THE SANCTITY OF CAVES IN STOCKYARD GULLY NATURE RESERVE, WITH COMMENTS ON DEFINITIONS OF NATIONAL PARKS AND NATURE RESERVES.

Edyta Jasinska, Department of Zoology, University of Western Australia, Nedlands, Western Australia. 6009

Brenton Knott, Department of Zoology, University of Western Australia, Nedlands, Western Australia. 6009

Norm Poulter, Electron Microscope Centre, University of Western Australia, Nedlands, Western Australia. 6009/Speleological Research Group, Box 120, Nedlands, Western Australia. 6009

ABSTRACT

The Stockyard Gully Nature Reserve in Western Australia is a Class 'A' Reserve, which should give it the highest legal protection of all Nature Reserves in this State. Despite this, an exotic species of crayfish, *Cherax destructor*, now occurs in at least two caves on the Reserve, and an act of vandalism involving the felling of flora, blasting and clearing a cave entrance in 1984 went unpunished. Stockyard Gully Reserve has been referred to as National Park. Significance of this variation in reservation status and consequent security of important natural features, such as caves, is discussed at length here.

INTRODUCTION

Stockyard Gully Nature Reserve (Fig. 1) is an area of karst overgrown by native bushland lying approximately 20 km southwest of Eneabba, or 295 km in direct line north of Perth, Western Australia. In June, 1991, we visited Beekeepers and Aiyennu caves, both located within the Stockyard Gully Nature Reserve, to sample and study the amphipod *Austrochiltonia subtenuis*, a small (~2 mm long) freshwater crustacean. The issues discussed here (the sanctity of caves in nature reserves and the definitions of National Parks and Class 'A', 'B', and 'C' Reserves) are an unexpected development from that trip.

EXOTIC CRAYFISH IN CAVE WATERS

During our observations of the numerous small aquatic invertebrates in the waters of Beekeepers and Aiyennu caves we also noticed a number of crayfish in each cave. On closer examination these crayfish turned out to be yabbies, otherwise known as *Cherax destructor* - species native to the eastern states of Australia. This species of crayfish is now widely distributed throughout the wheatbelt and sheep-farming regions of the State, as well as in the hinterland of Carnarvon and it has been introduced into the Pilbara (Morrissy and Cassells 1992). Because this crayfish is not native to Western Australia it represents a threat both to the species of crayfish native to Western Australia and to other aquatic animals (Austin 1985, Horwitz 1989, 1991, Jasinska *et al.* in prep). During a literature search, not long after the trip, we found that crayfish were also observed in both caves in 1989. These crayfish were most likely also yabbies, but they were cited as marron (a species endemic to Western Australia) in the relevant trip report (Markey 1990): for a number of reasons discussed by Jasinska *et al.* (in prep), this classification is undoubtedly incorrect Our observations of yabbies of various sizes in each cave in conjunction with the report by Markey (1990) suggest that there is an established population of exotic crayfish in the two caves. Suffice to comment here that presence of an exotic species in a Reserve is contradictory to the purpose of a Nature Reserve.

Stockyard Gully Nature Reserve (# 36419), was proclaimed for the Conservation of Flora, Water and the Protection of Caves. We understand that, although Fauna is not specifically included in the proclamation, CALM views protection of fauna within the Reserve as falling

under its aegis. However, we believe the word 'Fauna' should be included in the legal wording of the proclamation to remove any ambiguity regarding the purpose of the Reserve. Indeed, it is stated clearly in the "Report of the National Estate" (1974, p84) that:

> Strict nature reserves must always protect both flora and fauna, ...
> ..... This is clearly desirable, since flora and fauna are interdependent parts of the one ecosystem.

Prior to our observations, *Cherax destructor* has not been reported from caves in Western Australia. Therefore, we have prepared a paper reporting its presence in the Stockyard Gully caves.(Jasinska *et al.* in prep).

