

The role of non-traditional reserves in reconciling biodiversity conservation and regional development.

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ABSTRACT

Single use land management often places the development of mineral resources in conflict with the conservation of the natural environment. This is the basis of the traditional concept of 'protected area' reserves. In many cases, this need not be so. Models of multiple use with consultative management exist in which economic benefits may be realised while retaining or enhancing biodiversity outcomes.

Regional development frameworks are recognised as needing to consider economic, environmental and social aspects in their planning. Unfortunately, many still see these as exclusive uses of distinct areas, rather than opportunities for mutual benefit if planned to coincide. Effective conservation of biodiversity usually requires an input of economic resources, which can be tied to the presence of local wealth generation activity. The greater the association between the two, the more likely their success.

This paper considers examples of some arrangements made between the Western Australian Department of Conservation and Land Management (CALM) and mining companies to provide a conservation dividend without prohibition of resource development. Several models establishing management under a variety of regimes with varying statutory components are described. All examples deal with rangeland ecosystems, but with varying existing tenure:

- Pastoral leases containing exploration and mining activity around a national park;
- Pastoral leases and mining leases around a nature reserve;
- A mining lease surrounded by national park;
- Unallocated crown land which includes mineral reserves made under State Agreement Acts;

The components, constraints and benefits of the reserve model adopted by mining companies and CALM are discussed in comparison with other existing multiple use land management models. A planning and management model for an important area of the Central Pilbara Region of Western Australia which contains abundant iron ore resources and significant conservation values is also presented.

CONSERVATION OF BIODIVERSITY

There are many different definitions of biodiversity which discuss the different units (from ecosystems to species to gene) that constitute biodiversity, but for gross management direction we adopt the concept that it's about keeping as much as possible of the natural estate and its evolutionary capacity. The main difference between this and a simple impact mitigation is the spatial distribution of biodiversity.

Biodiversity can be assessed within large natural units (say ecosystems) and indeed at a high level these are also a measure of biodiversity. Usually, Australia's terrestrial ecosystems cover extensive areas and the inclusion of entire ecosystems in protected areas is not practical. Traditional methods of biodiversity conservation by state and federal agencies have developed elaborate measures of what is a desirable percentages of each ecosystem to include in 'reserved areas' and how to select the next area for inclusion. National constructs such as IBRA on land and IMCRA in the sea enshrine this approach.

Systems which allow the "protection" of relatively small representatives of ecosystems by the exclusion of other uses, and thus at a high cost to the community, we term 'traditional' in the remainder of this paper. Our contention is that alternate models for the conservation of biodiversity have more to offer the nation if they can add to the economic and social development of the country while having a neutral or enhancing role on biodiversity.

We do not promote the idea that development can have an 'enhancing' role of biodiversity when taken in isolation. Rather, many areas will already be subject to processes which reduce biodiversity and appropriate development may be capable of modifying or offsetting these impacts - for instance: a mine in the midst of an area subject to slash and burn agriculture may be able to limit the destruction of rainforest by providing an alternate source of income.

RESERVE MODELS

Our vision of 'non-traditional' reserves equates to 'managed areas'. Loss of biodiversity on a global scale is greatest where management is least. Even within 'protected' areas, loss of biodiversity can occur if management resources are inadequate. An Australian example is the major impact that foxes have had on medium sized mammals. This impact is not mitigated by reservation alone, without subsequent management to reduce fox populations.

An analysis of elephant conservation in Africa demonstrated a direct correlation between dollars spent in managing a reserve and its conservation effectiveness. An effect which swamped the influence of reserve size, which had previously been viewed as the primary determinant of a reserve's conservation potential.

Our non-traditional reserve model then is one where an area is managed to agreed goals between production and biodiversity outcomes. One that does not exclude generic sectors, but does have the capacity to exclude specific activities should these jeopardise agreed goals.

Critically, it relies not only on initial evaluation of what are compatible uses, but on an ongoing management effort to ensure that goals are being met.

Viewed in the terms of a financial model - traditional reserves often rely on early capital expenditure which deters the base of future operational expenditure - non-traditional reserves have little 'up-front' cost, relying on ongoing operating expenditure from a broad revenue base.

