

Integrated management of core and buffer areas for the Karijini National Park.

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ABSTRACT

Integrating the management of contiguous areas by different land holders depends essentially on trust and good communication. Within such a framework, the simultaneous use of land systems for multiple purposes becomes possible. Hamersley Iron Pty Limited and the Western Australian Department of Conservation and Land Management have established a basis for management of lands in and around the Karijini National Park of north western Australia using such an approach.

Karijini National Park is a large national park covering a wide range of Pilbara habitats, in particular the spectacular and highly diverse gorge regions of the Hamersley Ranges. It is almost surrounded by pastoral properties and is currently bisected by leases containing an open cut mine and a rail corridor. The Park is managed by the Department of Conservation and Land Management, while Hamersley Iron operate the mine and railway as well as three pastoral stations abutting the Park. Hamersley also undertakes exploration activities within the Park.

In this situation there was an opportunity to balance the needs of competing land uses by co-operative management and advancement of the understanding of ecological processes which underpin the sustainable use of these rangeland systems. In 1995, a Memorandum of Understanding between the two land managers established a framework with similarities to the Biosphere Reserves of UNESCO's Man and the Biosphere Program. Within this framework co-operative management covers:

- i) land management: for a variety of uses including conservation, recreation, production, extraction and tourism;
- ii) research and monitoring: to advance management techniques and assess the effectiveness of current practices;
- iii) education: to assist other local land managers and users of the area's resources ;
and
- iv) publicity: to demonstrate the advantages (and pitfalls) to others concerned with multiple use management.

BACKGROUND

PASTORALISM, MINING DEVELOPMENT AND CONSERVATION,

History of pastoralism in the Hamersley Ranges

Pastoralism in the Pilbara began during the 1860's with pastoralists from the more productive Kimberley and Gascoyne regions converging on the area and dividing the land into sheep stations. In many cases properties were too small to sustain viable production levels and were either abandoned or merged with neighbouring properties. Gradually, since the 1950's, most of the remaining stations have converted to cattle production. Currently, the domestic beef market is weak and the industry's financial viability is largely dependent on the fledgling live export market.

Early pastoralists overestimated the region's productive capacity and consequently there is evidence of degradation in the more fragile land systems. However, current management practices recognise the importance of sustainable land use and most pastoralists are actively involved in restoring degraded land, either individually, or through the Land Conservation District Committee programme.

One of the original pastoral leases in the Hamersley Ranges was Mt. Bruce Station. The property ran mainly sheep but was one of those properties constrained by size and the lease was relinquished during the 1940's. The area of the station is now totally within the Karijini National Park.

Advent of mining leases

With a wide variety of geological structures, the Pilbara has been the subject of a diverse range of mining operations. Current large mining ventures include copper, gold, manganese and iron ore. Of these, open cut iron ore mining is by far the largest and most numerous, producing over 135 million tonnes of ore in 1995.

Large scale iron ore mining in the Pilbara commenced in the 1960s, expanding rapidly through the 1970s, stabilising in the 1980s, then experiencing further growth in the 1990s. The western and central Pilbara remain highly prospective areas for iron ore and several companies run active exploration programs. Many of the leases targeted have existed since the 1960s and some predate changes in the underlying land tenure.

Several Temporary Reserves, held under State Agreement Acts, occur within the current boundaries of the Karijini National Park, many predating the declaration of those boundaries. There is an expectation that there will be future applications for exploration and mining leases within the Park and there is an established process for dealing with such applications based on a memorandum of understanding between the Western Australian National Parks and Nature Conservation Authority, the WA Environmental Protection Authority and the WA Department of Minerals and Energy. Excision of a mining lease involves a stringent environmental assessment and the consent of both Houses of the WA Parliament.

Mineral resources extend beyond the Park into the surrounding stations and these are also the subject of present and future exploration and mining.

Declaration of Park & subsequent growth to present day

The initial emphasis for reservation of the Park came from attempts to reserve the spectacular gorges of the Hamersley Ranges. Dales Gorge Nature Reserve, an area of about 23,600 ha, had been reserved since 1956 when an Academy of Sciences report prepared in 1962 recommended that a much larger park be declared to cover representative sections of a wide range of habitats. That recommendation was adopted in 1969 when the Dales Gorge National Park (later the Hamersley Range National Park) was declared over lands in excess of 590,000 ha. The Park name has now altered to the Karijini National Park to reflect past and continuing Aboriginal involvement with the area and its current extent is over 606,000 ha.

