management study of the Nullarbor region of W.A.

This paper summarises some aspects of the study. It reviews the remarkable natural resources of the Nullarbor, especially of the caves, and identifies some of their special values. The challenge of achieving conservation and active management of these resources is considerable. Some of the conflicts and management problems are discussed.

THE NULLARBOR KARST

The natural resources of the Nullarbor Plain and its caves have probably been more completely documented than any other karst area in Australia. The extensive literature on the natural resources of the region is analysed in some detail in the Australian Speleological Federation (A.S.F.) report (Davey, 1978), and a fairly complete listing of all the literature is contained in Davey and Lewis (1978).

The Nullarbor Plain is one of the most impressive outback landscapes of Australia - a vast and nearly flat expanse of treeless shrubland surrounded by sparse mallee country and scrub. Beneath its semi-arid surface are some very remarkable caves, often characterised by enormous rockfalls, large roomy passages, clear lakes, rare mineral formations, and many other interesting features.

The Nullarbor is one of the world's three or four largest karstlands, and the only arid and semi-arid karst of any great extent. Its seaward margin includes two substantial lengths of tall unbroken sea cliffs facing the Great Australian Bight; in between, the emerged continuation of the sea cliffs forms the prominent escarpment of the Hampton Range - the most obvious landscape feature at the southern margin of an otherwise gently undulating plateau. Considering the size of the Plain, caves are not numerous, although over 200 caves, blowholes, and dolines have been documented, mainly in the less arid area near the coast.

The caves are quite diverse in character. They range from simple blow-holes, through complex networks of low passages at one or more levels, to extensive roomy collapse passages. Some of the deep caves have a compelling beauty and majesty - not to mention sheer size - of a kind unknown elsewhere in Australia or the world. Submerged passages extending off the lakes in three or four of the caves offer outstanding cave diving challenges. The considerable variety of caves contain numerous features which are of scientific importance; these include prehistoric art and archaeological sites, fossil bird and mammal sites, troglobitic invertebrate fauna, rare mineral deposits, and a surprising range of beautiful and rare speleothems. Studies of many of the caves and other karst features of the Nullarbor have contributed significantly to better understanding of environmental processes and aboriginal prehistory elsewhere in Australia.

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At present, most visitors to the Nullarbor merely cross it on the Eyre Highway or transcontinental railway, spending as little time on the Nullarbor as possible. Most of the commercial activity in the region centres on servicing the highway traveller. The Nullarbor certainly has a widespread image as a vast flat expanse of uninteresting scenery. In many respects, however, this image is deceptive - the Nullarbor is in very many ways quite beautiful and contains a remarkable diversity of interesting natural features. More attention to interpretation of the natural features of the region will not only contribute to a much more positive tourist experience, but will make the task of managing the natural resources of the region a much easier one.

An analysis of visitor patterns on the Nullarbor suggests that a diversification of tourist opportunities would be of considerable interest. One of the major constraints at present is the general inadequacy of the tourist service facilities.

Unfortunately, Australians have only recently begun to appreciate that resources of the kind represented by the caves of the Nullarbor require active protection and careful management. For example, apart from widespread problems of rubbish, vandalism and disturbance, two of the most beautiful and scientifically important of the caves are disfigured by totally unnecessary pipes and pumping equipment. Erosion caused by stock and people goes unchecked in some cave entrances and dolines. In many of the caves, careless or thoughtless visitors have unintentionally (perhaps in some cases deliberately) contributed to a general deterioration of the condition of the caves by treading a multiplicity of paths, walking on sand dunes, damaging crystal deposits at lake edges, walking on rare mineral crusts, disturbing bats, breaking speleothems, and so on.

At present, the only industry other than tourism is grazing. The continued economic viability of the industry is open to serious question, and there is substantial evidence that carrying capacities have been (and still are) exceeded to the extent that range conditions have declined seriously. This has important nature conservation as well as resource management implications.

THE MANAGEMENT CHALLENGE

Many of the caves on the Nullarbor are deteriorating seriously. The main problems are a proliferation of camping and erosion near cave entrances, rubbish and graffiti in the caves, and inadvertant or deliberate destruction or disturbance of important natural and cultural features (for example, fossil sites, aboriginal art sites, troglobitic fauna).

In other parts of Australia, the conventional response to this kind of problem is to arrange for active resource management, usually by some public authority. The sheer size and remoteness of the Nullarbor Plain makes this very difficult; there are over 200 important karst features scattered within an area larger than 750 km by 200 km!

Only a few of the Nullarbor caves or other karst features are in reserves. In the Western Australian sector, Cocklebidy Cave (N-48), Murra-el-elevyn Cave (N-47), Tommy Grahams Cave (N-56), Pannikin Plain Cave (N-49), and a few other features are all within the large Nuytsland Wildlife Reserve, and Weebubbie Cave (N-2) is within a water reserve. In South Australia, Koonalda Cave (N-4) is a declared prohibited area under the (S.A.) *Aboriginal and Historical Relics Preservation Act* (1965), but there are no caves there within reserves as such. The vast majority of significant karst features on

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the Nullarbor are within pastoral leases or on vacant Crown land.

Despite the existence of a few reserves, there is no cave or karst feature on the Nullarbor which is the subject of responsible management. Even the very strict legal "protection" of Koonalda Cave has not yet contributed significantly to its actual protection, because it is not backed up by active management; this valuable archaeological and prehistoric art site is steadily being subjected to vandalism and disturbance. Another example is Weebubbie Cave, where its status as a water reserve may actually have encouraged the disfiguring of the cave and lake by totally unnecessary pumps and piping. One has to conclude that the challenge in an area like the Nullarbor is not in achieving reservation of important features so much as in achieving an active management input.

