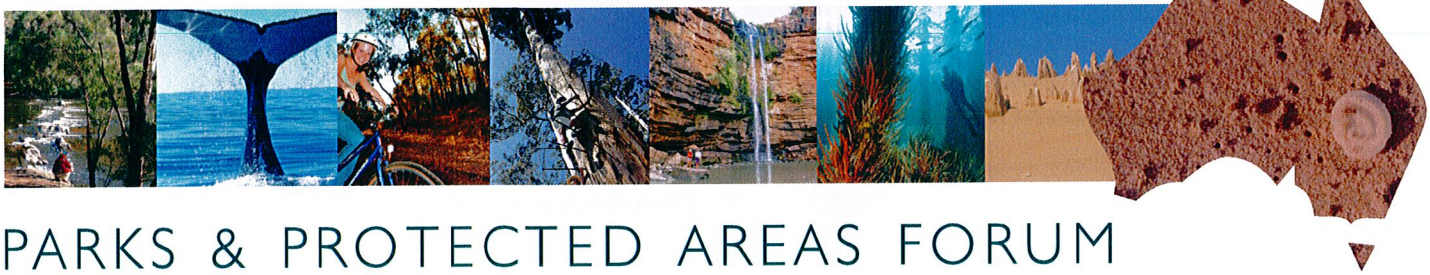

PARKS & PROTECTED AREAS FORUM

a sense of place, for all people, for all time

PROGRAM AND PROCEEDINGS

(includes papers and abstracts)

23 - 26 September 2007

Esplanade Hotel, Fremantle
WESTERN AUSTRALIA

easybeinggreen

PUBLISHED BY PROMACO CONVENTIONS PTY LTD

PARKS & PROTECTED AREAS FORUM

a sense of place, for all people, for all time

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Healthy Parks Healthy People

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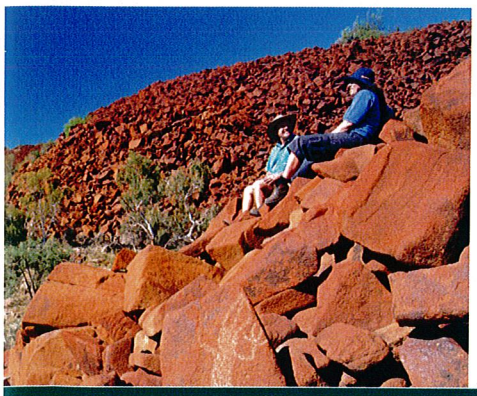

FORUM HOSTS

Conservation Commission Western Australia

Government of Western Australia
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Our environment, our future

FACET

Conservation Council of Western Australia Inc.

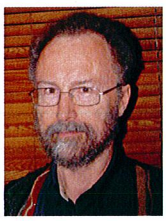
WCPA
World Commission on Protected Areas

Parks Forum
Parks Connecting Communities

MPRA
Marine Parks & Reserves Authority

23-26 SEPTEMBER 2007
ESPLANADE HOTEL, FREMANTLE, WESTERN AUSTRALIA

WELCOME FROM THE CHAIR



National parks and other terrestrial and marine protected areas are our shared contribution to living with, caring for and valuing our natural and cultural diversity. The natural and cultural values found within our parks and protected areas are of global significance and merit conservation and interpretation for this reason alone. Equally, these areas provide a sense of place, locations where people from varied backgrounds, both Indigenous and non-Indigenous, can meet, spend some time, and work together with a common purpose. In this way parks and protected areas provide social values that reach beyond their immediate boundaries and provide bridges and overcome barriers. This is our hope and vision.

Parks and Protected Areas promote a sense of wellbeing, for all people, not only for those who visit our parks but even for those who may only drive through them or gain comfort by knowing that they are there. In our busy and often stressful lives, natural areas provide a space in which we can stop, rest and recover, and from which inspiration can arise.

To realise our hope and deliver on our vision requires that we re-value our parks and protected areas and define an Agenda for Action that has meaning for all those who care for these areas and to guide them in their own programs and actions in protecting these areas for all time.

