

Foundations for a
Kimberley
STRATEGY



Report by Hon Chris Ellison on the
consultation process for the Kimberley
Science and Conservation Strategy

4 September 2009

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Introduction

The Liberal-National Government was elected in 2008 with the following policy in relation to the Kimberley region:

“The Kimberley is one of Australia’s special places renowned for its rugged natural beauty and steeped in cultural significance.

With a land area equivalent to twice the size of Victoria, this diverse marine and terrestrial environment encompasses coral reefs, islands, river systems, forests and mangroves.

It is also a unique ecosystem supporting a wide range of flora and fauna including endangered humpback whales, rare snubfin dolphins, dugongs, crocodiles and northern quolls.

The Kimberley also has a growing economic importance with tourism, mining, community services, pearling, horticulture, pastoral industries and agriculture contributing over \$1.5 billion to the State’s economy in 2006/07.

This economic development is fuelling rapid population growth in the region with the population expected to double by 2031. With an existing Indigenous population already in need of job opportunities in the region, we are well positioned to take full advantage of properly managed future economic development.

Western Australia must rise to the challenge of balancing the often competing interests of economic development and population growth with the protection of the unique natural and cultural heritage values of the region.

The potential development of major natural gas resources in the Browse Basin and the need for LNG processing facilities has brought this challenge into sharp focus but these projects are just one aspect of a complex sustainable development challenge facing the region.

The Government will urgently identify a suitable site for the on-shore processing of LNG which will minimise the impact on the cultural and natural values of the Kimberley but allow the State to unlock the enormous potential of its off-shore gas resources.

In doing so we are conscious that clean Western Australian LNG will play an absolutely critical role in helping to reduce global greenhouse gas emissions and combat climate change.

The Government will commit up to \$9 million to develop an integrated Kimberley Science and Conservation Strategy to ensure the region’s natural and cultural values are protected as the region fulfils its economic potential.

The Government will take responsibility for the Kimberley region and will not hand over control to the Commonwealth Government.

This strategy will:

- *identify high value cultural and natural areas for priority protection;*
- *develop marine, coastal and terrestrial conservation and management plans;*
- *give a voice and work with local industry groups, pastoralists and landowners in the development and implementation of conservation plans;*
- *engage the scientific community to ensure the rigour of conservation plans;*
- *identify natural threats to the environment, including cane toads, and recommend action plans;*
- *study whale migratory and breeding patterns and work with traditional owners, Indigenous communities, conservation groups and industry to protect whale migratory routes and breeding areas;*
- *maximise the region’s ability to draw on Federal funding for conservation initiatives, including marine and coastal programs, Indigenous Protected Area grants and ranger groups;*
- *identify opportunities to work with private conservation groups in the acquisition and protection of land areas of high conservation value;*
- *engage local government authorities to reduce duplication and ensure consistency of approach across the region;*
- *engage traditional owners and Indigenous communities in the planning process and identify opportunities to involve them in ongoing conservation work;*
- *work with industry to ensure that new developments meet world’s best practice in sustainable development consistent with the region’s natural and cultural values;*
- *promote ecologically responsible development to provide greater employment opportunities for Indigenous and non-indigenous people in eco-tourism, mining, petroleum and agriculture.”*

This commitment was subsequently endorsed by Cabinet and \$9 million was allocated over four years in the 2009/10 Budget Papers. It was decided that the Department of Environment and Conservation (DEC) would lead the development and implementation of the Kimberley strategy, under the direction of the Minister for Environment, Hon Donna Faragher, and in conjunction with the Department of State Development.

The strategy will cover the Kimberley region as defined in the *Regional Development Commissions Act 1993*. It consists of the local government districts of Broome, Derby-West Kimberley, Halls Creek and Wyndham-East Kimberley.

The public consultation phase of the development of the Kimberley Science and Conservation Strategy (the Kimberley strategy) began on 18 March 2009 when the Minister for Environment wrote to key stakeholders, made a statement in Parliament (Appendix 1) and issued a media statement (Appendix 2) outlining the Government's commitment and inviting written submissions.

On 5 June 2009, the Minister announced the next stage of the consultation process, a series of open forums and community workshops to help shape the Kimberley strategy (Appendix 3). Former Western Australian Senator and Federal Minister, Hon Chris Ellison, was appointed to chair the forums and workshops and act as an independent facilitator. The following written brief was provided to the chairman:

"Chairman's / Facilitator's objective: to be an independent advisor on, and overseer of, the community consultation process for the Kimberley Science and Conservation Strategy, to ensure that key stakeholder groups across all sectors are provided an opportunity for comment and that stakeholder views are fairly represented and reported.

Tasks

- *Provide advice on the community consultation process for the Kimberley Science and Conservation Strategy.*
- *Chair the community forums in the Kimberley and in Perth.*
- *Attend meetings with key stakeholders as required.*
- *Review the analysis of written submissions and comments from community forums to ensure that issues raised by stakeholders are considered in the development of the Kimberley Science and Conservation Strategy.*

- *Provide advice to the Minister for Environment on the community consultation process as required.*
- *Provide a report to the Minister for Environment on the community consultation process against the above objective."*

This report summarises the consultation process followed and the comments received from the forums, workshops, meetings and written submissions. The report also includes appendices with copies of all written submissions received and a list of reference materials cited. Whilst this report does not purport to advise Government, nor make any recommendation, many submissions of course, contain advice, recommendations and views expressed by the particular individual or organisation concerned.

The aim of the report is to inform Government of views expressed and received so that a strategy can then be developed. It should be made clear that this process is not the strategy.

The consultation process highlighted the interrelationship of Indigenous, cultural, environmental, social and economic drivers. It would be fair to say that the vast majority of those consulted thought that the strategy should achieve a balance between these drivers.

Summary of the consultation process and outcomes

Organisations and individuals were invited to provide written submissions and/or to attend community forums, workshops and meetings held in the Kimberley and in Perth. A brief outline of these sessions is set out below.

Open forum	This format provided an opportunity for individuals and organisations to make statements or talk to their written submissions in a public forum and to hear the views of other participants.
Community workshop	As opposed to the open forum, the workshop format focused on small group discussions on major themes. In order to open discussions, four general questions were asked; these were not exhaustive and were developed from written submissions received previously. Whilst not limiting general discussion, participants were asked to comment on the following four questions:
	1 Suggest approaches to balance the conservation, cultural, social and economic opportunities of the region.
	2* Suggest ways for Aboriginal people to have economic opportunities, and receive social benefits, from being involved in conservation.
	3 Suggest partnership opportunities to maximise the conservation, social and economic outcomes of the strategy. What form/s should partnerships take and how can they be facilitated?
	4 A theme from submissions was to increase the number of places protected for their natural values, including marine and terrestrial areas. Which areas should be considered and why?
* Question 2 was reworded slightly for workshops in the west Kimberley after feedback received from previous workshops, as follows: Can you suggest how benefits can flow to communities, including Aboriginal communities, from involvement in conservation?	
Stakeholder meetings	This format provided an opportunity for individuals and key organisations to meet with the chairman one-on-one. DEC staff also attended these meetings as executive to the process, and in some cases, officers from other agencies and departments were also present.

The consultation process was advertised in The West Australian, the Kimberley Echo and the Broome Advertiser for two weeks prior to each event (Appendix 4). Invitations to the events were also circulated widely to stakeholders through local DEC offices, and to people who had made written submissions at that stage.

The initial deadline for written submissions of 1 May was extended to 29 May and then to 7 August to allow submissions to be made during the forums and workshops. Notwithstanding these dates, DEC has continued to accept late submissions in an effort to ensure that anyone who wanted to contribute could do so.

The following events were held, and stakeholder meetings were also held where requested, in Kununurra, Perth, Broome and Fitzroy Crossing.

Location	Date	Events held
Kununurra	22 June 2009	Open forum and workshop
Wyndham	23 June 2009	Open forum
Halls Creek	24 June 2009	Open forum
Perth	7 July 2009	Open forum and workshop
Broome	20 July and 21 July 2009	Open forum and two workshops
Derby	22 July 2009	Open forum
Fitzroy Crossing	23 July 2009	Open forum and workshop

Around 200 people participated in forums or workshops, many of whom also made oral presentations. Written and verbal submissions have been received from 106 submitters and a total of 40 meetings have been held with stakeholders.

Positive feedback on the process was received from a large number of participants in relation to the strategy and the consultation process. Acknowledgement of DEC's work in the region was also received.

This report provides no comment on them other than to provide them to Government and keep on record for public disclosure those submissions.

Regional overview

This overview, based on the one presented at the community forums and workshops, aims to give participants a snapshot of the Kimberley today. Further background information is provided here to give a context to the issues discussed in subsequent sections.

The Kimberley is renowned for its natural beauty and enormous cultural significance. Awareness of its immense value, economic and biological, is rapidly increasing across Australia and around the world.

The Kimberley region has a vast land area of 424,500 square kilometres and is almost twice the size of Victoria. It is a diverse region containing unique terrestrial, aquatic and marine ecosystems, set in wild, rugged, landscapes which are attracting increasing numbers of visitors. Yet it has a very small population for its size with an estimated resident population of just over 34,000 people in 2008.

The region still has one of the most unspoilt natural environments in Australia, although native wildlife and ecosystems are increasingly at risk from threatening processes such as changes to fire regimes and the impact of feral animals.

The Kimberley is developing rapidly with tourism, mining, pearling, horticulture and pastoral industries generating a gross regional product of \$1.78 billion in 2007/08. The region is also highly prospective for petroleum and mineral resources and geothermal energy. With estimated population increases from 2006 to 2031 of between 26,400 and 31,800, there is a need to ensure employment opportunities for the increasing population, including Aboriginal people. Notably, past population increases in the Kimberley have not been experienced uniformly across the region.

A diverse and developing region

- Land tenures of the Kimberley include freehold, conservation lands, Commonwealth lands (defence), native title and other Aboriginal lands (such as Indigenous Protected Areas and joint management agreements), pastoral leases, other Crown leases and reserves and unallocated Crown lands (see map). In some cases these overlap.
- Native title has been determined over approximately 54 per cent of the Kimberley, with nearly all of the remainder under native title claim.

- Around 2.3 million hectares is in national parks and reserves which collectively attract more than 260,000 visits each year.
- A belt of pastoral lands runs through the central Kimberley and extends south to the Great Sandy Desert. Pastoral leases cover 22.7 million hectares of the Kimberley – there are 95 stations (made up of 116 pastoral leases) with an average area of around 230,000 hectares. Thirty three of the pastoral stations are leased by Indigenous interests.
- All current pastoral leases in Western Australia will expire on 30 June 2015, and most will be renewed for the same term as the current lease under the provisions of the *Land Administration Act 1997*.
- Under the legislation, the offer of renewal of pastoral leases gave the State an opportunity for land to be excluded from the leases in 2015 for public purposes. The then Minister's offer of renewal to lessees dated 24 September 1997 contained a condition that affected lessees would need to either accept the exclusion, withdraw and not have their lease renewed in 2015, or negotiate the final area to be excluded. The exclusion process was concluded in December 2004.
- Following the last Gascoyne Muster in 2006 all lessees received written advice detailing any exclusions, and confirming the term for which their leases would be renewed. The Pastoral Lands Business Unit, Department of Regional Development and Lands, appointed a Project Manager to oversee the process from 1 July 2009. The Project Manager will develop a communication plan early in 2010 to ensure that all lessees are kept informed of the requirements under the lease renewal process in the lead up to 2015.
- These different land tenures and uses contribute to the Kimberley's economy and social character.
- Most of the region's significant industries rely on the natural environment and its resources.
- A number of State Government agency-driven processes are currently underway that are relevant to the local environment and proposed future economic and infrastructure development of the Kimberley. They include the following:
 - the Kimberley Regional Water Plan to set broad strategic directions for water resource management for the next 20 years (Department of Water);

- Australia's North West Destination Development Strategy to address gaps in infrastructure and help attract visitors to all parts of the region (Tourism WA);
- the Kimberley Aquatic Plan (Department of Fisheries);
- the Dampier Peninsula Strategic Land Use and Infrastructure Plan (Department of Planning);
- the Ord East Kimberley Expansion Project (Department of Regional Development and Lands); and
- the Strategic Environmental Assessment (including Social Impact Assessment) for the Kimberley Liquefied Natural Gas (LNG) Precinct (Department of State Development).
- Strategic regional planning for the Kimberley (Western Australian Planning Commission/Department of Planning) will commence shortly.
- In addition, there are other reviews which are Statewide and do include the Kimberley. These include a review of mining approval processes and a Government Red Tape Committee chaired by the Hon Ken Baston MLC and Liza Harvey MLA.
- The Commonwealth Government has also established a Northern Australia Land and Water Taskforce that will focus on finding new economic development opportunities in the north based on water availability.
- The Commonwealth Government is also conducting a National Heritage assessment due to be completed in June 2010.
- The Department of Fisheries has a long history of research and management in the Kimberley and a well established database for the formulation of science and conservation planning in the region. The Department is also undertaking a risk assessment process to identify key attributes, priority values and key risks to the environment under Ecosystem Based Fisheries Management (EBFM) initiatives.
- There is a well recognised need for increased monitoring of near-shore finfish stocks and greater understanding of the potential impacts of new industrial development proposals on the marine environment.
- Considerable information was collected during a Biodiversity Audit of Western Australia in 2004 available at <http://www.dec.wa.gov.au/science-and-research/biological-surveys/a-biodiversity-audit-of-wa.html>.
- A major biological survey by DEC, in collaboration with the Kimberley Land Council and Aboriginal groups, the Western Australian Museum and the Australian Museum, is underway on 22 of the largest islands off the north-west Kimberley coast. The State Government has contributed \$4.3 million to the four-year study, which has also attracted \$2.7 million in Commonwealth Government funding. The survey has already more than doubled the vertebrate animal and plant lists from most islands visited, and discovered additional island populations of the northern quoll, water rat and taipan, as well as many other snakes, lizards and frogs. So far, the survey has revealed that at least 38 of the Kimberley's 76 mammal species are found on the islands.