In some cases (for example, the Nuytsland Wildlife Reserve), the lack of management is partly attributable to the daunting task of managing huge tracts of Western Australian backcountry with extremely limited resources. In other cases (for example, Koonalda Cave), it is hard to escape the conclusion that, despite legal protection, there has never been a realistic commitment to achieving practical protection and management of such a priceless site.

Even if reserves or national parks are a practical option for the future, land tenure of important parts of the Nullarbor karst, it should be recognised that workable arrangements for actual management are ultimately a far more important concern. Any means of achieving active management, even if quite different from the arrangements which would normally be desirable for more accessible karst areas, should be given very careful consideration.

MANAGEMENT OBJECTIVES

The Nullarbor Plain and its caves are of considerable international interest. The caves and other karst features are of scientific importance, and they provide many significant opportunities for nature conservation, aesthetic appreciation, recreation, and tourism. The report (Davey, 1978) identified six basic objectives for resource management of the W.A. Nullarbor:

- (1) To provide for the preservation of the Nullarbor caves and other karst features in as near to a natural state as possible.
- (2) To provide for the preservation of viable examples of the natural ecosystems of the Nullarbor region in as undisturbed a condition as possible.
- (3) To secure the preservation of rare, unusual or endemic cave-dwelling fauna or mineral formations and other scientifically interesting natural features of the Nullarbor caves and Plain, and to foster research into them.
- (4) To provide opportunities for visitors to experience and appreciate the remarkable subterranean environment beneath the Nullarbor Plain, with its magnificent chambers, lakes, and mineral formations.
- (5) To provide opportunities for education and interpretation about the Nullarbor caves and karst and to increase awareness of other interesting aspects of the Nullarbor environment.

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- (6) To provide opportunities for pastoral production on a carefully controlled sustainable-yield basis, consistent with the achievement of the primary objectives above.

IMPLICATIONS

Station managers are in no position to guarantee that important sites which happen to be within pastoral leases will be protected. Even if it were reasonable or practical to rely on station managers, and even if they were concerned to protect caves, they have no expertise of cave management and have no statutory powers of enforcement.

The public responsibility for protection and active management must be accepted. The evolution of workable management arrangements will be time-consuming, but a greater contribution by public authorities is essential. There may already be the beginnings of a management presence as the result of previous recommendations of the Environmental Protection Authority (E.P.A., 1975) for a new national park in the Eucla area. That recommendation was not related to karst features, but the proximity of the park to a base at the developing tourist and government servicing complex at Eucla Pass, may make it easier for the National Parks Authority to find a workable arrangement for active management of features elsewhere in the region as well.

Whatever the land tenure (for example, reserve, national park, vacant Crown land, or pastoral lease), it is essential that there be on-ground management for all the caves and other karst features on the Nullarbor, and that there be systematic management plans for each major site or group of sites (or reserve). Particularly for the well known and accessible caves, it is desirable that there be a specific plan for each, with careful attention to such things as littering, smoking in caves, disturbance of cave fauna, damage to mineral formations, and disturbance of sediment, bone, and archaeological deposits. The main components of the management programme needed are:

- o An active management presence on the Nullarbor with responsibility for management of caves and other karst features.
- o Legislative protection for all caves and karst features.
- o Reservation of all the most important caves and groups of caves.
- o The development and implementation of management plans for each major cave or group of caves.
- o Provisions for active management of other caves beneath pastoral leases and other tenures.
- o Declaration of cave invertebrate fauna as protected species.
- o Restoration and protection works at sites which have been disturbed.
- o A programme of public education and interpretation about karst resources, their values, and their vulnerability.
- o Selective development of specific sites for carefully managed tourism.

Until the Environmental Protection Authority has had time to consider the proposals, the other specific recommendations of the report will not be discussed here. In summary, they involve, among other things, restoration works and closer supervision at Cocklebidy Cave and Murra-el-elevyn Cave; the development and implementation of a management plan for Mullamullang Cave (N-37); management protection of the palaeontological and archaeological

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site at Madura Cave (N-62); a major new reserve or national park including the complex of karst features centred on Abrakurrie Cave (N-3); and the possible development of Weebubbie Cave for very carefully managed tourism. This latter proposal will be the subject of detailed further investigations.

The study represents an interesting achievement in co-operation between a specialist interest group and government. It remains to be seen how much of the recommendations of the report can be realised, but it does at least seem to have provided a valuable stimulus to achieving better resource management of the karst on the Western Australian Nullarbor.

ACKNOWLEDGMENTS

This paper is drawn from a report which is the result of the energy and initiative of very many people. The study team consisted of Jim Cundy, John Dunkley, Elery Hamilton-Smith, Ken Lance, Ian Lewis, Kevin Mott, Bob Shoosmith, Nicholas White, and Kerry Williamson, with the present writer responsible for co-ordination and editing. George Kendrick (W.A. Museum), Richard May (National Parks Authority), and John Watson (Department of Conservation and Environment) also made major contributions, and numerous others in Perth and on the Nullarbor gave assistance in various ways. The generous help of numerous friends and colleagues is also much appreciated: Ted Anderson, Peter Bridge, Bill Crowle, Fred Elliott, Ross Ellis, Rudy Frank, Joe Jennings, David Lowry, Jackie Lowry, Duncan Merrilees, Greg Middleton, Bob Nicoll, Andrew Spate, and Rauleigh Webb.

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