The Parks and Protected Areas Forum; a sense of place, for all people, for all time, will raise public awareness and support for a secure, publicly owned and publicly managed network of protected areas, of which national parks and marine parks are the cornerstone. This forum will emphasize the value of the protected area network while recognising the importance of private and other government initiatives.

On behalf of the participating organisations, I have great pleasure in welcoming you to this inaugural forum. We invite your contribution in developing the Agenda and celebrating and re-valuing our parks and protected areas. A range of outstanding speakers will give key presentations and others will share their stories and champion the importance of parks and protected areas in providing a sense of place, for all people, for all time. I look forward to meeting with you during the Forum.

John Bailey
Forum Chair

FORUM OVERVIEW

The Parks and Protected Areas Forum is divided into three related and equally important parts. While there is some overlap between the days, days one and two will provide an opportunity for our keynote speakers to present key challenges for protected areas, day three will focus on the experiences of a wide variety of park users and day four will help to establish an agenda for action, with a choice of five optional field trips offered to delegates.

PART 1: KEYNOTE SPEAKERS

A selection of keynote speakers will set the scene for the Forum. The Hon Bob Carr will talk about his legacy in NSW where his Government was able to create 350 new national parks. Perspectives from the international scene, through the national to the local will be provided by speakers including Paul Eagles, Peter Cochrane, Chris Haynes, Keiran McNamara and Chris Tallentire. More focused talks will be given by Imogen Zethoven, Pierre Horwitz, and Graeme Worboys.

We have also sought speakers who can offer some different insights into our parks and protected areas. These insights are more concerned with the values of our conservation areas than with their science and management. Thus, David Milroy on behalf of Sally Morgan, will speak on Country and Penny Figgis on values. Other speakers will talk about parks and their contributions to both physical and mental health. The economic value of these areas will also be included.

As you will see, we have brought together people from government and community backgrounds and with many different interests reflecting the themes of the Forum: a sense of place, for all people, for all time.

PART 2: STORIES FROM OUR PARKS

Tuesday will be mostly devoted to hearing about individual stories from our parks. Some of these stories will be scientific, but most will range widely and encompass people who have worked for the creation of new parks and protected areas, those who speak for people who visit our parks, and also for the interests of Aboriginal owners and joint managers.

Once again we have tried to be different and have included in the program less well represented aspects: fungi and islands, geoheritage and the importance of local communities. We also will examine the important and complementary values of private conservation initiatives and other partnerships.

WHO WILL BENEFIT

Any person who has a passion for parks and protected areas and wishes to seek partnerships to enable these precious areas to continue to provide a sense of place, for all people, for all time.

PART 3: AN AGENDA FOR ACTION

A draft Agenda for Action prepared by the organising committee on behalf of the host organisations, has been emailed to you and a copy is also included within this book. You are encouraged to discuss the draft over coffee and lunch. During the Wednesday field trips you will have more time to talk about our ideas and develop your own.

Our hope is that you will be able to find the time to comment and respond to the draft and let us know what you think by mid-October. The host organisations will then develop a final Agenda for Action to guide their future programs and actions.

CONNECTION TO COUNTRY

Aboriginal peoples' connection to Country is celebrated throughout the Forum. This has been done through the Welcome to Country and Dreaming of Protected Places, as well as through the Aboriginal speakers themselves.

The Welcome to Country will be a little different and will involve active participation from delegates. Likewise the closing ceremony will feature a performance around the theme of "our dreaming places".

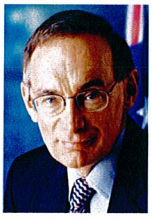
A message stick will also be used to link the speakers across the days of the Forum.

The organising committee is committed to ensuring that the Forum is carbon neutral.