The Park provides a broad representation of many land forms in a relatively undisturbed state when compared to much of the surrounding pastoral country. Management objectives for the Park have been restated recently in a draft management plan (CALM, 1995) as:

- conserve natural resources and values;
- facilitate public recreation consistent with conservation;
- gain community input to management and promote appreciation of Park values;
- promote research and monitoring of management effectiveness;
- ensure that impacts of commercial uses are strictly controlled.

In relation to the latter objective, there is an expectation that there will be a rationalisation of the Temporary Reserves in the Park with many being dropped after further exploration and evaluation.

CALM'S ROLE MULTIPLE LAND USE IN WA

The Department of Conservation and Land Management (CALM) was formed in 1985 by the amalgamation of three agencies - the Forests Department, the National Parks Authority and the Department of Wildlife. CALM is a multiple use resource manager with a large proportion of its budget generated from the productive uses of natural resources. CALM is both an innovative and an entrepreneurial manager of about 20 x 10⁶ ha of land and waters in Western Australia, or about 10 percent of the land area of the State.

Multiple use management is not new to the foresters in CALM. Multiple use of forest lands has been practiced for nearly a millennium in the United Kingdom and was first enshrined in Legislation by the US Forest Service during the 1960's. Several planning documents and multiple use Working Plans were prepared by one of the authors (FB) for the Forests Department of Western Australia in the 1970's. The Regional

Management Plans for the forest regions (CALM 1987-1997) state that forest areas will be managed for multiple uses. In other tenures, for example National Parks, zoning systems are used to define priority areas. CALM has also supported amendments to the CALM Act to enable a multiple use category (marine management areas) to be proclaimed in State waters.

The conservation estate is not evenly distributed spatially (Figure 1) and most vegetative types are either poorly represented (31%) or not represented (46%) in formal reserves (Hopkins et al., 1996). Particular gaps are obvious in the Wheatbelt, in the pastoral areas (particularly the Murchison and Gascoyne), in the highly prospective "greenstone" areas, as well as the more fertile ecosystems such as river frontages and run-on areas. Most reserve boundaries are based on cadastral, not ecological, criteria. Many reserves are under threat from processes (such as salinity) which originate from outside the reserve boundary.

CALM is encouraging cooperative development of nature conservation practices on lands which are not formally vested for conservation. Several mechanisms are already available in legislation, but non-statutory means have also been encouraged. The management goal is to establish a system of "core" conservation reserves where ecological communities and processes are sustained and managed. This reserve system will be established on nationally recognised criteria (comprehensiveness, adequacy and representativeness), with viable size, manageable boundaries and be reasonably well distributed in the landscape.

CALM would expect that smaller areas within existing pastoral leases would be managed for biodiversity objectives under arrangements between the lessee and CALM (eg CALM Act Section 16A agreements, memoranda of understanding etc). This network of areas would be contained within a rangelands landscape being managed sympathetically by existing lessees (eg pastoralists, mining companies etc) in accordance with ecologically sustainable objectives.

There are benefits to CALM and to conservation from this approach. The recognition by the mining industry that CALM managed lands are available for exploration and mining (see data in Figures 2 & 3) has allowed substantial additions to the conservation estate to be negotiated. Previously, the Departments of Resources Development and Minerals and Energy could veto such proposals. Mining companies' surveys have added considerably to ecological data bases (vegetation, flora, fauna, declared and weed species), support has been provided with Aboriginal training and employment, tourism and recreational developments, logistical support for CALM staff and sponsorship for programmes such as "WesternShield" which address threatening processes.

CALM is also cooperating with pastoral and farming interests. As examples CALM commissioned a review of the various mechanisms available to CALM for cooperative management on the rangelands (Wilcox 1996). Also, fox control programmes ("Western Shield") are, wherever possible, integrated with those of adjacent farmers, usually operating through a Land Conservation District Committee.

HOLDING PAGE FOR FIGURE 1

MAP OF CONSERVATION ESTATE IN WA

Map of Conservation Estate in Western Australia showing various land management zones and reserves.