The surface terrain above Beekeepers and Aiyennu caves is free of water courses, lakes and swamps - how then did the yabbies invade the cave waters? East of the Stockyard Gully Nature Reserve there is a system of rivers and creeks draining private properties (Fig. 1) which include farms. From the topographic map of the area (Eneabba) it is evident these surface waters drain into the karst of Stockyard Gully Nature Reserve, presumably into a system of subterranean conduits. Furthermore, from the topographic information, it seems very likely that there is hydrological continuity between the caves of the area. Hence, it is possible that the yabbies entered the caves in waters draining the private properties east of Stockyard Gully Nature Reserve.

DESECRATION IN STOCKYARD GULLY NATURE RESERVE

In April 1984 Jimwa Pty Ltd, owners of the property called King Ranch which adjoined the eastern boundary of Stockyard Gully Nature Reserve, committed the following acts:

i drove bulldozers through the Reserve felling flora and displacing soil and rocks;

ii. using explosives and an excavator to remove two very large boulders from the entrance to Stockyard Gully Cave (Stockyard Tunnel thus increasing the flow of water, draining from King Ranch, into the cave.

It seems appropriate to reiterate here that the Stockyard Gully Nature Reserve was proclaimed for the purpose of conservation of flora and water, and protection of caves . Thus, Jimwa Pty Ltd in one sweep violated the threefold purpose of the Reserve. All these offences were carried out in about one week and despite strenuous efforts from the local ranger to prevent them.

Some 3 months later, on the 10th of August 1984, legal proceedings were initiated against Jimwa Pty Ltd by the then National Parks Authority of Western Australia (NPAWA). The penalty for the above offences under Section 107 of "Conservation and Land Management Act" (1984) was $4 000 plus imprisonment for 6 months according to point 106(c) and a further $10 000 plus imprisonment for one year for offences listed in points 107(d) and 107(h). Jimwa Pty Ltd pleaded not guilty, their defence being 'ignorance': the representative of the company claimed that they believed the Reserve boundary to be designated by old fencelines and not as shown on official maps and that the work was therefore thought to be carried out within the boundaries of King Ranch. It is worth noting here that the local ranger did point out that even according to the old fencelines, the mouth of Stockyard Gully Cave was within the Stockyard Gully Nature Reserve.

Unbelievably, the counsel for the Complainant (Mr Colin C. Sanders, the Director of the NPAWA) conceded that the owners of the King Ranch in fact believed that the entrance to the Stockyard Gully Cave was part of King Ranch and thus effectively helped Jimwa Pty Ltd to be aquitted. Furthermore, Mr Sanders was required to give important evidence at the Court Hearing but failed to attend. Such lack of concern shown by the Authority in whom the land is vested must have been frustrating to both the local ranger and to the public, especially the Speleological Community who lobbied the NPAWA to take out the summons. Unhappily, this lack of genuine concern for nature reserves by the relevant authorities is still displayed by the ways in which Nature Reserves are designated and classified.

STATUS OF THE STOCKYARD GULLY AREA

At the beginning of the Stockyard Gully Reserve, along the main vehicle track from the north, an old sign (in poor condition) states it to be the Stockyard Gully National Park. Working in a National Park requires permits and thus we applied to the Department of Conservation and Land Management (CALM) of the State government for a permit to do research in Stockyard Gully National Park. We obtained our permits without anyone in CALM querying the National Park status of the area.

While preparing the report on yabbies in Stockyard Gully caves (Jasinska *et al.* in prep.), we wished to verify the status of the Reserve as a National Park. The CALM officers who assisted in locating the relevant information from the files of their Department surprised themselves and us in discovering that the Stockyard Gully area is NOT a National Park. Instead, the area in question is classified as Stockyard Gully Nature Reserve (# 36419), an 'A' Class Reserve of 1 406 ha vested with the National Parks and Nature Conservation Authority (NPNCA) for the Conservation of Flora and Water, and Protection of Caves.

In 1985, the NPAWA also believed the Reserve to be a National Park: in the case discussed above before the Jurien Court of Petty Sessions between Colin Creeth Sanders, Director of National Parks, Complainant, and Jimwa Pty Ltd, Defendant, the Reserve is cited in all seven complaints as Stockyard Gully National Park!