Research and the role of science

Scientists have made considerable progress in documenting the landscape and biological values of the Kimberley region in recent decades. Some key studies and research projects are listed here, but this list is not exhaustive.

- Between 1987 and 1989 a broadscale ecological survey of the Kimberley rainforests was undertaken, the results of which were published in the 1991 publication by McKenzie et al., *Kimberley Rainforests of Australia*.
- Conservation reserve system priorities were examined in detail in the 1991 report *Nature Conservation Reserves in the Kimberley* and in the 1994 report *A Representative Marine Reserves System for Western Australia*.
- A science paper, *A synthesis of scientific knowledge to support conservation management in the Kimberley region of Western Australia*, has been prepared by DEC as a starting point to summarise some of the published scientific knowledge relevant to biodiversity conservation in the region. It is available at www.dec.wa.gov.au/kimberleystrategy to view or download.
- While there is a growing body of scientific knowledge about the Kimberley marine environment, it is relatively small compared with marine areas at similar latitudes. The Western Australian Marine Science Institute (WAMSI) has prepared a report, *A turning of the tide: Science for decisions in the Kimberley Browse marine region*, that identifies priorities in marine research to address management issues facing the Kimberley. WAMSI estimates that \$9 million is required

to address imminent government decision needs to mid-2010 with further estimates of \$20 million per annum for five years thereafter.

- Current aquatic ecosystem research initiatives in the Kimberley total more than \$6 million for Tropical Rivers and Coastal Knowledge (TRaCK), Northern Australian Water Futures Assessment (NAWFA), implementation of the Framework for the Assessment of River and Wetland Health and ongoing university research. TRaCK is a large multidisciplinary research programme investigating the ecosystem function of river systems across northern Australia. NAWFA is also a multidisciplinary programme, with the objective of providing a knowledge base to inform decisions about the sustainable development of northern Australia's water resources. The aim of the ecological programme is to identify key water dependent ecological assets and to understand the risks to the values of those assets arising from changes in the hydrological regime.
- Comprehensive assessment of the values and condition of, and threats to, aquatic ecosystems has not been undertaken in the Kimberley. Data limitations are the main constricting factors that prevent listing of many Kimberley high conservation value aquatic ecosystems in the *Directory of important wetlands of Australia*.
- Significant research by the Australian Institute for Marine Science is underway in the Kimberley region and includes a \$35 million project funded by Woodside Energy on behalf of the Browse Joint Venture to undertake a baseline environmental study of Scott Reef, about 430 kilometres north-west of Broome.
- A study on nearshore dolphin species by Deakin University is underway and includes collection of scientific information on the three nearshore dolphin species that occur in the Kimberley, including the endemic Australian snubfin dolphin, and on the location of Biologically Important Areas (as defined in the Commonwealth Bioregional Planning process) for protected species.
- The Institute for Applied Ecology at the University of Canberra has been conducting genetic studies of marine turtle populations of Australia for many years, including populations in the Kimberley region and studying freshwater turtle populations throughout the Kimberley since 1999.
- The Kimberley Foundation Australia has a long-term research programme underway that is designed to focus on integrating archaeological studies in the north and south Kimberley to establish the chronology, distribution patterns, and cultural and ecological setting of the region's rock art. In addition, evidence of earliest human habitation is studied through palaeoclimatology and open site archaeology to provide a climatic, ecological and geographical context for the more sub-regionally concentrated rock art research. KFA currently has four second stage research projects in progress, with first stage funding approved for two more, and two more projects in early design phase. One of these projects has recently reported an age result, if confirmed in subsequent work, that would push back the earliest verified date of a tool indicative of human occupancy of Australia by a significant amount to beyond 53,000 years before the present.
- Woodside are supporting the Western Australian Museum's Inshore Kimberley Marine Biological Survey. This survey will assist in a fundamental understanding of the ecological value of marine life in the Kimberley. This information can be used in heritage and conservation assessments in the future.
- The Western Australian Museum Maritime Archaeology Department is involved in a Commonwealth funded desktop project to identify shipwrecks for the proposed National Heritage listing of the Kimberley. The Maritime Archaeology Department will also be working with the Aquatic Zoology Department of the Western Australian Museum to physically examine cultural heritage in the Lacepedes to Adele Island/ Montgomery Reef region in October 2009, demonstrating that combined biodiversity and cultural heritage investigation is feasible.
- With funding from the State Government's Royalties for Regions Exploration Incentive Scheme, the Geological Survey of Western Australia will conduct airborne magnetic and radiometric surveys to complete its coverage of the Kimberley. The project will compile digital geological information series packages that will bring together and synthesise all available geological mapping, mineral deposit and energy (including petroleum) information for the Kimberley, and will identify areas where further research is required.

Conservation values

- The Kimberley has two of only about a dozen areas in the world with huge intertidal flats rich in shorebirds: Roebuck Bay and Eighty Mile Beach. These areas offer summer refuges to hundreds of thousands of migratory waders protected under international agreements that fly from as far away as Siberia.
- Broome, the most visited tourism centre in the Kimberley, has one of the most varied collections of dinosaur footprints in the world nearby. More than nine different dinosaur species are represented.
- The Napier and Oscar ranges are the remnants of a 380-million-year-old limestone barrier reef. The ranges contain the oldest cave system in Western Australia, which can be seen at Tunnel Creek National Park and Mimbi Caves. The Napier and Oscar ranges support many species found nowhere else.
- Geikie and Windjana gorges have formed where the ranges intersect with the Fitzroy and Lennard rivers. A huge diversity of marine animals are perfectly preserved as fossils near Windjana Gorge National Park, including about 40 different species of fossilised Gogo fish, more than any other site of this age in the world.
- The distinctive beehive-shaped sandstone towers of the Bungle Bungle in the Purnululu World Heritage Area and the Halls Creek area, are in a transition zone between the desert and north Kimberley, and contain elements of desert fauna, as well as several rare or restricted species, some of which are found nowhere else in the world.
- Surveys of fauna in the Kimberley have found 76 species of native mammal, 295 bird species, 178 species of reptile and 42 named species of native frogs. There have been no mammal extinctions in the north Kimberley, although the condition and distribution of a number of medium sized mammals are in decline.
- All native flora and fauna species are protected under State and Commonwealth legislation.

Mangroves

- Some of the largest stands of mangrove in Australia occur along the Kimberley coast. They have a total area of 140,000 hectares and are considered to be among the most pristine mangrove forests in the world. Stands comprise up to 18 tree species and their

fauna is rich and distinctive. Mangroves are important nursery areas for many marine species including fish, and are important in stabilising coastlines.

Rainforest

- Some 1500 biologically important patches of rainforest are scattered across the Kimberley region. The average patch has an area of three hectares and few exceed 20 hectares. Nearly 25 per cent of the 2000 plant species found in the Kimberley grow in the rainforests and about a third of these are confined to them. Birds are even more dependent on rainforests, which support 45 per cent of the Kimberley's terrestrial bird fauna. The patches are part of a great corridor of monsoon forests – extending though south-east Asia and into Australia – that is important for the seasonal migration of birds such as koels and channel-billed cuckoos. Many small invertebrate species are unique to Kimberley rainforest patches.

Wetlands

- Five wetlands in the Kimberley – Parry Lagoons, Roebuck Bay, Eighty Mile Beach, Mandora Wetlands, and the man-made wetland of Lake Argyle – are recognised for their international significance and listed under the Ramsar Convention.
- A further 18 wetlands are listed as nationally significant.
- Important wetlands and waterbird habitats in the deserts include Dragontree Soak Nature Reserve, in the Great Sandy Desert south-east of Broome, and Lake Gregory (Paruku Wetlands) at the north-eastern edge of the Great Sandy Desert. Lake Gregory, which qualifies to be placed on the register as a wetland of international importance, is part of the Paruku Indigenous Protected Area.

Mound springs

- Scattered but extremely important mound spring communities, with permanently wet peaty habitat, also occur in some localities in the Kimberley, including Dragon Tree Soak, Bunda Bunda, Big Springs, Black Spring and the Mandora Mounds, all of which are listed as Threatened Ecological Communities. These permanently wet springs support a suite of plants and invertebrates that occur nowhere else. The Ramsar-listed Mandora Marsh south of Broome also has the most inland mangrove community in Australia and is second only to Senegal as the furthest inland mangrove community in the world.

Rivers

- Many of the rivers of the Kimberley are near pristine.
- Wild rivers have national and State significance and are unique, rare examples of waterways where biological and hydrological processes continue without significant disturbance. Thirty three of Western Australia's 48 wild rivers are located in the Kimberley.
- Kimberley rivers contain a high number of high conservation value aquatic ecosystems.
- The Fitzroy River, which enters King Sound near Derby, has a catchment area of 85,000 square kilometres. During peak flood it could fill Sydney Harbour in 21 hours. Other significant rivers include the Prince Regent, Mitchell, Drysdale, Pentecost, Forrest, King and Durack. Only the Ord River has been dammed to form Lake Argyle, whose waters would fill Sydney Harbour several times over, which supplies water for the Ord River Irrigation Area.
- Kimberley rivers support a diverse and unique array of aquatic species. The region has the most diverse fish population in the State, with more than 50 recorded species of which approximately 16 species are endemic.
- Recent studies have demonstrated that several freshwater aquatic species are genetically diverse from other populations at the regional and national scale. The genetic diversity of these species and their geographic isolation are significant in terms of conservation management.

Islands

- There are more than 2500 islands off the Kimberley coastline, at least 400 of which are 20 hectares or larger. Islands can act as arks preserving wildlife, wildflowers and ecological communities that have disappeared from similar areas on the mainland. They have largely been buffered from mainland disturbances such as feral cats, grazing by cattle and fire.
- The Kimberley Islands Biological Survey is a joint project between the State and Commonwealth governments and traditional owners. Although the Kimberley Islands biological survey is still underway, so far the survey has revealed the presence of additional island populations of many vertebrates, particularly snakes and frogs (see Research and the role of science in this section).

- These islands are refuges for conservation. The importance of managing the Kimberley islands to protect native species is increased in the context of climate change.

Marine

- 41 per cent of the global marine environment has been adversely impacted by humans to a 'medium-high to very high' extent and only 3.7 per cent of oceans were rated as 'very low impact'. Very low impact areas are restricted mainly to the high latitude Arctic and Antarctic polar regions and notably northern Australia including the Kimberley. That most of the world's other coastal tropical marine areas are degraded to varying degrees emphasises the global conservation significance of the tropical marine environment of the Kimberley.
- Biologically, the nearshore and coastal environments support a diverse array of marine communities including coral reefs, seagrass meadows, mangrove forests and sponge gardens. These communities in turn provide critical habitat, shelter and food resources for specially protected and culturally and commercially important species including marine turtles, cetaceans, dugongs, fish, prawns and birds. Several species of cod, shark and sawfish are endemic to the Kimberley.
- In contrast to nearshore waters that are under coastal influence, environments offshore are characterised by generally clear waters that are typical of oceanic systems. Coral reefs are well developed and Northwest Shelf and Oceanic Shoals Bioregions in particular and are part of the region's most important marine values. Recent surveys indicate that the Kimberley Bioregion the most coral-diverse area in Western Australia.
- Seagrasses are biologically important: as sources of primary production, as habitat for juvenile and adult fauna such as invertebrates and fish, as a food resource, and for their ability to attenuate water movement (waves and currents) and trap sediment. Western Australia has the highest diversity of seagrass in the world with 25 species represented. Twelve species are known from Western Australia's tropics, including one endemic species.
- Large tidal amplitudes in combination with the extensive and complex coastline produce very extensive, ecologically diverse and highly productive intertidal areas with environments ranging from vertical cliffed coasts to wide expanses of mudflats, sand banks, coral (addressed earlier) and algal reef flats, mangrove forests and beaches.