Comparison of Reserve Models

	Traditional	Non-traditional
<i>Goals</i>	Conservation - recreation	Conservation – production – any sustainable activity
<i>Management Basis</i>	Regulation	Trust/cooperation
<i>Size</i>	Limited	Unlimited
<i>Legal Protection</i>	High	Low
<i>Stakeholder base</i>	Narrow	Broad
<i>Tenure</i>	Single vesting/legal basis	Multiple vesting/cooperative basis
<i>Boundaries</i>	Strictly delineated	Can be strict, sliding or fuzzy
<i>Management Resources</i>	Government funding – dedicated only	Broadly based – opportunistically complemented by resources in area

The minerals industry has previously spent considerable effort on promoting the benefits of multiple use in harmonising conservation and production. A joint seminar between MCA and the Bureau of Rural Science in 1996 (BRS, 1996) produced a series of useful examples in addition to a detailed treatment of the state of multiple use land management at the time (MCA, 1996). Much of the concept promoted there now appears in explanatory precludes to the promulgation of new reserves. Yet in practice these still seem to have most of the hallmarks of traditional reserves.

It is not sufficient for industry to consider it has now passed the baton to government and it can get on with business of mining. Access to future resources faces increasing competition from a variety of land uses. Unless the mining industry is actively involved in developing mechanisms to put concrete examples to the theory of multiple use, it will face increasing public cynicism that its expansion will not cause unacceptable loss of biodiversity.

In this regard, industry needs to seek out appropriate partners in managing lands for production and biodiversity.

CALM

The WA 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 20×10^6 ha of land and waters in Western Australia, or about 10 percent of the land area of the State.

Clearly, there are many benefits to CALM and to conservation from this approach. Recognition by the mining industry that CALM managed lands do not necessarily exclude exploration or mining 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 "Western Shield" which address threatening processes.

MANAGEMENT OFF RESERVES

The conservation estate is not evenly distributed spatially and most vegetational types are either poorly represented (34%) or not represented (47%) in formal reserves (Hopkins et al., 1996). Particular gaps are obvious in the wheatbelt, in the pastoral areas, in the highly prospective greenstone areas, as well as in 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 fire, feral animals, weeds or salinity) that originate from outside the reserve boundary.

CALM is encouraging cooperative development of nature conservation practices on lands which are not formally vested for conservation - ie non-traditional reserves. 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 according to nationally recognised criteria, with viable size, manageable boundaries and be reasonably well distributed in the landscape.

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

MEMORANDA OF UNDERSTANDING (MOU) WITH MINING COMPANIES

CALM has signed three MOUs with mining companies holding five pastoral leases. These are:

Hamersley Iron	Rocklea, Hamersley, Juna Downs
WMC Resources	Mt Keith
North Pty Ltd	Yakabindie

CALM is currently continuing discussions with two other mining companies that hold leases.

In late 1994, when negotiations began, there were few demonstrated models that fitted the particular circumstances being sought. The closest was the model of a 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 with a major player (generally a government agency) and a large number of minor players (landholders and the local community), while the planned arrangement in W.A. 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 program 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 cooperation will work and for both parties to clarify what they intend to put into the project.

A more detailed account of the Hamersley Iron MOU is given in Stoddart and Batini (1996).

THE KARIJINI MOU

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 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.

The MOU is administered by a small committee (2 CALM, 2 HI) who meet at about six monthly intervals. Chairmanship and location are rotated each meeting so that field sites may be inspected. The committee draws up and administers a works programme and allocates tasks. It is a structured way of bringing the two parties together on a regular basis.

Land management activities include:

- the preparation of management plans for the National Park and for the pastoral leases
- cooperative prescribed burning to natural and not cadastral boundaries
- mutual assistance with fire suppression
- assistance by HI's ambulance with injured tourists
- assistance by HI with site and walk trail development on the Park
- construction of block fences to reduce cattle access
- closure of a critical bore to reduce cattle access
- approval by HI for CALM to shoot cattle in the Park.

Research and Monitoring activities

- studies by University of Western Australia graduates on invasion by woody species (e.g. snakewood), plant water uptake and nutrient cycles
- recording and monitoring locations of pebble mound mice and of weeds by exploration geologists
- research into declared threatened and priority flora, fire behaviour and prescribed burning techniques.

Education / publicity has included:

- the preparation of a poster of environmental weeds
- a brochure describing the MOU
- publication of papers and presentations at seminars.

THE WANJARRI MOU

Wanjarri Nature Reserve is a small reserve (50,000 ha) in the arid north-eastern Goldfields of Western Australia. Leinster is the nearest major centre and the nearest CALM office is currently 400km away. The reserve lies within a highly prospective greenstone belt where a number of active mines and of prospects occur. Mines include Mt Keith (nickel), Mt McClure (gold), Bronzewing (gold) and prospects such as Yakabindie (nickel) have been identified.