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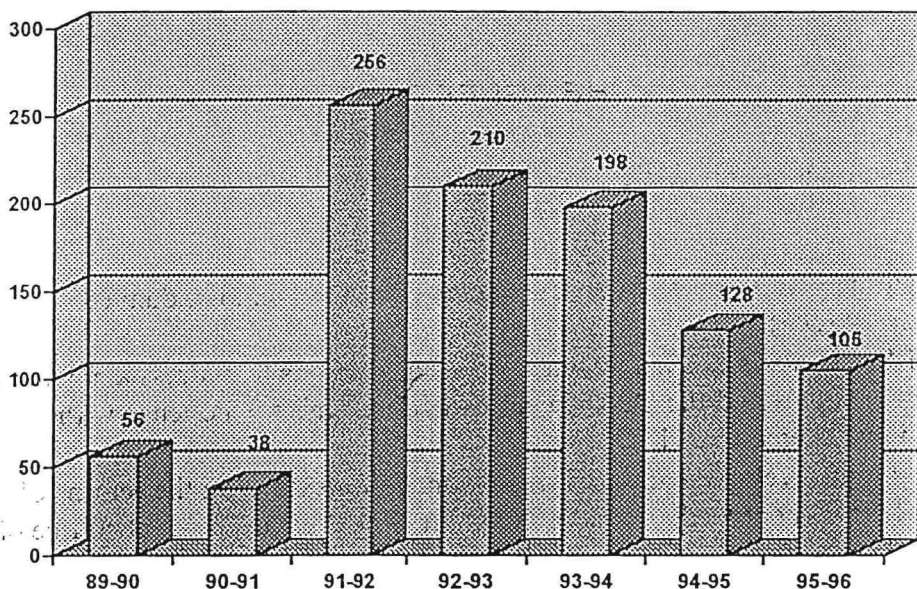
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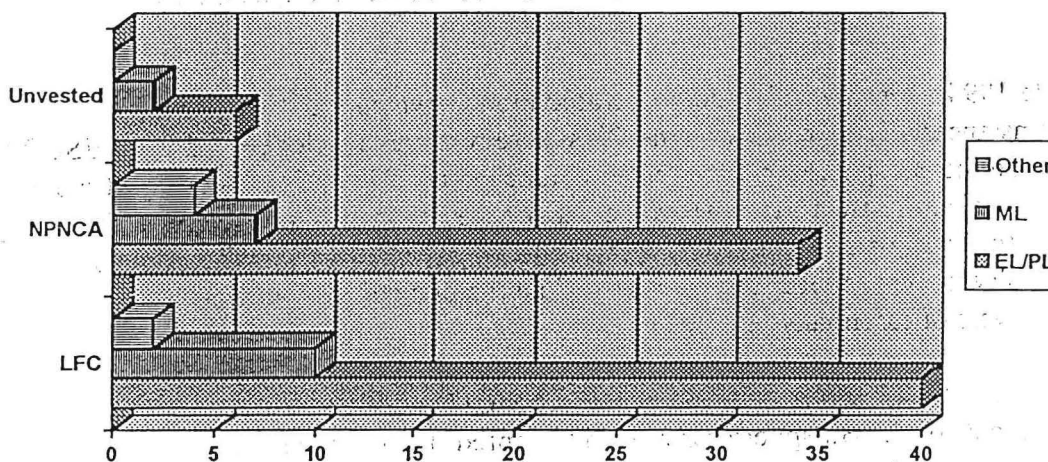
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Figure 2: Tenements processed by CALM each year



In relation specifically to Hamersley Iron and Karijini, CALM has recognised the value of modest beginnings, the establishment of mechanisms, personal contacts and the building of trust. Initially we have concentrated on the easier problems and priorities wishing to build on to some early achievements. As the programme develops we would look to a greater involvement of local communities, particularly in the management of National Park, in both an advisory and an active role, for example as volunteers.

Figure 3: Tenements Processed by CALM in 1995-6



THE AGREEMENT

HISTORY OF DEVELOPMENT

Two key factors led to the successful development of the Memorandum of Understanding (MOU):

- the CALM Act allows for management of reserved lands to address a number of uses simultaneously and the Department had considerable experience with integrated management; and
- Hamersley was developing an increased emphasis on extending the returns of resource development to the broader community beyond just a direct source of revenue.

Hamersley and CALM already had in place an agreement concerning co-operation in managing environmental issues around the Marandoo mine and the rail corridor. However, in the above context, the two parties sought a wider model through which to progress multiple use management of the area to provide benefits for both.

Benefits for CALM:

- add to the area under management without a commensurate addition of cost;
- add to the knowledge base on which management is based;
- provide extra resources for existing management needs (fire, ferals etc)

Benefits to Hamersley Iron:

- demonstrate that land can be used for productive uses without fatally affecting conservation values;
- provide community benefits outside of direct dollars and allow resource development to benefit a broader range of community groups directly.

In late 1994, there were few demonstrated models which fitted the particular circumstances. The closest was the Biosphere reserve, developed under UNESCO's Man and the Biosphere Programme and launched in 1971 which encouraged the role of local people in conservation. However, that scheme was essentially one with one big player (generally a government agency) and a large number of smaller players (landholders and the local community), while the planned arrangement was between two players of essentially equal size.