DIFFERENCES BETWEEN CLASS 'A', CLASS 'B', CLASS 'C' RESERVES - AND NATIONAL PARKS.

Upon finding out the present status of the Stockyard Gully Nature Reserve (which seems to represent a shift from an earlier status, we then wished to know the differences between Class 'A', Class 'B' and Class 'C' Reserves - and National Parks (nearly all National Parks belong to the Class 'A' category of Reserve). In total naivety, we expected to find a government document which would define clearly, and distinguish between, the four types of Reserve, hopefully incorporating such objective criteria as:

i. local, state and regional importance of scenic, historical, geological, geomorphological, hydrological and biological components of the reserve.

ii. minimum proportion of species of plants (including fungi and bluegreen algae) and animals which naturally occur in the area;

iii. the minimum geographic area represented by the plants and animals in the reserve;

iv. the minimum number of ecotones the reserve should contain (i.e. the minimum diversity of habitats);

v. the minimum component of endangered habitats, plants and animals the reserve should contain;

vi. the minimum length and breadth of the reserve;

vii. the maximum disturbance caused by man to the geological, geomorphological, hydrological and biological components of the reserve;

viii. the minimum and maximum proportion of the reserve dedicated for public facilities such as roads, buildings and picnic areas;

ix. the level of legal and practical protection for the the reserve, especially for features, such as caves, which are particularly vulnerable to damage from human activities;

Afterall, without objective criteria, how can authorities choose the most appropriate areas to be set aside for reservation and, if the need arises, how can they decide, objectively, if the status of a reserve should be changed?

The appropriate CALM personnel were unable to give us a clear statement in document form on the distinction between Class 'A', Class 'B' and Class 'C' Reserves - and National Parks. However, the brochure entitled "Land Managed by CALM" did contain the following information.

> All reserves have to be classified as either Class A, Class B or Class C (irrespective of their purpose). The level of classification reflects the level of approval required to alter their area or their purpose:
>
> **Class A** - Approval of both Houses of Government (WA)
>
> **Class B** - Approval of the Governor, provided the Minister for Lands presents a report to Parliament
>
> **Class C** - Approval of the Governor
>
> Class A reserves are therefore more 'secure' than Class B or Class C reserves.

We then visited the Environmental Protection Authority Library, where the staff obtained for us copies of the relevant pages from the "Annual Report" of the Department of Conservation and Land Management (1990 to 1991) which, in addition to the above, also contained the following two definitions.

Nature Reserves	-	Areas to be managed for wildlife conservation and scientific study. Have important conservation value, either as part of a reserve system, as a remnant or because of particular species. No historical commitments to inappropriate uses or activities.
National Parks	-	Areas to be managed for wildlife conservation, scientific study and public enjoyment. Have important conservation, cultural and scenic values. Nationally or internationally unique, in terms of landscape and/or biota. Size must be sufficiently great to accommodate recreation or historical uses without significantly detracting from conservation values.

In short, National Parks differ from Nature Reserves by being nationally or internationally unique in their landscape and/or biota and they must contain areas dedicated to public access and recreation.

Still in pursuit of a more detailed classification system for nature reserves, we followed the advice given in the CALM brochure and purchased the Conservation and Land Management Act (1984). The Conservation and Land Management Act then directed us to the Land Act (1933 inc. amendments to date) for information on the classification of nature reserves. In this Act we found that it is up to the Governor (following advice from his government) to classify a reserve as either Class 'A', 'B', or 'C', or to proclaim a reserve a National Park. Once again, the criteria used for the classification were not given. Still in pursuit of such criteria, we purchased Conservation Reserves for Western Australia (1976) and Wildlife Conservation Act, 1950-1979 (1980 inc. amendments to date) and consulted the Environmental Protection Authority Library - all to no avail. Thus we were forced to accept that such elementary information is not easily accessible to the public or, worse still, it may not exist.

One of the recommendations of 'The Report of the National Estate' (1974, p130) states:

> that the selection of areas for reservation be based on objective scientific criteria, the need for representativeness of ecosystems and protection of threatened species, and the recreation needs of urban populations.