All pastoral leases adjacent to Wanjarri have been purchased by mining companies. Leases include Mt Keith, Yakabindie, Yandal and Barwidgee. Some properties have since been destocked.

In this situation, it was possible to reduce the external influences on a small reserve and to involve the mining community in its management, by arranging an MOU with the companies. So far two companies have signed the MOU (WMC Resources and North Pty Ltd) and one other has attended meetings as an observer. A fourth company expressed interest but has since gone into receivership.

Positive outcomes to date include:

- a management plan has been prepared for Wanjarri by CALM with external funding from Goldfields Gas Transmission;
- cooperative fencing of some boundaries;
- some adjustment of boundaries to mutual benefit have been agreed;
- CALM has aerielly prescribed burnt parts of the reserve and of adjacent leases. The cost was shared;
- CALM has conducted extensive research into cat control within the MOU area. Results have assisted with control of wild cat populations around mining camps and towns;
- honorary wildlife officers from the mining workforce have been appointed by CALM to keep an eye on the reserve, its facilities and tourist/mining personnel's behaviour.

PASTORAL LESSEES

In a number of cases, purchase or reservation of smaller areas within an operating pastoral lease may be unachievable, inappropriate or undesirable. Voluntary agreements for the management of land with high conservation values are available as a complementary measure to reservation. These agreements can be established through Section 16A of the CALM Act or less formally by MOUs - such as with mining companies.

Three Section 16A agreements have been negotiated with pastoral lessees, though only one only has been signed to date. One covers an area of vegetation that has been seldom grazed as it contains native poison (*Gastrolobium sp*) and two cover important wetland areas that require protection from grazing. In agreement with the pastoralist, these areas will be fenced, destocked and appropriate feral animal control undertaken.

ABORIGINAL INTERESTS

The potential for CALM and Aboriginal interests to complement each other in the rangeland and interior of the State is enormous. Aboriginal Land Trust (ALT) covers most of the desert ecosystems and large sections of the Kimberley. In addition, Aboriginal groups currently hold 50 pastoral leases, many in the Kimberley.

CALM is currently negotiating with three main groups:

- the Kimberley Land Council (KLC) particularly in relation to the Mitchell Plateau and the Nimbi Caves;
- the Ngaanyatjarra Land Council (Warburton) in relation to the Gibson Desert Nature Reserve and to ALT lands in the Western Desert;
- the Indigenous Land Corporation (ILC) regarding conservation management opportunities on lands that the ILC purchases for Aboriginal people.

These mechanisms could provide training and employment opportunities as well as utilising Aboriginal knowledge and skills such as fire management, wildlife management and cultural interpretation.

MANAGEMENT OF UNALLOCATED CROWN LAND (UCL)

Opportunities exist under the CALM Act Section 33(2) for CALM to manage areas of UCL, with the approval of the Minister for Lands. In practice this opportunity has been restricted by the future Act provisions of the Native Title Act, but this situation has now changed.

Recently, the Mitchell Plateau Joint Venture (MPJV), which has rights of occupancy to a Temporary Reserve for the purposes of development of the bauxite resources in the Mitchell Plateau area, was required to develop a management plan by the State. This plan was developed in liaison with stakeholders, which included CALM which has proposals for reservation of two National Parks and three reserves in the general area.

Development of the bauxite resource could be some decades away but the area is degrading as a result of lack of management. Feral animals (cattle), frequent hot fire and uncontrolled tourism are cause for concern.

CALM has now signed an MOU with MPJV's and is managing the area on their behalf, in accordance with the management plan. CALM is also liaising with interested stakeholders including traditional owners on behalf of the Management Advisory Group. The Joint Venturers and Department of Resources Development funded two thirds of CALM's establishment costs and the Joint Venturers fund half the annual operations costs to CALM.

COONDAWANNA NATURAL RESOURCES MANAGEMENT AREA (NRMA)

The Coondawanna area (as referred to in this paper) lies in the central Pilbara between the Karijini National Park and Mt Newman townsite. This area contains substantial ore reserves and will be highly significant for the Pilbara iron ore industry between 2000 and 2050 when the third generation of mines comes on stream. These are likely to include Mining Area C, Hope Downs, West Angelas, Rhodes Ridge, Giles Mini and others.

A considerable amount of data on the geology and ecology of the area has been amassed as a result of the interest of iron ore companies in the area. Data come from exploration programs as well as biological surveys carried out to provide baselines for environmental impact assessments. CALM has also collected data over some years on the area's ecology.