- The sea floor fauna of intertidal areas has been studied at only a few locations in the region. Roebuck Bay and Eighty Mile Beach in the Canning Bioregion have received most attention. Both areas are Ramsar-listed wetlands primarily because of the seasonally high numbers of migratory birds they support, including species listed under the Japan-Australia Migratory Birds Agreement and the China-Australia Migratory Birds Agreement.
- The marine environment of the region supports a number of whale and dolphin species, dugong and turtles, including several species which are threatened.
- Immense traditional ecological knowledge has been handed down orally from generation to generation. Seasonal calendars, for example, emphasise the inter-relationships between the flowering and fruiting of certain plants and the breeding of animals, fish and turtles, allowing traditional resources to be exploited at appropriate times.
- The cultural significance of many freshwater aquatic species is well documented. Numerous language groups have language names for particular species. Many freshwater species are used for both ceremony and consumption.

Cultural heritage

Indigenous

- The Kimberley region has a rich and living Aboriginal culture, with 22 Aboriginal language groups. Aboriginal people have inhabited the region for at least 50,000 years and with other Indigenous Australians have the oldest continuing cultures in human history.
- A very high proportion of the region's population is Indigenous. The 2006 Census recorded 47.7 per cent of the Kimberley's resident population was of Aboriginal or Torres Strait Islander descent, compared to around 3.5 per cent in Western Australia (and this is likely to be an under-representation of the Indigenous population due to issues resulting in undercounting).
- Throughout the Kimberley there are many thousands of Aboriginal art sites and places of cultural importance, such as song lines, Dreaming sites and quarries for tools.
- Most of the oldest archaeological sites known in Australia are in the Kimberley. Sites in the Lake Gregory region have been dated at 50,000 years.
- Rock shelters dated to 39,700 years old have been excavated and found to contain limestone slabs with pigment, making them some of the earliest prehistoric art sites ever recorded.
- The Kimberley region has the greatest diversity of rock art in Australia, ranging from ancient hand stencils to highly decorative Bradshaw (Gwion Gwion) figures and the more recent Wandjina art. A completely new form of rock art has recently been discovered on the upper Canning Stock Route.
- Kimberley traditional owners maintain a relationship to land in accordance with traditional laws and customs.
- In recent decades many language groups have re-established communities on their traditional lands in the Kimberley. A few communities have developed successful tourism facilities and/or cultural tourism ventures.
- Aboriginal people and communities have a key role in protecting the Kimberley's cultural sites, ecosystems and landscapes.
- Traditional owners manage large parts of the Kimberley for cultural and environmental conservation through freehold and leasehold management, joint management agreements and the Commonwealth Government's Indigenous Protected Areas programme, which supports Indigenous communities to manage their land for conservation. Indigenous Protected Areas are recognised as part of the national reserve system.
- There are two Indigenous Protected Areas in the Kimberley – Warlu Jilajaa Jumu and Paruku – with others are currently proposed, including Bardi Jawi, Karajarri, Dambimangari and Unguu, and Balangarra.
- Indigenous rangers represent a significant opportunity for the long-term sustainable management of natural resources in the region. Rangers actively engage in terrestrial, aquatic and marine ecosystem management. Indigenous communities value the ranger programs as a process to link young people back to country, culture and sustainable employment. Many ranger activities are undertaken in partnership with government, non-government and research agencies.
- DEC is developing joint management arrangements to work with Aboriginal people to manage lands for conservation of natural and cultural values.
- The most advanced joint management arrangement is the one between the Miriuwung Gajerrong

Corporation for the management of six new conservation reserves (totalling 150,000 hectares) in the east Kimberley.

- In October 2008, the Miriuwung Gajerrong Cultural Planning Framework was officially launched by DEC. The cultural planning framework consolidated the Miriuwung Gajerrong people's cultural responsibilities, views and aspirations for the future management of the six new conservation areas.
- In June 2008, eight Miriuwung Gajerrong trainee rangers were employed to work on the new conservation reserves. The trainees represent relevant traditional owner groups with specific connections to country. The training programme comprises a range of courses delivered through TAFE, Charles Darwin University, and DEC's Dwellingup Training Centre. In addition, a cultural training component has been developed in partnership with the Mirima Language Centre.
- New conservation areas were formally created in May 2009. An interim works plan is being developed to guide management while the management plan being finalised.

Non-indigenous

- The Kimberley also has a significant non-indigenous cultural history.
- The Western Australian Maritime Museum has documented 344 shipwreck sites in the Kimberley, dating back to the early 1800s.
- The first European navigator believed to have landed on the Kimberley coast was the Dutchman Abel Tasman, on a voyage of exploration from Batavia in 1644.
- In 1879, Alexander Forrest, his brother Matthew and six other men carried out a six-month exploration which resulted in the discovery and naming of the Kimberley district, the Margaret and Ord rivers, the King Leopold Ranges and a vast tract of pastoral country on the Fitzroy and Ord rivers. This led to epic feats of cattle droving by families such as the Duracks from Queensland and the MacDonalds from New South Wales to settle the area.
- Halls Creek was the site of the first gold rush in Western Australia, after Charlie Hall discovered a 28 ounce nugget there on Christmas Day in 1885.

Issues affecting conservation

Fire

- In the past, Aboriginal people traditionally lit numerous small fires to hunt game, to regenerate bush tucker plants and to "clean up country", which resulted in a patchwork of vegetation of different ages since fire and protected the landscape from large fires. In more recent years the fire regime has changed so that the Kimberley is experiencing late season wildfires (or 'hot fires') which are extremely damaging. Around half of the Kimberley burns each year.
- This change has contributed to the contraction and loss of rainforest patches, decline and extinction of medium-sized mammals, loss of river pools, high economic costs for the Kimberley's pastoral industry, negative cultural impacts for Indigenous communities and increased production of greenhouse gases (late savannah burning across the north of Australia is estimated to contribute to three per cent of the country's greenhouse gas emissions). Fire also threatens infrastructure and industries such as tourism.

Weeds

- Environmental weeds are plants that establish themselves in natural ecosystems and proceed to modify natural processes, usually adversely, resulting in the decline of the communities they invade.
- Environmental weeds pose a significant threat to the Kimberley's biodiversity, with 236 exotic weed species recorded in the region to date. Weeds of particular concern in the Kimberley include passion vine and noogoora burr, rubber vine, parkinsonia and leucaena.
- Introduced plants thrive in the landscape where grazing by feral cattle and fire impacts have reduced the integrity of the native vegetation. Areas alongside rivers and streams have a wide variety of weed species, but the broader landscape is threatened by a few weed species that are more tolerant of low moisture levels, such as buffel grass.
- Since weeds don't usually have predators, they can quickly dominate an area. Impacts include making the area more flammable in the dry season, smothering and/or shading out native vegetation and choking waterways.

Feral animals

- Grazing by feral cattle, donkeys, horses and pigs has altered vegetation composition, in turn leading to problems including increased soil erosion, loss of nutrients and greater runoff volumes and velocities. These feral animals have also caused significant degradation and trampling of sensitive rainforest patches, rivers and wetlands.
- Feral camels are a significant problem in desert areas, by grazing native species, trampling and draining waterholes, the waters of which are then unavailable for other animals.
- Cane toads have been listed as one of the world's 100 worst invasive alien species. Their impact is seen by the toxic ingestion of cane toads by native species, predation by cane toads on native species and cane toads competing with native species for habitat and resources.
- Feral cats prey on native animals, compete with them for food and habitat and spread diseases.

Climate change

- Climate change is regarded as one of the most serious long-term threats to tropical marine environments. Coral bleaching, caused by stressful environmental conditions driven largely by climate change, has already caused widespread death of corals: in 1998 for example, Scott Reef, an offshore Kimberley atoll, lost 80 per cent of its coral to depths up to 30 metres in a mass coral bleaching event experienced on most of the world's coral reefs.
- Other visible signs of the impact of climate change on our landscape may include disappearing wetlands and greater coastal erosion. Visible impacts of climate change on our biodiversity may include changes in the flowering times of native plants, changes to the arrival and departure times of some bird species, a movement away from the usual locations by native animals, a decline in karst (cave) ecosystems, a decline in trees due to water stress, a decline in fish species and a greater spread of weeds and pests.

Economy

It is important to remember that whilst the following comments do not include any changes due to the economic downturn, the proportions mentioned are believed to remain consistent.

In 2007/08 the Kimberley's gross regional product was estimated at \$1.78 billion, the largest contributor to this figure being the resources sector at 63 per cent.

Resources

- The Kimberley region is an important producer of nickel, cobalt, zinc, lead, iron ore, petroleum and diamonds. It is prospective for these minerals and a variety of other minerals including gold, bauxite, coal, tungsten, tin, beryl, mica, corundum, vanadium, uranium, fluorite, and clays. It is also highly prospective for petroleum onshore and offshore.
- There are currently six operating mine sites in the Kimberley, with a total workforce of 3,300. An estimated 10,000 additional jobs are indirectly generated elsewhere in the community.
- The Argyle Diamond Mine in the east Kimberley contains the richest diamond pipe in the world, with a grade of 4.5 carats per tonne. Fifty five per cent of Argyle diamonds are used in jewellery and the remainder are industrial quality. Gem quality diamonds include champagne and pink varieties. Diamonds are also mined at Ellendale Station west of Fitzroy Crossing. Other diamond pipes in the Kimberley are prospective for diamonds.
- The Browse Basin, covering approximately 140,000 square kilometres offshore north of Broome, is one of Australia's most hydrocarbon-rich basins. The fourth well drilled in the basin in 1971, at Scott Reef, discovered what is potentially Australia's largest gasfield, Torosa. There have been a further 11 hydrocarbon discoveries since then. These fields contain combined gas reserves of more than 700 giga cubic metres.
- The State Government is developing the Kimberley Browse Liquefied Natural Gas (LNG) Precinct to enable processing of natural gas from the offshore Browse Basin. The precinct is designed for up to 50 million tonnes per annum of total capacity and will be capable of accommodating at least two LNG processing projects.

- An extensive study has been completed in identifying a site for the multi-user LNG facility. This process involved the participation of all environmental non-government organisations, numerous affected State and Commonwealth government agencies, industry groups (including fishing, aquaculture, tourism, petroleum and mining) and traditional owners. James Price Point, 60 kilometres north of Broome, has been identified by the process as the most suitable site for the precinct from an environmental, technical and Aboriginal heritage perspective. The site is undergoing strategic environmental assessment under State and Commonwealth laws. Planning for the precinct will be aimed at minimising the environmental footprint of gas processing in the region while maximising revenue for the region and opportunities for local people and businesses to participate in and benefit from employment and business opportunities.

Pastoral industry

- The Kimberley beef herd totals about 780,000 head of cattle, generating annual sales of around 160,000 head valued at approximately \$86 million.
- The vast majority of cattle are sold as live export, with the main markets being Indonesia, Malaysia and the Middle East.
- There is interest in diversification into tourism or other economic activities to supplement returns to lessees. However, under section 106 of the *Land Administration Act 1997*, pastoral leases must not be used for purposes other than pastoral purposes, except in accordance with a diversification permit. Activities for proposals for tourism permits on pastoral leases must be pastoral based.
- The Department of Agriculture and Food (DAFWA) and the Indigenous Land Corporation co-fund the Kimberley Indigenous Management Support Service (KIMSS). This project aims to increase the profitability and sustainability of the Kimberley's indigenous pastoral industry.
- DAFWA assesses rangeland condition during pastoral lease inspections. Of the 69 stations inspected from 2004 to 2008 where range condition trend could be assessed, 30 stations (44 per cent) had improved in rangeland condition, 27 (39 per cent) had no significant change, and 12 (17 per cent) had declined.

Agriculture

- Around half the total region's landmass is covered by agricultural establishments. The Kimberley beef herd is valued at about \$86 million annually. Agricultural production from the Ord River Irrigation Area is estimated at \$39 million per annum, with another \$6.2 million in horticultural production from the region outside the Ord. Tropical forestry was estimated at \$57 million in value last year.
- The Ord-East Kimberley Expansion Project will double the size of the Ord irrigation area to 28,000 hectares to enable the expansion of agricultural production and provide major opportunities for sustainable economic and social development in the Kimberley region. Work on the project has started and is anticipated to take about four years to complete, subject to environmental approvals. The first land release is expected in 2011. The \$415 million programme consists of \$220 million from the State's Royalties for Regions funding and \$195 million under the Australian Government's Nation Building-East Kimberley Development Package.
- There is interest in the development of small-scale irrigation precincts based on the concept of small patches of irrigation judiciously placed within the landscape, which would minimise the impacts on natural resources and take advantage of existing infrastructure and labour. These precincts would be characterised by pressurised water supply with scheduled water and nutrient delivery to crops.

Fishing

- There are 13 commercial fisheries operating in the Kimberley region managed and regulated by the Department of Fisheries. The Kimberley Prawn Managed Fishery operates on a seasonal basis. Other fisheries licensed to operate in the region include the Kimberley Gillnet and Barramundi Managed Fishery (targets threadfin salmon and barramundi), Northern Demersal Scalefish Managed Fishery (targets snapper and grouper species), Mackerel Managed Fishery, Joint Authority Northern Shark Fishery, Pearl Oyster Managed Fishery and the Beche-de-mer Fishery. No trawling is permitted within State waters.