Sadly, 18 years later, at least in Western Australia, apparently little notice has been taken of this recommendation.

What is the point of the State Government creating National Parks or 'A' Class Nature Reserves if the agency with the function for managing those Reserves is unable to prevent deterioration in the ecosystems of the Reserves?

Whilst there are a number of Reserves and National Parks in the corridor of sandy plain heathlands between Geraldton and Perth, Western Australia, many adjoin land developed for agriculture - and herein lies a problem. Should the farmer of land adjoining a Reserve indulge in undesirable farming methods which impinge upon the Reserve, it is well-nigh impossible for CALM to stop them. The purpose of Conservation of Water introduces another problem which is not unique to Stockyard Gully. Perhaps the greatest volume of water in the Reserve enters from streams draining across farmlands immediately to the east of the Reserve. CALM has little direct control over activities on this farmland, and any which lead to a deterioration in water quality immediately translates into a deterioration in the quality of the water in the cave systems. Hence there is a need to monitor carefully the environments of caves and to draw attention to any undesirable lowering in the quality of the aquatic environment in caves as soon as it becomes evident.

Does it matter then, at the present time, whether an area is a National Park or simply a Class 'A' Reserve? Legally it does not, but it is likely that in the eye of the public, National Parks are to be held in greater reverence than 'A' Class Reserves. Importantly, we understand that in Western Australia at least, of all the different types of nature reserves, CALM rangers are based only in National Parks (even if not in every Park), although the rangers also periodically survey the other types of reserves. Therefore, in practice the status of a National Park , may render a nature reserve more secure.

Caves are: an integral component of the National Estate; the purpose for many Reserves; and important in the biology of this continent. Is the Stockyard Gully karst of national significance? - If so, [according to the "Australian Karst Index" (1985) the caves are important for biology, geomorphology, geology and hydrology] then it could be beneficial to the conservation of the area to proclaim it a National Park.

Nevertheless, we are fooling ourselves if we imagine an area or cave is safe from destruction simply because it lies within a Reserve of some kind. It seems that the real conservation work begins only after an area has been set aside for a nature reserve.

REFERENCES

Austin, C. M. (1985) Introduction of the yabbie, *Cherax destructor* (Decapoda : Parastacidae) into southwestern Australia. *The Western Australian Naturalist* 16(4): 78 - 82.

Brown, D. J. W. (1985) Judgement in the case before the Jurien Court of Petty Sessions between Colin Creeth Sanders, Complainant, and Jimwa Pty Ltd, Defendant.

Committee of Inquiry into the National Estate (1974) Report of the National Estate. Australian Government Publishing Service. Canberra.

Conservation and Land Management Act 1984. Reprinted under the Reprints Act 1984 as at 16 January 1992. Western Australia.

Horwitz, P. (1990) The translocation of freshwater crayfish in Australia: potential impact, the need for control and global relevance. *Biological Conservation* 54: 291-305.

Horwitz, P. (1990) The conservation status of Australian freshwater crayfish. Australian National Parks and Wildlife Service. Report Series No. 14: 1-121.

Jasinska, E. J., B. Knott, M. L. Stuckey & N. Poulter (in prep) *Cherax destructor* [Crustacea : Decapoda : Parastacidae] from two caves in Stockyard Gully Nature Reserve; an introduced species of freshwater crayfish, with comments on its spread in Western Australia.

Land Act 1933. Reprinted under the Reprints Act 1984 as at 2 May 1985.
Government Printer. Western Australia.

Markey, A. (1990) Caving up north - Eneabba (somewhere near Dongara). *The Western Caver* 39: 20-24.

Matthews, P. G. (1985) Australian Karst Index 1985. Australian Speleological Federation Inc.

Morrissy, N. M. and Cassells, G. (1992) Spread of the Introduced yabbie *Cherax albidus* Clark, 1936 in Western Australia. Fisheries Research Report. Fisheries Department of Western Australia.

Wildlife Conservation Act 1950-1979. Approved Reprint 30 June 1980. Western Australia.