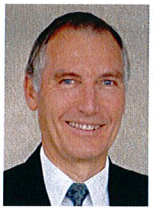
PARKS & PROTECTED AREAS FORUM

a sense of place, for all people, for all time

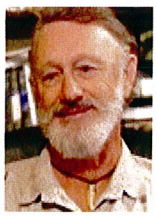
INVITED SPEAKERS INCLUDE



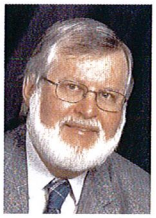
The Honourable Bob Carr worked as a journalist for ABC Radio and The Bulletin before entering politics. He served as Minister for Planning and Environment 1984 - 1988 and Minister for Heritage 1986 to 1988 and was Leader of the Opposition from 1988 until his election as Premier of New South Wales in 1995. He retired from politics in 2005 after 10 years as Premier – the longest continuous term served by any Premier in NSW history. Amongst his achievements was the creation of more than 350 new national parks in NSW. Bob has received wide international recognition including the Fulbright Distinguished Fellow Award Scholarship and World Conservation Union International Parks Merit Award. He has served on the International Climate Change Taskforce and as Honorary Scholar of the Australian American Leadership Dialogue. He is also Chair of the Climate Institute Advisory Council; Chair of the Board of the Asbestos Diseases Research Foundation; and a member of the India Council for Sustainable Development.



Peter Cochrane was appointed Director of National Parks in October 1999 and reappointed in October 2002 and again in November 2005. Two of his priorities have been building relationships with traditional owners of jointly managed parks, and improving agency corporate governance, accountability and transparency. Peter has worked for the oil and gas industry on national environment and competition policy issues and as an adviser to two federal Ministers on environment and natural resources issues. He has a background in field ecology and eco-physiology of native plants. Peter has a Masters degree in Public Policy and a Bachelor of Science.

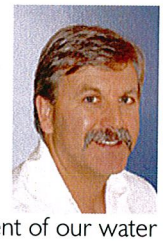


Malcolm Douglas is involved with campaigning to keep the Kimberley as a vast pristine wilderness area. He is very concerned about the huge LNG plants that are planned for the Kimberley coast. Over the next ten years Malcolm will devote time to having a section of the west Kimberley coast and its hinterland gazetted on the World Heritage list. He intends to make his first public statement on this important project during the Forum.



Dr Paul F J Eagles is a Professor at the University of Waterloo in Canada. He is a biologist and planner, specialising in environmental planning and with a strong emphasis on the planning and management of parks and protected areas. Over the last 20 years, he has undertaken international work in nature-based tourism and park tourism, with experience in more than 25 countries. Since 1996, he has been the Chair of the Task Force on Tourism and Protected Areas for the World Commission on Protected Areas of the World Conservation Union based in Switzerland. Professor Eagles co-authored the book, *Sustainable Tourism in Protected Areas: Guidelines for Planning and Management* (2002), with Stephen McCool of the USA and Chris Haynes of Australia. This was co-published by the World Conservation Union, the World Tourism Organisation and the United Nations Environment Program as a contribution to the UN Year of Ecotourism. Also in 2002, Paul (with Stephen McCool), published *Tourism in National Parks and Protected Areas: Planning and Management*. In April 2007, *Tourism and Protected Areas: Benefits beyond Boundaries* was released. This was coedited with Robyn Bushell of Australia.

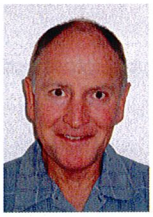
Penelope Figgis AO is Vice Chair for Australia and New Zealand of the IUCN World Commission on Protected Areas. She is also Chair of the Parklands Advisory Committee, board member of the Parklands Foundation and the People and Parks Foundation, member of the Northern Territory Parks and Wildlife Advisory Council and a Visiting Fellow at the Graduate School of the Environment, Macquarie University. Penelope has been a senior member of the Australian environment movement for nearly 30 years. A political scientist by training, she was national lobbyist with the Australian Conservation Foundation in the early eighties and later Council member and Vice President for seventeen years. Her key expertise is in biodiversity conservation, protected area policy and sustainable tourism. In 1994 she was made a Member of the Order of Australia (AM) for her services to conservation and the environment, in 2003 was awarded the Centenary Medal for outstanding contribution to the environment and on Australia Day 2006 was awarded an Officer in the Order of Australia (AO) for service to the environment, nature conservation and sustainable tourism.