- Two fisheries managed by the Commonwealth Australian Fisheries Management Authority occur partly in State waters: the North West Slope Trawl Fishery (although currently subject to a two-year trawling ban in Kimberley waters shallower than 200 metres within 370 metres of shore), which targets scampi and deepwater prawn along depth contour lines just outside the 200 metre isobath; and the Northern Prawn Fishery, which trawls for banana and some tiger prawns in Joseph Bonaparte Gulf and other waters.
- An Indigenous trochus export fishery operates from One Arm Point, with Commonwealth export approval.
- Existing commercial fishing activity is not considered to be great, and is unlikely to increase in the foreseeable future.
- Although illegal foreign fishing activity occurs in the region, it has dropped off from previous levels.
- Recreational fishing activity is significant and increasing, particularly around population centres. Proposed new industrial sites are likely to increase this pressure at specific locations.
- Charter fishing activity is focused on marine areas north of Broome.
- Voluntary management arrangements are in place between fishing sectors (recreational, charter and commercial) for improved management and conservation outcomes of barramundi and threadfin salmon.

Pearling and aquaculture

- Pearl farming and other aquaculture inject \$130-\$150 million into the Western Australian economy per annum.
- Pearl farming has been established in the Kimberley for more than a century and has been operating in the region in its current form since the mid-1950s without detrimental environmental effects. Pearling activity is regulated by the Department of Fisheries according to strict quotas. There are currently 89 pearl farm leases across the Kimberley, occupying approximately 58,271 hectares, and 20 aquaculture sites occupying some 30,243 hectares.
- Other aquaculture includes barramundi farming using sea cages.

- An agreement on the location of pearl leases and charter boat operations has been in place since 2003 (and updated in 2008) to minimise impacts of pearl leases and associated infrastructure on 'wilderness' experiences sought by the charter fishing and ecotourism industry.

Tourism

- The Kimberley region attracts an estimated 346,600 overnight visitors per annum who spend approximately \$256 million within the region (approximately 15.5 per cent of gross regional product).
- The region's parks and other nature-based attractions are a major tourism drawcard: around 2.3 million hectares of the Kimberley region is included in national parks and reserves, which collectively attract more than 260,000 visits each year. Visits to parks and reserves in the Kimberley have increased by 16 per cent over the past two years.
- The Kimberley coast expedition cruise industry consists of more than 30 vessels operating multi-day cruises along the coast between Broome and Wyndham. The industry has grown by around 500 per cent over the past 10 years. The Kimberley expedition cruise industry currently injects in excess of \$250 million annually into the local economy.

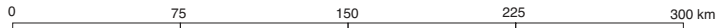
Infrastructure

- Broome is the primary deep water port servicing the Kimberley, supporting an estimated 300 direct and indirect jobs and generating about \$300 million of annual regional revenue.
- There are another four ports in the Kimberley. The Port of Wyndham, operated by the Ord River District Cooperative, predominantly exports cattle to Malaysia and sugar to Indonesia. The Port of Derby, operated by the Shire of Derby-West Kimberley, currently has no exports but is important for tourism. The Shire of Derby-West Kimberley is undertaking a study to assess industry requirements for a possible industrial and supply base at Point Torment near Derby. Two privately-operated ports in Yampi Sound, at Cockatoo Island and Koolan Island, are used for the export of iron ore.

- There has been an increase in shipping in the Kimberley associated with the growth of the resources sector and offshore oil and gas exploration.
- More than \$400 million of funding has been committed by the Western Australian and Commonwealth Governments for the development of necessary infrastructure for expansion of the Ord River Irrigation Area. The State Government's commitment to developing agricultural infrastructure for the Ord-East Kimberley Expansion Project includes irrigation, roads, power and telecommunications. State Government agencies are collaborating to finalise the scope of the programme and refine costings. The Commonwealth funding will boost the region's social infrastructure, subject to a joint Commonwealth/State feasibility study.

Kimberley Region - Western Australia Boundary and Land Tenure

August 2009



PROJECTION: POLYCONIC 121° Datum: GDA 94

Legend

DEC Managed Estate

- National park
- Conservation park
- Nature reserve
- Marine park/marine nature reserve
- Other

Other Lands

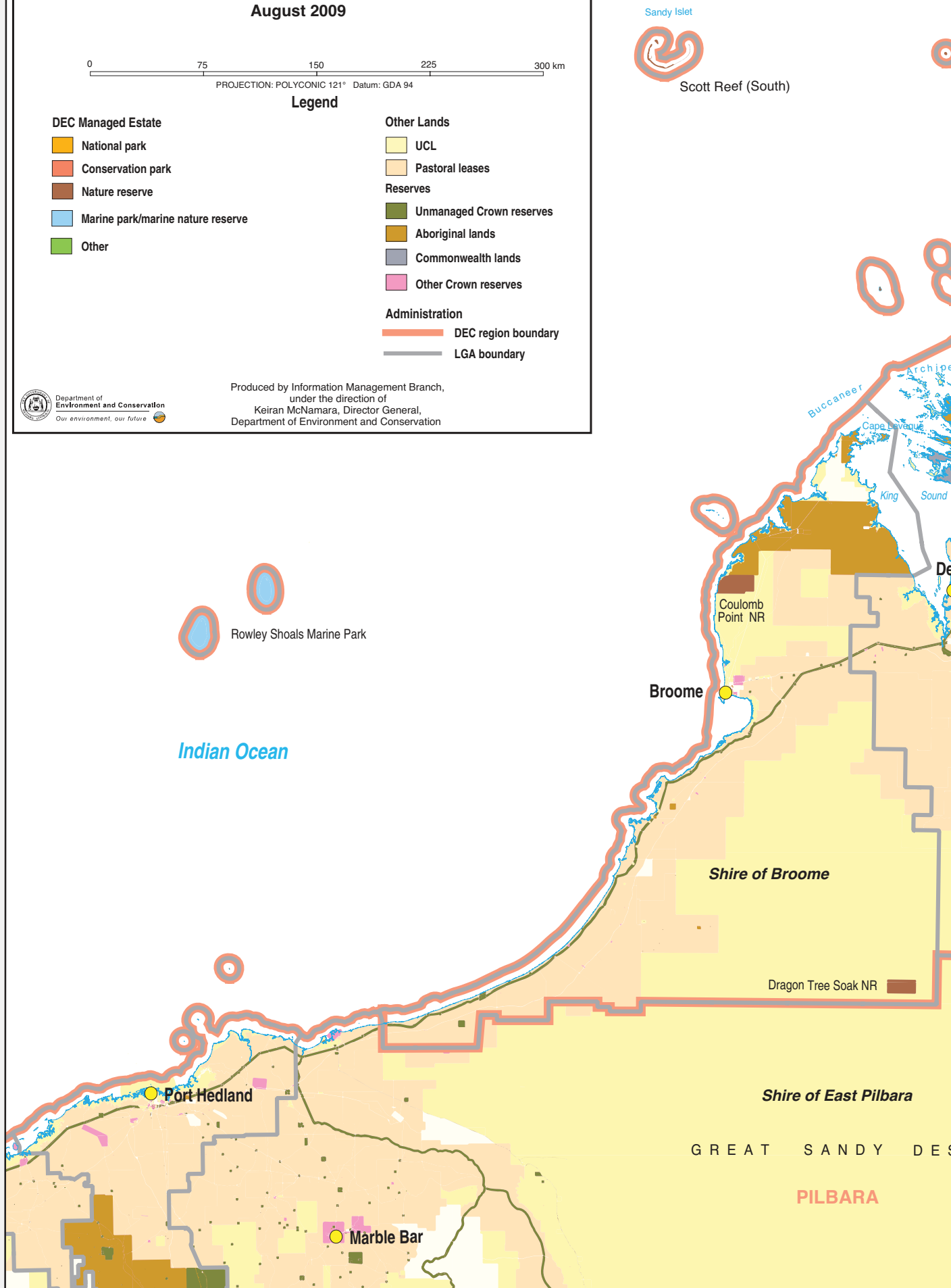
- UCL
- Pastoral leases
- Reserves**
- Unmanaged Crown reserves
- Aboriginal lands
- Commonwealth lands
- Other Crown reserves

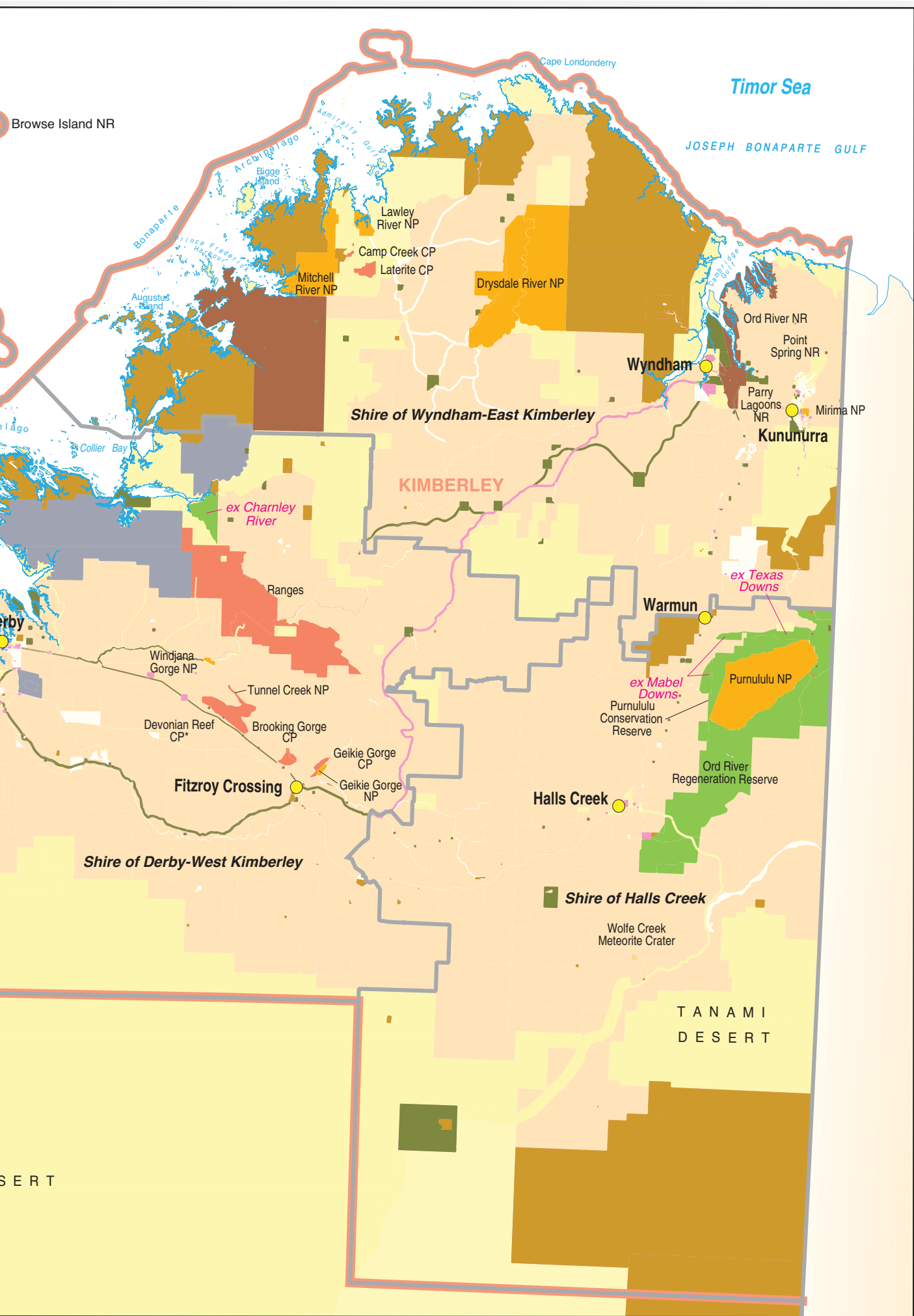
Administration

- DEC region boundary
- LGA boundary



Produced by Information Management Branch,
under the direction of
Keiran McNamara, Director General,
Department of Environment and Conservation





Issues raised

The following discussion highlights the main issues to emerge from the consultation process. Given the volume of submissions and breadth of topics raised, this discussion is not exhaustive, and reference should be made to individual submissions, which are provided as appendices to this report, for further detail.

At the outset, it is fair to say that many submissions and comments called for integrated planning for the Kimberley that balances Indigenous, cultural and environmental interests along with social and economic development in the region.

The issues are not listed in any order of priority however they have been grouped to present a cogent discussion of them.

Common topics

Support for the strategy

The consultation process revealed a passion by many for the Kimberley, and a strong will within the community and industry to protect the region's natural character, culture and economic potential. The significance of the Kimberley's natural and cultural values was widely recognised. On this basis, strong support was expressed for a Kimberley Science and Conservation Strategy.