The path chosen was to proceed through an MOU which picked out the most relevant components of the Biosphere reserve and adapted them to the goals and structures of the two parties. In reflecting the importance of shared mutual goals, the MOU contains no provisions for penalties or to restrict either party from withdrawing at any time.

Rather, it is a document to make explicit how a framework for co-operation will work and for both parties to clarify what they intend to put into the project.

The MOU was signed in June 1995.

THE COMPONENTS

The intent of the agreement between Hamersley and CALM is that through co-operating to facilitate multiple land uses, as many potential stakeholder groups as possible should benefit. To ensure that the benefits of the agreement are spread as widely as possible, the MOU addresses

- i) land management: to cater for as wide a range of uses as possible by integrating the management of potentially conflicting uses rather than by simple exclusion;
- ii) research and monitoring: to find new ways to integrate the goals of various users;
- iii) education; and
- iv) publicity

Management priorities depend on spatial location. Within the Park boundaries, conservation generally dominates, with limited areas having designated priority for recreation, cultural or production uses. On pastoral stations, production becomes the predominant goal distant from the Park boundary, while adjacent to the Park boundaries, conservation is raised in importance and may outrank production in some cases. Importantly, throughout the entire area, management recognises that there are legitimate subordinate goals and these should be met where they do not compromise priority goals.

The total area under management is over 1 million ha - with a core (the Park) of 600,000 ha and 400,000 ha of station buffer. Items covered under the Marandoo agreement are also able to be integrated within this area.

PROGRESS TO DATE

Initial progress under the MOU has focused on outcomes essentially under the direct control of the two parties - local management and commissioning of research. More complex issues and issues which involve the community will be addressed once the full potential of joint management is better understood and the results of research into management techniques are to hand.

MANAGEMENT

Each party contributes two members to a management committee that convenes in formal session about twice yearly and also provides a focus for out of session communication. A key consideration of management to date has been control of cross-boundary effects, such as prescribed burning and wildfire suppression,

eradication of feral animals, weed infestations, animal movements and other mobile phenomena.

Traditional management of stations relied on the distribution of watering points to control stock movements. As there are good pastures on parts of the stations near the Park and as cattle can follow surface water during the wet season, incursions into the Park were common. Fencing of boundaries to exclude cattle from the Park is now complete on two stations - in some cases fencing has followed natural boundaries and extended the exclusion area outside of the Park. Additionally, some watering points have been closed.

RESEARCH

Research to develop better management is facilitated at three levels:

- internal - staff from CALM's Science and Information Division and regional office undertake research into the natural ecosystems of the region, while Hamersley's station managers and pastoral adviser investigate the impact of altered management techniques and mine environmental staff undertake occasional work on the flora and fauna - including a long term program on the ecology of one rare species of native mouse;
- funded - Hamersley provides seed funding for a substantial collaborative research program with the Natural Resource Management group at the University of Western Australia's Faculty of Agriculture - other funding for this program comes from the University and the Australian Research Council - studies undertaken by consultants or research agencies in support of mine development in the region also add to the knowledge base;
- facilitated - both parties encourage and support work undertaken in the area by third parties - such as universities and Agriculture Western Australia.

EDUCATION

Education has not been a major focus as yet. The potential for multiple land use management has been raised at the Ashburton LCDC, and planning is underway for extension work amongst the local pastoralists to demonstrate new management techniques once these are further refined. A poster showing the weeds of the Pilbara has been prepared for broad distribution to allow identification and reporting of weed infestations by station staff, mine and exploration workers and tourists. It also emphasises that some species targeted for agriculture may be viewed as ecological weeds.

The local workforce has been trained in prescribed burning and fire suppression techniques. Later programs will engage the community in education on sustainable practices in land and resource use. One step in that direction is complete with construction of a walk-trail along Mt Bruce in the Park, overlooking the Marandoo mine, complete with signage explaining the relationship between the Park and mine. That was a joint project between CALM and Hamersley with assistance from several

other groups including the Australian Nature Conservation Agency and Australian Trust for Conservation Volunteers.

PUBLICITY

Publicity has been aimed thus far at describing the establishment of the MOU. It has attracted considerable interest from other mining companies looking for a similar arrangement. Information about the MOU has appeared in industry publications or been presented in papers such as this and in poster form at relevant seminars.

OUTCOMES

The acceptability of new mining operations depends largely on their cost-benefit equations as these relate to the local, regional and national community. Multiple land use arrangements between mining companies and other land managers can both minimise any loss of conservation amenity on the negative side of this equation and on the positive side add to the benefits of mining flowing to the broad community. As evidenced in the present case, the costs and constraints of such arrangements need not be large.

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