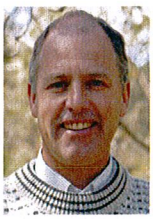
Dr Tom Hatton is Director, Water for a Healthy Country Flagship and is responsible for the management and delivery of science to address one of Australia's biggest challenges - the sustainable management of our water resources. Prior to this appointment , Tom was Deputy Chief of CSIRO's Land and Water Division. He has 25 years research experience, nationally and internationally, in a broad range of land and water related disciplines including forest productivity, ecology, bushfire science, ecohydrology, water allocation, salinity and catchment hydrology. Tom has made significant advances in the understanding of ecosystem dependence on groundwater, and the management and future of our salinising landscapes. He has wide-ranging expertise in building and managing multi disciplinary research teams to solve scientific and water resource management issues.

23-26 SEPTEMBER 2007
ESPLANADE HOTEL, FREMANTLE, WESTERN AUSTRALIA

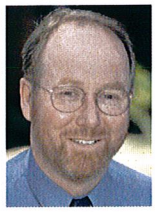
INVITED SPEAKERS INCLUDE



Chris Haynes became involved with protected areas in 1978 when he joined the then, Australian National Parks and Wildlife Service as a project officer with responsibility for the development of the (not yet declared) Kakadu National Park. He was selected on the strength of his experience in working with Aboriginal people, having previously worked as a forester in South Australia and the Northern Territory, especially with traditionally oriented Aboriginal people in Arnhemland. He was the first Kakadu park manager in 1979 with responsibility for the development of Kakadu, Uluru and other protected areas, before becoming the first Director of National Parks in the new Department of Conservation and Land Management in WA in 1985. Director there until 1994, he then assumed responsibility for the department's regional services. Chris retired in 1997 but continued to work as a consultant on land management and protected area issues. He returned to work as park manager of a now very much expanded Kakadu in 2002. After retiring (yet again) he returned to academic study and is currently completing a doctorate on joint management of Kakadu.



Associate Professor Pierre Horwitz currently works at Edith Cowan University. Pierre's research experience covers the ecology of wetlands and rivers, environmental policy (in the areas of forests and wetlands), matters of science and trust in government processes, with a particular interest in history of land and water use in Australia and the relationships between human health and the health of their surrounding ecosystems. The author of numerous books, papers and reports for government and industry, he is currently a coeditor of the international journal EcoHealth. In 1994, Dr Horwitz discovered a new genus of frog (the sunset frog) in the peatlands of southwestern Australia. He also successfully nominated the Tasmanian giant freshwater crayfish for formal recognition as threatened under the Commonwealth's *Environment Protection and Biodiversity Conservation Act 1999*, this species being the first invertebrate in Australia to receive that dubious honour.



Keiran McNamara is the Director General of the WA Department of Environment and Conservation (DEC) which was established in July 2006. He was previously the CEO of the WA Department of Conservation and Land Management (CALM), since July 2001. The Department is responsible for environmental protection, the management of terrestrial and marine conservation reserves and for the conservation of biodiversity in Western Australia. Keiran was employed in the Commonwealth Government's nature conservation agency from 1978 to mid 1985, and has since been with CALM and DEC. He has served on a wide range of State, national and international committees and boards concerned with conservation, including the national Biological Diversity Advisory Committee and membership of the World Conservation Union's Commission on Protected Areas and Species Survival Commission, and standing committees of CEOs serving national Ministerial Councils.

Sally Morgan is a Palyku woman from the Pilbara in Western Australia. She is well known to Australians as both a writer and visual artist. *My Place*, Sally Morgan's first book, was chosen to be part of the 2003 *Books Alive* campaign, the biggest promotion of books and reading ever undertaken in Australia. My Place achieved immediate best-seller status when it was first published and has since sold over half a million copies in Australia. Now published worldwide, it tells the story of extended family, the treatment of Australia's Aboriginal people, and history lost and found. Currently Sally works at the School of Indigenous Studies, University of Western Australia.