It was widely considered that the Kimberley is at a critical point in time, with increasing recognition of its development potential, the impending development of offshore oil and gas reserves, the expansion of the Ord irrigation scheme, an expanding international profile and visitation from tourists, and a growing population to support the developing industries. Despite these trends, the Kimberley remains a region of rich and living cultural landscapes, and the environment of the region remains largely intact, with vast and relatively untouched areas acting as refuges for unique flora and fauna. The Kimberley is the only mainland area to have experienced no mammal extinctions. Many people noted that it was timely to plan for the long-term future of the Kimberley, to ensure that its unique character was protected whilst social and economic development progressed.

Whilst there was general support for the strategy through the process, the following submitters specifically expressed their support.

Australian Petroleum Production and Exploration Association Ltd

Australian Wildlife Conservancy

Chamber of Commerce and Industry Western Australia

Conservation Commission of Western Australia

CSIRO

Department of Fisheries

Leave No Trace Australia Ltd

Pew Environment Group, The Wilderness Society, WWF-Australia, Environs Kimberley, Australian Conservation Foundation, Conservation Council of Western Australia

Sea Turtle Restoration Network

Shire of Wyndham-East Kimberley

Stop the Toad Foundation Inc.

The Association of Mining and Exploration Companies Inc.

Western Australian Marine Science Institution

Western Australian Planning Commission and Department of Planning

Western Australian Tropical Research Initiative

Knowledge, research and the role of science

The discussions on science generally recognised two types of knowledge, namely traditional Aboriginal knowledge and western science. There was general recognition that both were valuable and should be coupled to inform decision-making.

Some participants also raised the value of knowledge held within the general community, such as pastoralists' records or the records of community interest groups, to augment other forms of knowledge.

A number of submissions provided information on research projects involving Aboriginal people, and some suggested that researchers should seek approval from and involve traditional owners in any studies on their land and sea.

Many submissions commented on priorities for research. Commonly raised priorities included:

- research on marine systems and values;
- more detailed vegetation mapping;
- wetlands, rivers and high conservation value aquatic systems;

- cultural and archaeological heritage; and
- social research to inform and manage nature-based tourism, including visitor expectations and perceptions.

The establishment of baseline information and control sites for monitoring were considered priorities, which could be used to measure environmental changes over time.

Research on the likely impacts of climate change on the Kimberley was also raised by several submissions.

It was commented that environmental impact assessment at the State Government level should consider the cumulative impacts of coastal developments.

In regard to information management and availability, there was support for information on the Kimberley to be made readily accessible, to inform planning, land and sea management and industry investment. It was suggested that non-commercial information collated for the purposes of environmental impact assessment should be made available to the wider community, which was supported by participants from the resources sector. Some submissions noted the importance of protecting intellectual property rights in traditional knowledge.

Some participants commented that there was sufficient research for decisions to be made on conservation in the Kimberley, and that decisions should not be held up whilst more research is conducted. An adaptive management approach was recommended by some as a means of linking research and management programmes to build on knowledge as it became available.

A number of submissions provided or offered additional information on research findings, including whales, marine and freshwater turtles, dugongs, dolphins, migratory waders of Roebuck Bay, and geological and mineral occurrence and prospectivity.

There was widespread comment from research organisations that further resources were required for research in the Kimberley. The following submissions addressed knowledge, science and priorities for further research.

Adam, Sylvia (marine researcher, Sydney)
 Aquaculture Council of Western Australia
 Australian Institute of Marine Science
 Australian Wildlife Conservancy
 Chamber of Commerce and Industry Western Australia
 Conservation Commission of Western Australia

CSIRO
 Department of Agriculture and Food
 Department of Environment and Aquatic Sciences, Curtin University of Technology
 Department of Mines and Petroleum
 Department of Water
 Global Flyway Network
 Kimberley Aboriginal Law and Culture Centre
 Kimberley Land Council
 Kimberley Whale Watching
 Lewis, Jan (Broome)
 Malme, Bernt Alfred
 Marequus Pty Ltd and Deakin University
 Marine Parks and Reserves Authority
 Pearl Producers Association
 Pew Environment Group, The Wilderness Society, WWF-Australia, Environs Kimberley, Australian Conservation Foundation, Conservation Council of Western Australia
 Sea Turtle Restoration Project
 The Chamber of Minerals and Energy Western Australia
 University of Canberra
 University of Western Australia and The Australian National University
 Western Australian Marine Science Institution
 Western Australian Museum
 Western Australian Tropical Research Initiative

The following submissions called for information to be made readily accessible. This was also raised in forum and workshop discussions.

Australian Institute of Marine Science
 Chamber of Commerce and Industry Western Australia
 Conservation Commission of Western Australia
 Kimberley Whale Watching
 The Association of Mining and Exploration Companies Inc.
 The Chamber of Minerals and Energy Western Australia

A holistic and integrated plan for the Kimberley

A holistic land use plan for the Kimberley was widely supported, to inform decision-making, and to provide clarity for business and investment. Some commented that development had occurred in an ad hoc fashion in the past, and called for a strategic approach to planning that considered environmental, cultural, social and economic drivers.

Submissions from the resources sector generally emphasised that the region should not be 'locked up', and that planning for the region must allow for the region's economic and social development.

A holistic planning approach was raised in workshop discussions across the region and in Perth as a means to balance the environmental, cultural, social and economic drivers affecting the region. The following submissions generally called for holistic and integrated planning for the region.

Australian Wildlife Conservancy

Chamber of Commerce and Industry Western Australia

Conservation Commission of Western Australia
Resort Lake Argyle

The Chamber of Minerals and Energy of Western Australia

The Chamber of Minerals and Energy Western Australia

Western Australian Planning Commission and Department of Planning

In addition to the above, a key recommendation from submissions representing conservation interests was a 'comprehensive conservation and compatible development plan' to deliver an integrated approach to conservation protection and management and sustainable economic development. Whilst wording varied slightly, these submissions called for the following.

'The State Government must develop and implement a comprehensive conservation and compatible development plan for the Kimberley which is based on broad-scale regional planning process and integrates conservation protection and management, Indigenous rights and interest and long-term compatible economic development.

The plan should be based on whole-of-land/ sea-scape principles using the best available scientific, traditional and local knowledge. It should identify and protect the natural and cultural values of the region and clearly identify compatible economic development opportunities for the region, especially in, for example, the 'culture and conservation' economy.

The plan must be backed by both adequate ongoing resourcing for development and implementation and by statutory authority, including improved integration of current laws, plans and government agencies/ departments' activities.

The plan will need to inform, reform, create and amend current management for a range of activities such as tourism, aquaculture, mining and fisheries and incorporate a classification of compatible (and incompatible) land and sea uses/ activities. This will include the development of a binding code of conduct for tourism that addresses environmental and cultural impacts and access to Indigenous lands and waters.

Declare a moratorium on approach of new major developments until such time as the comprehensive plan is completed and implemented.'

The above comments were reflected in the following submissions.

Corrigan, Sean

Cullen, Paddy (Kelmescott, Western Australia)

Giles, Marion (Hamilton, New South Wales)

Grover, Ravi

Harlib, Amy (New York, United States)

Hughes, Benedict (Northcote, Victoria)

Kimberley Whale Watching

Lewis, Jan (Broome)

Loewenthal, Graham

McQuillan, Melissa (Cairns, Queensland)

Neville, Fiona (Preston, Victoria)

Nixon, Peter (Darlington, New South Wales)

O'Neil, Mr and Mrs Sean

Pew Environment Group, The Wilderness Society, WWF-Australia, Environs Kimberley, Australian Conservation Foundation, Conservation Council of Western Australia

Rowley, Maxine

Rutkowski, Robert E. (Kansas, United States)

Saborío, Lic. Esteban

Sea Turtle Restoration Project

Swenson, Leigh

Teevan, John P (California, United States)

Woolhouse, Hannah

It was noted that a regional planning committee was to be established under the Western Australian Planning Commission to:

- define Kimberley development drivers;
- identify strategic planning gaps, hotspots and triggers for development pressure;
- develop regional priorities, controls and action plans via engagement with regional partners and communities;
- identify activities (for example, studies) required to provide specific information and needing funds;
- identify regional infrastructure needs (current and future);
- develop a regional spatial framework to guide strategic planning;
- advise on the need for/ prepare statutory region plans or other mechanisms;
- monitor major projects and assist where possible; and
- assess local planning instruments for advice to government.

Coordination and delivery of government services

A number of people raised the need to coordinate government programmes and projects to avoid duplication and maximise outcomes. It was thought that there should be improved coordination between local, State and the Commonwealth Governments, and within State and Commonwealth jurisdictions. There was opposition to any further bureaucracy and support to work with what was already in place.

Some people commented on the importance of local decision-making for the Kimberley, rather than Perth-based decision-making.

These issues were discussed in some detail at the Kununurra and Broome workshops and Wyndham forum. The following submissions raised this directly.

Bunuba Aboriginal Corporation Inc. and Northern Australia Land and Water Taskforce

Conservation Commission of Western Australia

JSW Holdings Pty Ltd

Kimberley Development Commission

Miriuwung-Gajerrong Aboriginal Corporation Inc.

Pew Environment Group, The Wilderness Society, WWF-Australia, Environs Kimberley, Australian Conservation Foundation, Conservation Council of Western Australia

Resort Lake Argyle

Shire of Derby-West Kimberley

A landscape approach to conservation

A major theme to emerge from the process is that conservation in the Kimberley needs to be undertaken at a landscape scale. There is widespread support for a network of marine and terrestrial conservation reserves to protect areas of high significance through secure tenure. It was suggested that these reserves should be linked across the landscape by land that was managed to contribute to conservation outcomes. That is, with coordinated responses across tenure boundaries on shared issues such as fire, weeds and feral animals.

In addition to this landscape scale approach, was the sentiment that whilst the development potential of the Kimberley was recognised, that it must be managed to retain the wild, remote, unique and aesthetic landscape values of the region.

The Canadian Boreal Forest Framework was raised as an example of a landscape-scale, multi-tenure approach to conservation, which was initiated through a partnership between indigenous people, the community and industry.

Whilst this sentiment was raised by a number of submissions, listed below, it was also reflected in a number of community forum and workshop discussions.

Australian Wildlife Conservancy

Conservation Commission of Western Australia

Corrigan, Sean

Cullen, Paddy (Kelmescott, Western Australia)

Giles, Marion (Hamilton, New South Wales)

Grant, Caroline (Perth, Western Australia)

Grover, Ravi

Harlib, Amy (New York, United States)

Hughes, Benedict (Northcote, Victoria)

Kimberley Whale Watching

Loewenthal, Graham

Marine Parks and Reserves Authority

McQuillan, Melissa (Cairns, Queensland)

Mr and Mrs Sean O'Neil

Neville, Fiona (Preston, Victoria)

Nixon, Peter (Darlington, New South Wales)

Pew Environment Group, The Wilderness Society, WWF-Australia, Environs Kimberley, Australian Conservation Foundation, Conservation Council of Western Australia

Resort Lake Argyle

Rowley, Maxine

Rutkowski, Robert E. (Kansas, United States)

Saborío, Lic. Esteban

Sea Turtle Restoration Project

Swenson, Leigh

Teevan, John P (California, United States)

Woolhouse, Hannah

Aboriginal Lands Trust

Barrett, R and J (formerly of Charnley River Station)

Bunuba Aboriginal Corporation Inc. and Northern Australia Land and Water Taskforce

Conservation Commission of Western Australia

Department of Agriculture and Food

Kimberley Development Commission

Kimberley Land Council

Miriuwung-Gajerrong Aboriginal Corporation

Pew Environment Group, The Wilderness Society, WWF-Australia, Environs Kimberley, Australian Conservation Foundation, Conservation Council of Western Australia

The following submissions commented on land tenure issues associated with pastoral leases.

Australian Wildlife Conservancy

Baston, Hon Ken, MLC (Member for Mining and Pastoral)

Bunuba Aboriginal Corporation Inc. and Northern Australia Land and Water Taskforce

Colero, Kim (Western Australian Fishing Industry Council and Marine Parks and Reserves Authority)

Hams, Phillip (Gogo Station)

Pastoralists and Graziers Association of Western Australia Inc.

Shire of Derby-West Kimberley

WA Farmers Federation

Land management and tenure

Land management and tenure in the Kimberley was the subject of much comment as it is an important consideration for any planning for the future of the region.

Issues raised relating to the region's complex land tenure included: the implications of native title for Aboriginal people and other interests; the future of Aboriginal Lands Trust lands; tenure of pastoral leases; management of unallocated Crown land; establishment and management of conservation estate; and furthermore, how each of these interacted with each other.

It was noted by some that, for a range of reasons including the extent of native title, pastoral leases and unallocated Crown land, it was difficult to acquire land in the region. This was another reason that organisations must work together to achieve conservation outcomes.

The following submissions commented on native title and Aboriginal lands.