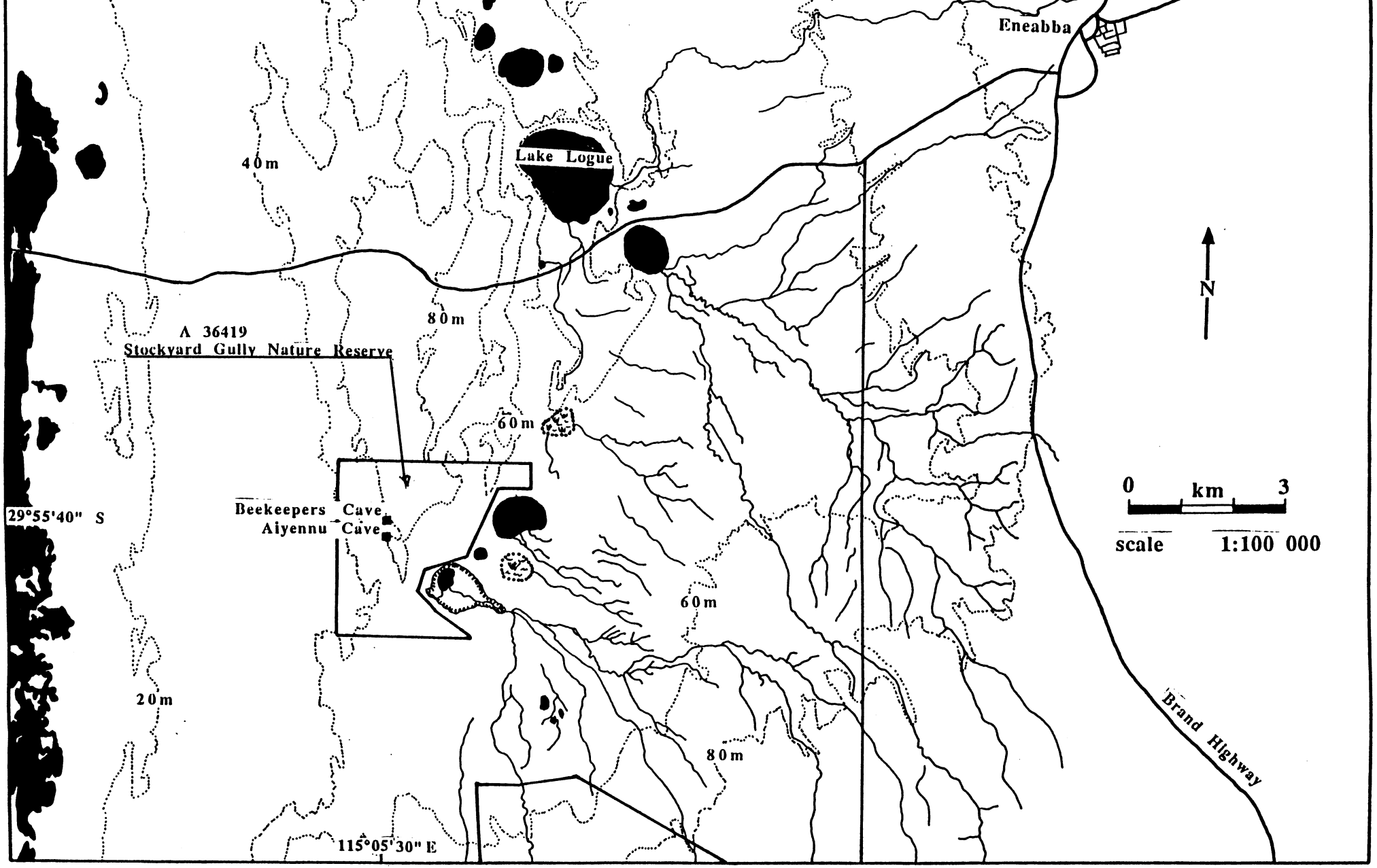

Fig. 1 Locality map of Aiyennu and Beekeeper caves showing: main roads, surface waters (lakes and streams) and land contours. All surface waters are intermittent.