David Milroy will make the presentation on behalf of Sally Morgan.

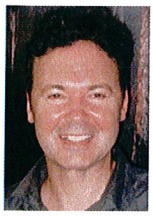
Richard Muirhead is the Chief Executive Officer of Tourism Western Australia. Richard joined the WA Public Sector in 1987, bringing with him some 14 years of private sector experience in market research and marketing, including in his own company. He originally joined the (then) WA Technology & Industry Development Authority (TIDA) as the Director of the Marketing Division. Apart from two years in London (1990-1991) as Director of Trade and Investment of the Western Australian European Office, he remained with the Department in its various guises as Executive Director of Trade and Industry Development until 1997. In mid-1997 he was appointed Chief Executive Officer of the WA Department of Commerce & Trade, the State's premier industry and trade development agency - a post he held until May 2001, when he left to head up Tourism Western Australia.

Jenny Pickworth is a commercial lawyer with broad experience in the health industry. She has worked in the private legal sector and as a consultant to the Minister for Health and the Department of Health. Currently Jenny is working as a consultant to the State's Health Reform Implementation Taskforce and to the Department of Health and the Metropolitan Health Service on a range of diverse projects, including implementation of the State's Mental Health Strategy 2004 -2007. She is a member of the board of beyondblue Ltd, the National Depression Initiative and was Deputy Chair to the Hon Jeff Kennett for beyondblue's initial five year funded term from 2000 to 2006. Jenny was recently appointed chair of a joint Ministerial Taskforce looking at appropriate education and training for the WA Health workforce for the future.

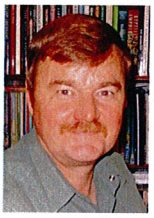
PARKS & PROTECTED AREAS FORUM

a sense of place, for all people, for all time

INVITED SPEAKERS INCLUDE



Chris Tallentire was appointed Director of the Conservation Council of WA in March 2004 and has been with the Council since 2001. He was formerly a senior environmental officer with the Water and Rivers Commission and Department of Environmental Protection. After working in Europe for 10 years, Chris returned to work as WA's Cool Communities facilitator using innovative community projects and policy to reduce greenhouse gas emissions. Chris believes the unique natural heritage of Australia is our greatest treasure, and that a full understanding of our natural environment is critical to the development of a well founded national identity. Chris has been committed to the Stop The Toad campaign since March 2005, when he presented at the Kununurra cane toad forum. Here he learnt of the scale of the ecological threat posed by toads, and of the potential for WA to take action and keep the state toad free. In response to the Kununurra forum the Conservation Council of WA held a forum in Perth, which was attended by over 300 people.



Graeme Worboys has over 34 years' protected area management experience and is Vice Chair (Mountains Biome) for the IUCN (The World Conservation Union) World Commission on Protected Areas (WCPA). He has worked as a ranger, park superintendent, regional manager and executive director with the New South Wales National Parks and Wildlife Service and as a protected area management consultant. Graeme is working for WCPA on connectivity conservation internationally in Australia and in 2007 he was appointed by the NSW Government as a member of its Environmental Trust subcommittee for the Alps to Atherton connectivity conservation initiative.

Dr David Wood is Executive Dean of Humanities at Curtin University of Technology. Recent positions held at Curtin University include Deputy Executive Dean of Humanities, Director of International programs and Dean of Research and Creative Production. David holds senior positions on the State Government's peak planning boards including: Chair of the State's Coastal Planning and Coordination Council and the Ningaloo Sustainable Development Committee; Commissioner of the Western Australian Planning Commission; and member of the Steering Committee for the Western Australian State of the Environment Report. David's primary research interest is sustainable tourism in remote regions and its impact on local and regional development. David recently embarked on a three year, $3million, National CSIRO/Sustainable Tourism Cooperative Research Centre research project examining the socio-economic impacts of tourism to Ningaloo.