Partnerships

Partnerships received wide support across the board. It was acknowledged that the Kimberley was a vast area with a sparse population, therefore partnerships to coordinate resources and maximise outcomes were widely supported. This was particularly the case given that the conservation issues facing various land managers in the region, such as fire, weeds and feral animals, were often the same. Participants in the process spoke of the importance partnerships between the community, Aboriginal people, industry and governments.

A number of models for successful partnerships for conservation were provided. The Ecofire¹ project and the FitzCAM² group were raised many times as good partnership models that have brought together different groups to achieve shared outcomes.

Partnerships were discussed as a key topic in the community workshops and good examples of partnerships were sought through the process. The following submissions specifically addressed partnerships and/ or gave examples of partnership approaches.

Australian Wildlife Conservancy
Bush Heritage Australia
Colero, Kim (Western Australian Fishing Industry Council and Marine Parks and Reserves Authority)
Conservation Commission of Western Australia
CSIRO
Department of Mines and Petroleum
Department of Water
Hams, Phillip (Gogo Station)
Kimberley Diamond Company
Pearl Producers Association
Rangelands NRM group
Stop the Toad Foundation Inc.
The Chamber of Minerals and Energy Western Australia
Western Australian Marine Science Institution
Western Australian Tropical Research Initiative
Windjana Day Tours and West Kimberley Tours
WWF-Australia

Enhanced protection for some areas of the Kimberley

The Minister for Environment's announcement on 18 March 2009 (Appendix 1) on the Kimberley Science and Conservation Strategy indicated that the strategy would identify high value natural and cultural areas as priorities for protection. The Minister said she had invited

specific comment on high value natural and cultural areas deserving of enhanced protection, and listed the following examples: Prince Regent Nature Reserve; areas in the vicinity of the Mitchell Plateau; and the various islands throughout the Kimberley; and marine areas such as Camden Sound, Lacepede Islands, Montgomery Reef/Islands, Walcott Inlet/ Secure Bay and elements of Roebuck Bay.

Throughout the consultation process, there was general recognition that the Kimberley has unique and outstanding natural and cultural features, many of which were significant in international terms.

There was general support for expansion to the conservation estate, especially in the marine environment. This support was often predicated on consultation and negotiation with Aboriginal people, particularly traditional owners, and consultation with other interests including pastoral, resources, fishing and aquaculture industries.

Submissions from the resources industry generally called for any expansion to the conservation estate to be based on clear criteria and rationale based on scientific information. Submissions from conservation interests also called for science-based targets to be used to ensure a comprehensive, adequate and representative conservation reserve system across bioregions.

Specific marine and terrestrial areas thought to require increased protection were identified through the process. It was commented through forums and workshop discussions that there was sufficient knowledge on the significance of these areas for decision making on their conservation not to be delayed. These commonly identified areas included:

- long-standing proposals for additions to the conservation estate, including through the Environmental Protection Authority Conservation Reserves for Western Australia recommendations from 1980, *Nature Conservation Reserves in the Kimberley* (Department of Conservation and Land Management, 1991), and the *Representative marine reserve system for Western Australia* report from 1994;

[1] Ecofire is a fire management program covering almost five million hectares across different tenures in the Kimberley. The project was contracted by Rangelands NRM Coordinating Group to the Australian Wildlife Conservancy and is guided by a steering committee of stakeholders, including local government and State Government agencies.

[2] FitzCAM stands for the Fitzroy Catchment Action Management Group, a Fitzroy catchment reference group formed with the aim of protecting and shaping the future of the Fitzroy basin. The group includes pastoralists, traditional owners and environmentalists.

- Mitchell Plateau;
- the north west Kimberley coast;
- Kimberley islands;
- areas with cultural heritage value such as rock art sites;
- Camden Sound;
- Montgomery Reef; and
- Roebuck Bay.

Other marine areas specifically identified for increased protection and management for their natural heritage values included:

- Walcott Inlet and Secure Bay;
- Buccaneer Archipelago and adjacent coasts;
- Lacepede Islands;
- Lagrange Bay;
- Adele Island;
- Cassini Island;
- the area from Lacepede Islands to Camden Sound as a sanctuary for whales;
- Sunday and Tallon Island complex;
- Wild Cat Reef;
- Long Reef; and
- rivers and estuaries.

Other terrestrial areas specifically identified for increased protection and management for their natural heritage values included:

- Carr Boyd Ranges;
- Lake Argyle;
- Gogo fossil sites, east of Fitzroy Crossing;
- Devonian Reef system;
- Borda, Leveque and Cygnet Bay on the Dampier Peninsula;
- high conservation value aquatic ecosystems, including Ramsar, national and world heritage sites.

Other areas specifically identified for increased protection and management for their cultural heritage values included:

- North West Rock Art Province;
- Oscar-Napier Ranges;

- Upper Canning Stock Route;
- songlines;
- stone wall fishtraps along the west Kimberley coast; and
- early settlement sites such as the 1860s pastoral settlement at Camden Harbour and shipwreck sites.

The point was made that there were likely to be other areas of significance that should receive increased protection, which would be identified through further survey and research. In other words, the areas identified today as high value are based on existing levels of knowledge, but ongoing survey work will continue to uncover species, assemblages, habitats and cultural sites previously unknown.

Participants in workshop discussions also strongly expressed the view that conservation in the Kimberley needed to be undertaken at a landscape scale, supported by a network of conservation reserves as well as coordinated responses across tenure boundaries on shared issues such as fire, weeds and feral animals.

In relation to marine conservation reserves, given the connectivity of marine systems, a number of submissions and workshop discussions indicated support for a large multiple-use marine park across the Kimberley coast, rather than isolated marine reserves. It was noted that within this framework, zoning could be used as an instrument to manage various uses and activities. Submitters commented that this concept drew on the Great Barrier Reef Marine Park experience. In creating new marine reserves, the importance of creating secure tenure over the inter-tidal zone was also raised. Industry groups from the fishing and resources sectors expressed support for marine reserves but noted that thorough justification, consultation and possibly industry compensation were required before the establishment of sanctuary zones.

Areas deserving increased protection were discussed in the community workshops.

The following submissions specifically addressed this matter in their submission.

Baston, Hon Ken, MLC (Member for Mining and Pastoral)

Bunuba Aboriginal Corporation Inc. and Northern Australia Land and Water Taskforce

Conservation Commission of Western Australia

Corrigan, Sean
CSIRO
Cullen, Paddy (Kelmescott)
Department of Mines and Petroleum
Department of Planning
Department of Water
Environs Kimberley
Giles, Marion (Hamilton, New South Wales)
Global Flyway Network
Grover, Ravi
Harlib, Amy (New York, United States)
Hughes, Benedict (Northcote, Victoria)
Kimberley Land Council
Kimberley Whale Watching
Lewis, Jan (Broome)
Loewenthal, Graham
Marequis Pty Ltd and Deakin University
Marine Parks and Reserves Authority
McQuillan, Melissa (Cairns, Queensland)
Museum Victoria
Neville, Fiona (Preston, Victoria)
Nixon, Peter (Darlington, New South Wales)
Pew Environment Group, The Wilderness Society,
WWF-Australia, Environs Kimberley, Australian
Conservation Foundation, Conservation Council of
Western Australia
Resort Lake Argyle
Roebuck Bay Working Group
Rowley, Maxine
Rutkowski, Robert E. (Kansas, United States)
Saborío, Lic. Esteban
Sea Turtle Restoration Project
Swenson, Leigh
Teevan, John P (California, United States)
University of Western Australia and The Australian
National University
Western Australian Marine Science Institution
Western Australian Museum
Woolhouse, Hannah

Capacity for conservation

Many people commented in the forum and workshop discussions that conservation needed to be adequately resourced and that resources for the management of existing conservation estate should be increased to allow for effective management of the challenges facing the region.

A number of submissions also made mention of the need to update Western Australian legislation for biodiversity conservation, environmental impact assessment, protection of wild rivers and provision for joint management with traditional owners.

The following submissions specifically addressed these matters.

Conservation Commission of Western Australia
Environs Kimberley
Lewis, Jan (Broome)
Marine Parks and Reserves Authority
Pew Environment Group, The Wilderness Society,
WWF-Australia, Environs Kimberley, Australian
Conservation Foundation, Conservation Council of
Western Australia
Western Australian Museum
Windjana Day Tours and West Kimberley Tours

Environmental education/ interpretation

There was general recognition of the importance of environmental education to support conservation outcomes, and to enhance visitors' appreciation and experience of the Kimberley landscape.

The following submissions specifically addressed environmental education and/ or interpretation.

Kimberley Language Centre
Kimberley Whale Watching
Leave No Trace Australia Ltd
Resort Lake Argyle

Aboriginal involvement

Aboriginal people and organisations expressed a strong desire to be involved in the management of land for conservation, including the protection of cultural sites, as well as for cultural and eco-tourism. Opportunities were also identified in cultural and nature-based tourism. This reflected a sense that Aboriginal people should be supported by governments to determine solutions and opportunities for themselves. The resounding majority of participants in the consultation process represented the view that any discussion about conservation and land management in the region must rightly place Aboriginal people at the centre of the discussion.

Submissions requested that the State commit to working with traditional owners in the creation or alteration of conservation reserves. Some submissions noted that the creation of conservation reserves or a change in status to existing reserves may be regarded as a 'future act' under the *Native Title Act 1993* (Commonwealth).

The need for Aboriginal ownership, responsibility for and involvement in land management was widely recognised. Those who commented on joint management called for a legislative framework for Aboriginal ownership, leaseback, management and co-management of conservation areas, developed in partnership with traditional owners. The joint management model in place between Yawoorroong Miriuwung Gajerrong Yirrgeb Noong Dawang Aboriginal Corporation (Miriuwung-Gajerrong Aboriginal Corporation) and the State was recognised as a good model. Some views were also expressed that over time, Aboriginal people should be trained to assume sole management of areas with the support of the State. The continuation of customary rights to lands and waters was also raised, with the suggestion that these rights be recognised and protected in legislation and government regulations.

A number of people observed that Aboriginal involvement in conservation, cultural and nature-based tourism required a holistic approach that recognised the importance of education, health and housing as prerequisites for successful and sustainable employment and improvement in prosperity. Indeed, the phrase 'healthy country, healthy people' was used to describe the positive benefits that Aboriginal involvement in conservation and maintenance of culture can offer, both socially and environmentally.

A number of people commented that children and teenagers were a priority, and some examples of youth programmes were given. In relation to education, a number of Aboriginal participants said that conservation and culture should be a focus of curriculum in Kimberley schools.

A number of Aboriginal participants in the process mentioned the importance of maintaining language, law and culture, as a central aspect of the wellbeing of Aboriginal people. Information on a number of programmes aimed at protecting cultural knowledge and language, maintaining law and culture, and working with Aboriginal youth at risk, was provided. It was noted that ongoing funding was an issue for many organisations, including the Kimberley Language Centre and the Kimberley Aboriginal Law and Culture Centre. The difficulties that Aboriginal people encounter with language, where English may be their second or third language, were recognised by several participants.

There was general support for Aboriginal ranger programmes. Through the process it was identified that there were a large number of Aboriginal ranger programmes in place through different organisations and with different funding sources. There was general recognition that encouraging and supporting Aboriginal involvement in conservation, including through ranger programmes, was resource intensive and required long-term government commitment. More specifically, it was commented that funding for Aboriginal employment needed to allow not only for long-term employment certainty, but resources for mentoring and support by the host organisation, training and opportunities to develop career pathways. Some noted that Aboriginal rangers should have responsibilities outside formal protected areas and for the management of cultural heritage sites also.

Opportunities for Aboriginal people to be employed in, and earn money from, managing country were raised, including through fee-for-services for providing research support, access to country, and fire management and the carbon economy. Opportunities for Aboriginal people to develop businesses in cultural and eco-tourism were also discussed.

The point was made through the consultation process by Mr Reginald Birch of Wyndham that there were many Aboriginal people in the Kimberley who were not 'traditional owners', given the long history of dispossession, and these people were often not consulted by governments and others. This was agreed by others including Kimberley Land Council, Kimberley Language

Centre, Kimberley Aboriginal Law and Culture Centre and Aboriginal Lands Trust. The Aboriginal Lands Trust explained that its role was to manage land 'for the benefit and use of Aboriginal people', regardless of whether they were traditional owners or not.

A number of non-Aboriginal participants recognised the importance of consulting with Aboriginal people and obtaining the consent of traditional owners to visit lands and sites, but commented that proper engagement was resource intensive and time consuming, which could be an issue particularly for small tourism businesses. At the same time, the Miriuwung-Gajerrong Aboriginal Corporation commented that it dealt with 14 government agencies in relation to the Ord Stage 2 project, which was also very resource and time intensive.

The population of the Kimberley tends to be fairly transient, and a number of organisations noted this as an added difficulty to building and maintaining meaningful relationships with Aboriginal people, and ensuring the continuity of programmes.

Some people expressed support for the Indigenous Protected Areas programme of the Commonwealth Government as a means for traditional owners to manage lands for conservation and to receive resources to do so.