Recently, CALM and the Department of Minerals and Energy (DOME), have undertaken an assessment of conservation values and mineral resources and prospectivity of the Coondawanna proposal area. The review concluded, firstly, that there are biologically significant areas within the proposal area that are not represented adequately in the existing conservation estate. Secondly, the biologically significant areas cannot readily be separated away from area with significant potential or defined resources of minerals, particularly iron ore, or where infrastructure is required to support mining development, so as to allow traditional conservation management by vesting these as reserves.

The concept of multi-purpose use over the whole area may provide an opportunity for demonstrating that mining operations and conservation management can work together in an area to achieve a genuine multi-purpose approach. This would be equivalent to the IUCN category VI – Managed Resource protected areas.

The proposal being put forward for consideration is for a 'Natural Resource Management Area'. This would be a new form of reservation under the Land Act. The land would come within Section 5(g) of the CALM Act (Section 5(g) is designed to handle reservations for multiple purposes e.g. the Karijini infrastructure corridor). A new set of principles would be drawn up for the management of such an area through Section 56(1)(e) (designed to achieve the purposes of a Section 5(g) reserve), in full consultation with, and the agreement of, all interest groups.

While multi- or dual-vesting for the reserve has been considered, the difficulties and delays in getting two or more parties to sign off, where it has been attempted, persuade against that approach. Instead a single-vesting is being considered with the National Parks and Nature Conservation Authority (NPNCA) as the vested authority.

There would be a need for the NPNCA to develop a policy position on mining in 'Natural Resource Management Areas', which reflects the multiple use principle of such reservations. Additionally, the vesting order for the reserve would also need to embody this principle.

Critical to the effective operation of the reserve would be the appointment of a Management Advisory Body, representing key stakeholders in the area. The body would be responsible for steering the development of a management plan and providing ongoing advice to the appropriate Minister and the NPNCA on management and policy issues and, where deemed appropriate, on operations matters. There would be a specific and separate management body for the Coondawanna area. Such bodies already exist for national parks.

Other issues to be addressed and agreed by the key players include access guidelines for exploration, mining and associated infrastructure developments. The intention would be to agree to procedures that would allow development in a region while recognising and protecting conservation values. From the perspective of the mining companies, these procedures will need to ensure that the 'managed area' does not become viewed as a de facto national park with the same levels of constraint on development projects.

At present, mining companies are concerned that the association of this large area with a conservation goal under a formal vesting may lead to an overly cautious approach to permitting of future developments by government. Past experiences of several mining companies shows that the original intent of such agreements can be lost when approvals are eventually requested. The challenge to progress the Coondawanna Management Area is to provide sufficient certainty to resource developers without compromising conservation goals.

In the above regard, a significant benefit of the area's management plan, would be the opportunity presented for a broad regional (strategic) environmental assessment which could then be endorsed by the WA EPA. This could provide the framework and standard set of rules/conditions for subsequent developments in the area and could conceivably simplify the Environmental Assessment process for individual projects, and potentially lead to lower level assessments. The early identification of potential developments could actually lead to greater certainty for miners.

While the WA EPA and Department of Environmental Protection have identified regional strategic assessments as a desirable tool for EIA, there are few examples as yet. Industry has been supportive of the notion, but is waiting to see whether the idea works in practice. The Coondawanna proposal represents an excellent opportunity for government departments and industry to collaborate closely in developing an important example of what could be a valuable step forward in reconciling biodiversity conservation and development.

REFERENCES

BRS 1996: Symposium on Multiple Land Use, Canberra December 1996. Bureau of Rural Science, DPIE, Canberra, ACT.

MCA, 1996. Multiple Land Use Reserves: A regulatory framework. Minerals Council of Australia; Canberra, 30pp

Stoddart, J.A. and F. Batini 1996. Integrated land management of core and buffer areas for Karijini National Park. DPIE Symposium on Multiple Land Use, Canberra, Dec. 1996