Most participants in the process supported the involvement of Aboriginal people in conservation and more broadly, the development of opportunities in cultural and nature-based tourism. This was discussed as a key topic in the community workshops. The following submissions specifically addressed this matter.

Aboriginal Lands Trust

Baston, Hon Ken, MLC (Member for Mining and Pastoral)

Birch, Reginald (Wyndham)

Bunuba Aboriginal Corporation Inc. and Northern Australia Land and Water Taskforce

Bush Heritage Australia

Chamber of Commerce and Industry Western Australia

Colero, Kim (Western Australian Fishing Industry Council and Marine Parks and Reserves Authority)

Conservation Commission of Western Australia

CSIRO

Cullen, Paddy (Kelmscott, Western Australia)

Department of Planning

Department of the Environment, Water, Heritage and the Arts, Indigenous Protected Areas Section

Department of Water

Kimberley Aboriginal Law and Culture Centre

Kimberley Development Commission

Kimberley Land Council

Kimberley Language Centre

Kimberley Whale Watching

Lewis, Jan (Broome)

Loewenthal, Graham

Martin, Carol, MLA (Member for Kimberley)

Miriuwung-Gajerrong Aboriginal Corporation

Pew Environment Group, The Wilderness Society;

WWF-Australia; Environs Kimberley; Australian

Conservation Foundation; Conservation Council of Western Australia

Resort Lake Argyle

Shire of Wyndham-East Kimberley

The Chamber of Minerals and Energy Western Australia

Torres, Owen (Djabera Djabera people)

University of Western Australia and The Australian National University

Western Australian Museum

Winun-Ngari Aboriginal Corporation

Cultural heritage

Information on Aboriginal cultural and archaeological heritage was received through the process. Submissions noted the significance of:

- rock art sites;
- ceremonial and traditional practices and sites associated with ceremonies;
- places where sacred objects were stored;
- burial sites and proposed sites for repatriation including keeping places;
- songlines; and
- sites that were not regarded as sacred but were nonetheless significant in terms of cultural narratives, motifs and themes and personal and collective histories.

Details of the significance of some areas were provided, including the North West Rock Art Province, Oscar-Napier Ranges and Upper Canning Stock Route. Some submissions considered the cultural heritage values of the Kimberley to be internationally significant based on the rock art, such as the Gwion Gwion and Wandjina styles, dating back as far as 20,000, but possibly up to 35,000 years before present. It is understood the Kimberley contains evidence of one of the earliest artistic endeavours by modern humans in the world.

The Kimberley is also considered significant for the opportunities for records of human occupancy to provide insights into climate change, how humans have impacted on the environment through burning practices, as well as human cultural development. The oldest evidence of human occupation of the Kimberley dates to about 50,000 years before present.

Information on research programmes addressing aspects of cultural heritage was provided by a number of organisations.

Concerns over the management of cultural heritage sites were also raised, including vandalism and the impacts of unmanaged tourism, particularly along the coast.

Some information was also provided on non-Aboriginal heritage including contact between the Macassans and Aboriginal people, shipwrecks and early European settlement sites. The pastoral, pearling and whaling industries were also recognised as contributing to the region's more recent history.

The following submissions addressed cultural heritage.

Adam, Sylvia (marine researcher, Sydney)
Bradley, Susan (Doongan-Theda Stations)
Kimberley Aboriginal Law and Culture Centre
Kimberley Foundation
Kimberley Land Council
Kimberley Language Centre
Leave No Trace Australia Ltd
University of Western Australia and The Australian National University
Western Australian Museum

Specific issues

Water, aquatic ecosystems, rivers and catchments

Water generally was the subject of much comment. A number of people raised the protection of aquatic ecosystems, rivers, groundwater and the management of catchments as important conservation issues. It was noted that the majority of the State's wild rivers were found within the Kimberley. It was suggested that the management of wild rivers required a collaborative approach because the rivers and their catchments had mixed land tenure, and a number of different stakeholders. The management of water resources was believed to be an important issue for the region.

Pressures on high conservation value aquatic environments and rivers recognised by the Department of Water include stock grazing, inappropriate fire regimes, pastoral diversification and associated land clearing, mining, recreational fishing, and unmanaged recreation and tourism.

It was noted that the Fitzroy River had changed course over the last 40 years and that there appeared to be changes in the river ecology. The FitzCAM group is a collaboration addressing catchment management.

A number of comments were received in relation to water resource issues. In relation to water resources planning, it was noted that there were a number of processes and research initiatives underway, including the Kimberley Regional Water Plan, Northern Australian Water Futures Assessment, Northern Australian Sustainable Yield, Tropical Rivers and Coastal Knowledge, Northern Australia Land and Water Taskforce. The determination of ecological water requirements (the flow regimes needed to support ecosystem functioning at a low level of risk) was identified as important in guiding effective water resource management.

Several people noted their opposition to a large dam on the Fitzroy River, and environmental non-government organisations called for a ban on dams, inter-basin transfer of water and large scale extraction of groundwater or surface water resources.

The following submissions dealt with rivers and catchments.

Department of Water

Hams, Phillip (Gogo Station)

Main Roads WA

Pew Environment Group, The Wilderness Society,
WWF-Australia, Environs Kimberley, Australian
Conservation Foundation, Conservation Council of
Western Australia

The following submissions made comments on water resource issues.

Australian Wildlife Conservancy

Bunuba Aboriginal Corporation Inc. and Northern
Australia Land and Water Taskforce

JSW Holdings Pty Ltd

Martin, Carol, MLA (Member for Kimberley)

Pew Environment Group, The Wilderness Society,
WWF-Australia, Environs Kimberley, Australian
Conservation Foundation, Conservation Council of
Western Australia

Fire

Fire was raised as a most critical issue for the Kimberley. It was generally agreed that late season wildfires (or 'hot fires') were the issue. It is estimated that around half of the region burns each year, with fires commonly affecting hundreds of thousands of hectares. Compelling information was provided on the extent and impacts of unmanaged fire. Fire threatens life and property, reduces feed for stock, affects tourists' perceptions of the region, can damage cultural sites, and is costly and dangerous to manage. In addition to these socio-economic impacts, most people agreed that fire was the issue that most threatened the biodiversity of the region. Fire is occurring late in the dry season, too frequently, and fires are too large, too intense and burn for too long. The result is habitat loss and fragmentation, and ultimately, loss of biodiversity as the landscape becomes increasingly homogenised.

The causes of wildfire were discussed in some community forums and meetings, with arson, non-traditional burning and unmanaged campfires considered key contributors.

It was generally agreed that early-dry season prescribed burning programmes were required to avoid high intensity wildfires in the late-dry season. It was also agreed that fire management was best achieved through a coordinated approach between land managers, including Aboriginal people, pastoralists, local government, the Fire and Emergency Services Authority and DEC. Aboriginal people expressed a desire to be involved in fire management to reintroduce traditional burning practices and have the opportunity to teach these practices to young people.

The need for good information to inform fire planning and measure the success of fire management was identified.

The Ecofire project was consistently raised as a successful model for collaborative fire management.

It was suggested by a number of participants that there should be an education programme on fire management, to encourage responsible fire practices within the community, and by travellers, pastoralists and Aboriginal communities. It was noted that Aboriginal elders could help to promote good fire management and discourage arson.

The opportunity to develop a carbon economy through improved fire management, as well as based on natural carbon storage capacity, was recognised by a number of organisations.

The following submissions provided specific comment on fire.

Australian Wildlife Conservancy

CSIRO

Department of Agriculture and Food

Department of Planning

Hams, Phillip (Gogo Station)

Kimberley Aboriginal Law and Culture Centre

Kimberley Land Council

Kununurra Visitors Centre and Kununurra Chamber
of Commerce

Lewis, Jan (Broome)

Miriuwung-Gajerrong Aboriginal Corporation

Pastoralists and Graziers Association of Western
Australia Inc.

Pew Environment Group, The Wilderness Society,
WWF-Australia, Environs Kimberley, Australian
Conservation Foundation, Conservation Council of
Western Australia

Shire of Derby-West Kimberley

Shire of Wyndham-East Kimberley

The Chamber of Minerals and Energy
Western Australia

Western Australian Tropical Research Initiative

Windjana Day Tours and West Kimberley Tours

Weeds

Weed invasion was identified consistently through the consultation process as a threatening process in the Kimberley, which required a coordinated response across the landscape. The Kimberley is considered to be relatively intact, that is, it has a relatively low level of weed infestation in comparison to other parts of Australia.

Weeds choke or out-compete native plants, reduce habitat for fauna and add to fire fuel loads, resulting in loss of biodiversity and homogenisation of the landscape. The impact of weeds is often compounded in disturbed landscapes, for example, in areas with altered fire regimes or where clearing has occurred.

It was suggested that quarantine measures should be established in some areas.

The following submissions provided specific comment on weeds.

Australian Wildlife Conservancy

Charles Darwin University

CSIRO

Department of Planning

Lewis, Jan (Broome)

Pew Environment Group, The Wilderness Society,
WWF-Australia, Environs Kimberley, Australian
Conservation Foundation, Conservation Council of
Western Australia

Resort Lake Argyle

Feral animals

Feral animals, such as cats, unmanaged cattle, pigs, cane toads, camels, horses and donkeys were identified as threats to the biodiversity of the region, which required a coordinated response across the landscape. The impact of feral animals is likely to be compounded in landscapes already subject to disturbance, such as through altered fire regimes and weed invasion.

In particular, feral cats were raised as a concern because they predate on native wildlife. It is estimated that one feral cat is likely to eat up to five small animals per day. Research on effective management controls for feral cats in the Kimberley was proposed, including the link between cat and dingo numbers.

Unmanaged cattle are considered destructive, particularly in wetland areas, because they graze on and trample vegetation, opening up areas to weed invasion and fire. Allocating increased resources for improved management of cattle was suggested.

Pigs are thought to be an issue around Lake Argyle and in the northern Kimberley. Pigs are extremely destructive in their feeding habits, causing widespread loss of vegetation which leads to erosion.

There was much concern about the anticipated impact of cane toads on the biodiversity of the Kimberley, although a number of participants considered cats, unmanaged cattle and pigs to constitute greater threats to biodiversity than posed by cane toads. There were calls for further research on biological controls for cane toads, along with support for efforts to delay the advancing cane toad front.

Camels are an issue in the southern Kimberley and can cause extensive erosion, particularly leading to and around water sources.

Wild horses and donkeys also impact on water sources and cause associated erosion problems.

Suggested management controls for pigs, camels, wild horses and donkeys included resources for aerial shooting programmes and strategic fencing.

The following submissions provided specific comment on feral animals.

Australian Wildlife Conservancy
Department of Agriculture and Food
Pew Environment Group, The Wilderness Society,
WWF-Australia, Environs Kimberley, Australian
Conservation Foundation, Conservation Council of
Western Australia
Stop the Toad Foundation Inc.

Resources industry

The value of the resources industry was recognised by numerous submissions. This sector is the major contributor to the Kimberley's gross regional product. The environmental performance of the resources sector, which is highly regulated, was also recognised.

The rich prospectivity of the region was also commented on.

Projections for continuing growth in the resources sector were provided, highlighting the need for planning to ensure appropriate infrastructure is in place.

A number of resource companies provided information on their interests and operations in the Kimberley. Argyle Diamond Company was mentioned in numerous submissions as having an outstanding programme for Aboriginal employment and training.

It was suggested that the Western Australian Government could commit to ensuring that the royalties of the resources developments in the Kimberley were invested in the communities of the region. It was also suggested that there should be an audit of exploration permit holders to ensure they were investing in the permits.

The following submissions provide comment and information on the resources industry.

Australian Petroleum Production and Exploration
Association Ltd
Department of Mines and Petroleum
Grant, Caroline (Perth, Western Australia)
Kimberley Development Commission
Kimberley Diamond Company
Kimberley Metals Group

Martin, Carol, MLA (Member for Kimberley)
Panoramic Resources
Pew Environment Group, The Wilderness Society,
WWF-Australia, Environs Kimberley, Australian
Conservation Foundation, Conservation Council of
Western Australia
Pluton Resources Ltd
The Association of Mining and Exploration
Companies Inc.
The Chamber of Minerals and Energy
Western Australia
Woodside Energy Pty Ltd

Pastoral industry

The pastoral industry is the predominant single land use in the Kimberley, covering over half of the region's area. Given the extent of pastoral properties, it was observed through the process that any discussions on land management for conservation in the region must consider this group.

The value of the pastoral industry was recognised. A number of people commented that sustainable rangeland management underpinned the productivity of the pastoral industry.

Fires were identified as a key issue for pastoralists. Like all land managers in the Kimberley, fire management is expensive for pastoralists, particularly where wildfires burn uncontrollably and threaten lives and infrastructure.

Feral animals were also raised as an issue for pastoralists, particularly horses and donkeys, and camels in the desert region. Feral animals compete with stock for feed and can create erosion around water sources.