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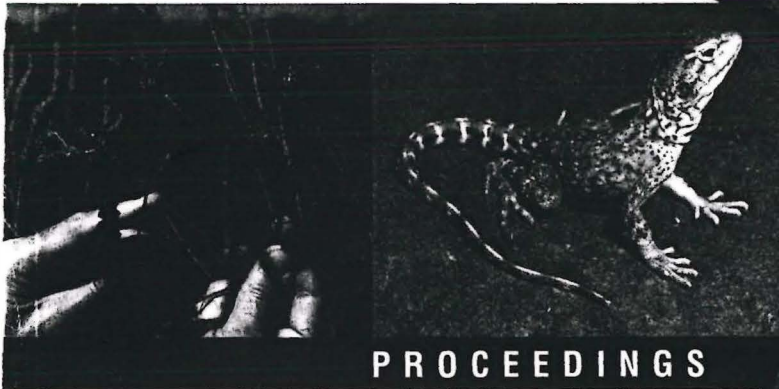
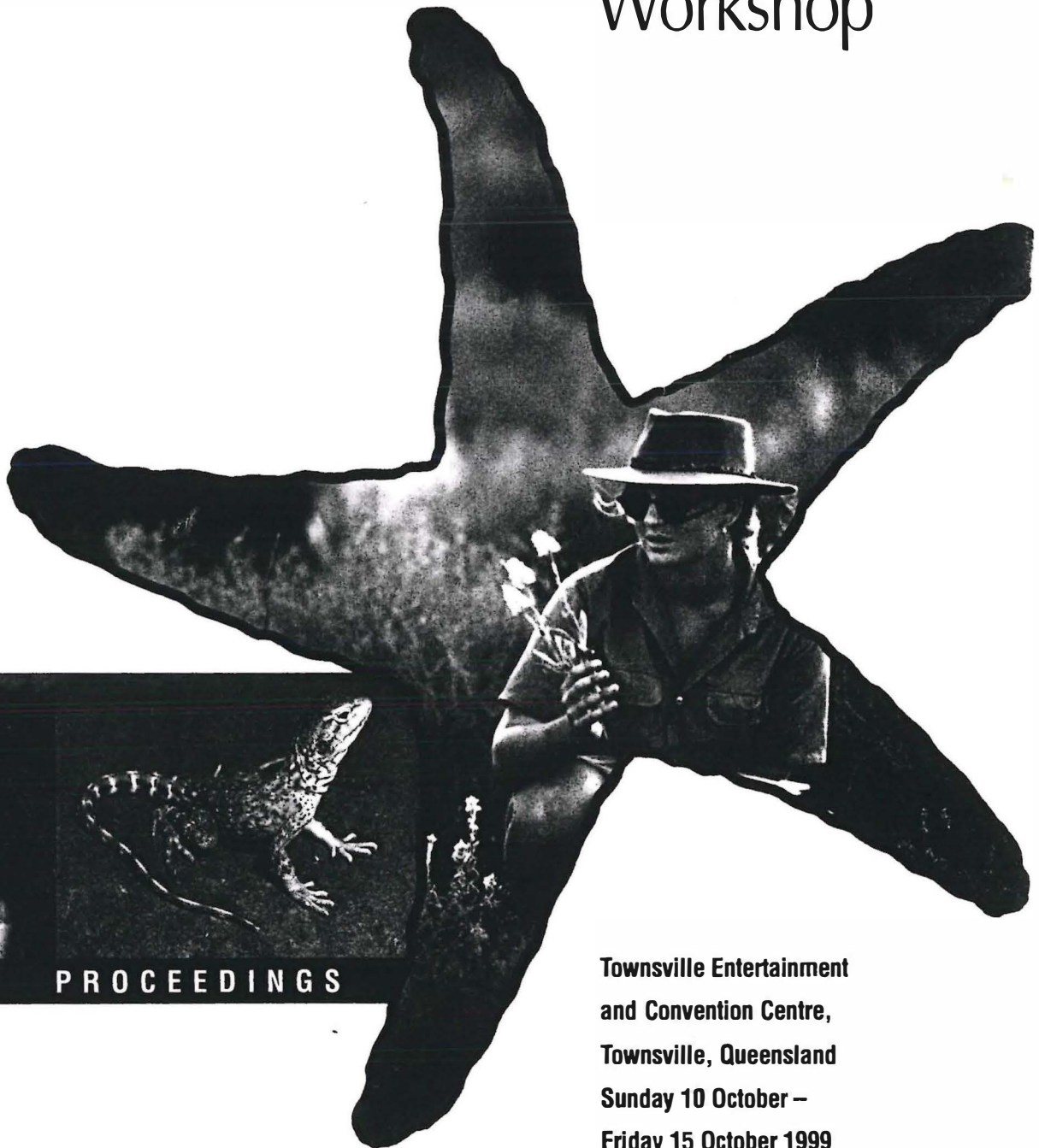
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ISBN 909276 89 7