Comments were also made on the need to increase pastoral lease tenure, and support diversification and investment on pastoral leases. The implication of national heritage was also an issue of concern for pastoral industry representatives. These issues are dealt with under the relevant headings.

It was suggested that country found to be unsustainable for grazing should be fenced and managed for conservation.

The following submissions commented on the pastoral industry.

Australian Wildlife Conservancy
Barrett, R and J (formerly of Charnley River Station)
Baston, Hon Ken, MLC (Member for Mining and Pastoral)
Bunuba Aboriginal Corporation Inc. and Northern Australia Land and Water Taskforce
Colero, Kim (Western Australian Fishing Industry Council and Marine Parks and Reserves Authority)
Department of Agriculture and Food
Hams, Phillip (Gogo Station)
Martin, Carol, MLA (Member for Kimberley)
Pastoralists and Graziers Association of Western Australia Inc.
Pew Environment Group, The Wilderness Society, WWF-Australia, Environs Kimberley, Australian Conservation Foundation, Conservation Council of Western Australia
Shire of Derby-West Kimberley
WA Farmers Federation

Agriculture industry

Irrigated agriculture occurs around the Ord and near Broome and the value of the industry was recognised by a number of submissions. Irrigated agriculture is a developing industry for the region. The economic and social development opportunities associated with Ord-East Kimberley Expansion Project were recognised. This expansion project will double the size of the Ord irrigation area to 28,000 hectares. Ostensibly there is general support for the expansion of irrigated agriculture through the expansion project.

The following submissions commented on the agriculture industry.

Department of Agriculture and Food
Kimberley Development Commission
Pew Environment Group, The Wilderness Society, WWF-Australia, Environs Kimberley, Australian Conservation Foundation, Conservation Council of Western Australia
Shire of Wyndham-East Kimberley
Western Australian Farmers Federation

Fishing industry

The value of the fishing industry was recognised. Existing commercial fishing effort within the Kimberley region is not considered great relative to other regions, and it is considered unlikely to increase significantly in the foreseeable future.

The issue of increasing recreational fishing, associated with increased development around existing town sites (in particular Broome), as well as proposed new industrial sites, was recognised.

The commercial fishing industry provided information on the regulation of fisheries to ensure sustainable yields and noted that fisheries licence holders provided valuable information and data to the Department of Fisheries so that resources could be quantified and studied. Commercial fishers also provide a surveillance presence in the more remote parts of the Kimberley.

Information was provided on voluntary accords established between recreational, charter and commercial fishing sectors to negotiate and develop practical and sustainable solutions to increasing conflict and sustainability concerns.

Fisheries representatives gave in principle support for marine reserves but commented that any commercial fisheries displaced due to the establishment of sanctuary zones should be compensated.

Concerns were raised in the Broome community forum and by the commercial fishing industry over the destructive environmental impacts of bottom trawling and the proposed lifting of a two year trawling ban that would allow Commonwealth licensed trawlers into State waters.

The following submissions commented on the fishing industry.

Department of Fisheries
Kimberley Professional Fishermen's Association
Marine Parks and Reserves Authority
Millington, Peter (Chemistry Centre of WA and formerly Department of Fisheries)
Pew Environment Group, The Wilderness Society, WWF-Australia, Environs Kimberley, Australian Conservation Foundation, Conservation Council of Western Australia
Western Australian Fishing Industry Council

Pearling and aquaculture industries

The value of the pearling and aquaculture industries was recognised, along with the industries' requirements for a clean marine environment. It was noted that the pearling and aquaculture industries had minimal impact on the marine environment.

The employment opportunities provided by the pearling and aquaculture industries in remote parts of the Kimberley was recognised.

Marine planning was recognised as valuable for the pearling and aquaculture industries as a means to protect biodiversity values, identify areas with social and economic values, and give effect to the allocation of different resources. It was noted that clear marine planning would also facilitate investment in marine based industries. Submissions noted that pearling and aquaculture were compatible with marine parks (except for sanctuary zones).

The introduction of marine pests and pollution are critical threats to the pearling and aquaculture industries, and concern was expressed over the projected increase in shipping activity along the Kimberley coast including with the development of the Browse Basin.

The following submissions commented on the pearling and aquaculture industries.

Aquaculture Council of Western Australia

Department of Fisheries

Marine Parks and Reserves Authority

Pearl Producers Association

Pew Environment Group, The Wilderness Society, WWF-Australia, Environs Kimberley, Australian Conservation Foundation, Conservation Council of Western Australia

Western Australian Fishing Industry Council

Tourism and recreation industries

The value of the tourism industry was recognised, particularly the opportunities it afforded for development that is compatible with conservation and cultural heritage, and for the involvement of Aboriginal people. There was broad support for the tourism industry as part of the future of the region. It was recognised that tourism in the Kimberley was nature-based.

Many people commented on the need to maintain 'wild' and remote visitor experiences in the Kimberley. Comments were made that there was a demand for formal walk trails in parks. The opportunity to develop high quality nature-based tourism operations in parks through public-private partnerships, such as the facilities at Purnululu National Park, was recognised.

It was noted by several participants that the Kimberley landscape lends itself to sightseeing from the air, and two proposals were put forward on how to facilitate this.

Some evidence was presented on the need to manage tours in certain locations, particularly cruise tourism in a number of iconic sites along the coast that were naturally and culturally sensitive. These sites were receiving increasing numbers of visitors and the issue was raised not only for the need to protect the sites, but to maintain visitor experiences. The establishment of terrestrial and marine conservation reserves over these areas was raised as a mechanism to deal with this issue.

The requirement to obtain approval from traditional owners to visit some areas was also discussed, and some Aboriginal participants noted that tour operators often do not seek approval for access. Some suggested a permit system be put in place.

Development, particularly in the resources sector, was identified as a catalyst for increasing recreational pressure within a radius of the development or population centre. This has been seen in the Pilbara, where some natural areas and parks have received a dramatic increase in visitor numbers from mine workers who choose to recreate there. It was suggested that such social impacts of development should be considered in approvals processes.

The following submissions commented on the tourism industry.

Baston, Hon Ken, MLC (Member for Mining and Pastoral)

Cameron, David (Kimberley Society, Perth)

Diversity Charter Company and Reel Teaser Charters

Ellis, Robyn (Faraway Bay)

Forum Advocating Cultural and Eco Tourism

Kimberley Land Council

Kununurra Visitors Centre and Kununurra Chamber of Commerce

Leave No Trace Australia Ltd

Pew Environment Group, The Wilderness Society, WWF-Australia, Environs Kimberley, Australian Conservation Foundation, Conservation Council of Western Australia

Torres, Owen (Djabera Djabera people)

Tourism WA

Western Australian Planning Commission and Department of Planning

Windjana Day Tours and West Kimberley Tours

Proximity to south-east Asia

The region's proximity to south-east Asia was mentioned by some as a market opportunity, but also a threat in terms of biosecurity issues, such as the introduction of pests and weeds, and the impact of illegal fishing on fish stocks and the local commercial fishing industries. In relation to tourism, the region's proximity to the transport hubs of Singapore and Kuala Lumpur was noted as a comparative advantage.

The following submissions commented on the region's proximity to south-east Asia.

Baston, Hon Ken, MLC (Member for Mining and Pastoral)

Department of Agriculture and Food

Leave No Trace Australia Ltd

Western Australian Fishing Industry Council

Port facilities

The opportunities and limitations of port facilities in Wyndham, Derby and Broome arose during the discussions and the proposal for a port at Point Torment, north of Derby, was also raised. Port facilities were discussed at community forums in Wyndham and Derby.

The Broome Port Authority provided details on Port of Broome operations, and commented that the volume of activity in the port was expected to increase with the development of offshore LNG reserves, growing demand for Kimberley beef cattle and increase in cruise ship visits. The Authority's submission also addressed its management arrangements in relation to oil spill response, safety, operations and partnerships in relation to its location on Roebuck Bay, and its excellent relationship with traditional owners.

The complexities and risks created by the macro-tides were recognised as issues for ports in the Kimberley, particularly for Wyndham and Derby ports. The cost of shipping through ports was also raised, and a number of people noted that transport by road or rail was often a more economical option.

A number of participants commented on the need to upgrade port facilities in Wyndham and Derby. The proposal for port facilities at Point Torment was strongly supported by the Shire of Derby-West Kimberley.

The following submissions comments specifically on ports or proposed port facilities.

Baston, Hon Ken, MLC (Member for Mining and Pastoral)

Broome Port Authority

Department of Agriculture and Food

Kimberley Development Commission

Martin, Carol, MLA (Member for Kimberley)

Shire of Derby-West Kimberley

Shire of Wyndham-East Kimberley

The Chamber of Minerals and Energy Western Australia

Kimberley Browse LNG Precinct

Whilst the LNG precinct is subject to a different process (which has been noted in the overview), several people asked for their objections to the proposed precinct at James Price Point to be noted in this process, and they are listed below. This was also raised at the Broome workshops.

Bradley, Susan (Doongan-Theda Stations)

Environs Kimberley

Griffen, Dane (Cottesloe)

Lewis, Jan (Broome)

McInnes, Craig (Mudjimba, Queensland)

Torres, Owen (Djabera Djabera people)

Williman, Tina

National heritage assessment

It was recognised that the Commonwealth Government was undertaking a national heritage assessment of the Kimberley, to determine whether the area contains national heritage values that should be included on the National Heritage List. Most submitters who mentioned the national heritage assessment called for the State Government to support the assessment and ensure that there was no duplication between it and the Kimberley Science and Conservation Strategy.

Some Aboriginal representatives and pastoral industry representatives and raised concern over the implications of national heritage.

The following submissions raised national heritage.

Kimberley Aboriginal Law and Culture Centre

Kimberley Land Council

Pastoralists and Graziers Association of Western Australia Inc.

Pew Environment Group, The Wilderness Society, WWF-Australia, Environs Kimberley, Australian Conservation Foundation, Conservation Council of Western Australia

Other issues

A range of other issues was raised through the consultation process, some relating to broader regional development issues in the Kimberley, which were commented on by one or two submitters.

TIDAL ENERGY

The opportunity for energy to be generated from the macro-tidal movements in the Kimberley was raised, with the recommendation that high voltage direct current (HVDC) transmission systems be used. Substantial background material was provided on this topic.

Tuckey, Hon Wilson, MP (Member for O'Connor)

PROPOSALS FOR SOCIAL FACILITIES AND INFRASTRUCTURE

A number of proposals for social facilities and infrastructure across the region were presented. These included community facilities and programmes, as well as investments in roads and airstrips.

Martin, Carol, MLA (Member for Kimberley)

TANAMI ROAD

The poor condition of the Tanami Road was raised by Yougawalla Station as an issue for pastoralists, Aboriginal communities, tourists and commercial traffic. It was suggested that the road is of significance to the State and should be sealed to facilitate development in the east Kimberley and match the sealing of the Northern Territory portion.

Baston, Hon Ken, MLC (Member for Mining and Pastoral)

Yougawalla Station, Doug Flynn

TOWNSCAPE

The need to enhance townscapes and a 'sense of place' within Kimberley townsites was raised, along with the need to manage the aesthetic and environmental impacts of litter.

Kununurra Visitor Centre and Chamber of Commerce

ROLE OF THE CHAIRMAN

Positive feedback was received in relation to the Chairman's role by a number of people. Concern over the role of the Chairman was formally raised by two people. This matter was not raised at any forum or workshop.

Lowe, Pat (Broome)

Pritchard, Martin (Environs Kimberley, Broome)

Results of the process

Through the forums, workshops and meetings, there was a general call for feedback on the implementation of the strategy to be provided to the community.

ACRONYMS

AIMS	Australian Institute of Marine Science
ATSIC	Aboriginal and Torres Strait Islander Commission
AMEC	Association of Mining and Exploration Companies
APPEA	Australian Petroleum Production and Exploration Association
AQIS	Australian and Inspection Service
CDEP	Community Development Employment Projects
CSIRO	Commonwealth Scientific and Industrial Research Organisation
DAFWA	Department of Agriculture and Food, Western Australia
DEC	Department of Environment and Conservation
DEWHA	Department of the Environment, Water, Heritage and the Arts
DSD	Department of State Development
FACET	Forum Advocating Cultural and Eco Tourism
FESA	Fire and Emergency Services Authority
IPA	Indigenous Protected Area
KALACC	Kimberley Aboriginal Law and Culture Centre
KARG	Kimberley Aboriginal Reference Group
KDC	Kimberley Development Commission
KFA	Kimberley Foundation Australia
KLC	Kimberley Land Council
LNG	Liquefied natural gas
MG	Miriuwung Gajerrong
NRM	Natural Resource Management
PGA	Pastoralists and Graziers Association
STCRC	Sustainable Tourism Cooperative Research Centre
TAFE	Technical and Further Education institution
WAMSI	Western Australian Marine Science Institution
WAPC	Western Australian Planning Commission
WATRI	Western Australian Telecommunications Research Centre
WWF	World Wide Fund for Nature



Kimberley