Imogen Zethoven AO, coordinates The Wilderness Society's national campaign to prevent the expansion of a nuclear industry in Australia and to promote safe solutions to climate change. She previously worked for WWF, the global conservation organisation. Based in Berlin, Imogen led WWF's global climate change campaign, PowerSwitch!, and in Brisbane she ran WWF's Great Barrier Reef campaign which resulted in the world's largest network of highly protected areas in the marine environment. Imogen has worked for a number of environment non government organisations, including as Coordinator of the Queensland Conservation Council for five years and as a policy analyst with the ACF. She also worked as a political advisor at the Federal level. In 2006, Imogen was made an Officer of the Order of Australia for service to conservation and the environment. In 2004, she was a co-recipient of the Fred M Packard International Parks Merit Award at the World Conservation Congress, with the Hon Virginia Chadwick, Chair of the Great Barrier Reef Marine Park Authority.

PHOTO COMPETITION: **Parks and Protected Areas Photography Competition**

Sponsored by Portside Duty Free and Retail, High Street, Fremantle and LANDSCOPE Expeditions

To promote the value of WA's national parks and other terrestrial and marine protected areas the forum organisers invited amateur photographers to enter a nature photography competition with the theme *Parks and Protected Areas*. Entrants were asked to capture the value and meaning of these precious areas and share their own unique experience of a park or protected area through their photographs.

The competition offered two junior categories and three open categories: primary school; secondary school; seascape; landscape and wildlife.

The winner of each category will receive photography equipment valued at $500 generously donated by Portside Duty Free and Retail of High Street in Fremantle.

The overall winner from the 5 categories receives a place on a LANDSCOPE Expedition, giving them a once-in-a-lifetime opportunity to take part in a study and research project on an expedition in 2008.

The committee were delighted by the response and the 23 selected Finalists will be on display during the Forum with key attendees judging the final winners.

The prizes will be awarded during the Forum Dinner on Monday 24 September 2007.

23-26 SEPTEMBER 2007
ESPLANADE HOTEL, FREMANTLE, WESTERN AUSTRALIA

FORUM PROGRAM

REGISTRATION DAY: SUNDAY 23 SEPTEMBER 2007		VENUE: Sirius Ballroom
11.30am	Registration desk opens in the Southern Cross Foyer	
	WELCOME AND OFFICIAL OPENING CHAIR: Ross Dowling (Chair, FACET)	
1.00pm	**OPENING PERFORMANCE**	Walk it, feel it connect in this space. Lead by local dancers, you will be invited to feel the land on which we will meet
	Welcome to Country	Richard Wilkes, Noongar Elder
1.30pm	**Opening Address**	The Hon David Templeman MLA Minister for the Environment; Climate Change; Peel
	SETTING THE SCENE	
1.45pm	**A Sense of Place, for all People, for all Time**	John Bailey Forum Chair and Chair, Conservation Commission, WA
2.00pm	**A Conversation With the Future**	The Hon Bob Carr Chair of the Climate Institute Advisory Council
2.30pm	Afternoon tea break	
3.00pm	**Western Australia's Protected Areas - Key Issues and Challenges**	Keiran McNamara Director General, Department of Environment and Conservation, WA
3.30pm	**The Kimberley - The Last Wilderness**	Malcolm Douglas Crocodile Farmer and Conservationist
4.00pm	**Protected Areas in WA - So Much Land, So Little Protected and So Difficult to Get Additions**	Chris Tallentire Conservation Council, WA
4.30pm	Q & A's	
5.00pm	Session Close	
6.00pm	**FIELD TRIPS**	
	FIELD TRIP 2 (optional) - PERTH OBSERVATORY now departs at 6.00pm Delegates registered for the tour will be able to attend the Welcome Reception for a short period before departure. A few places are still available for interested persons.	**FIELD TRIP 1** - MOONLIGHT MEANDERING has regretfully been cancelled due to insufficient numbers.
5.15pm	**WELCOME RECEPTION** - *sponsored by Parks Forum*	

SOCIAL PROGRAM

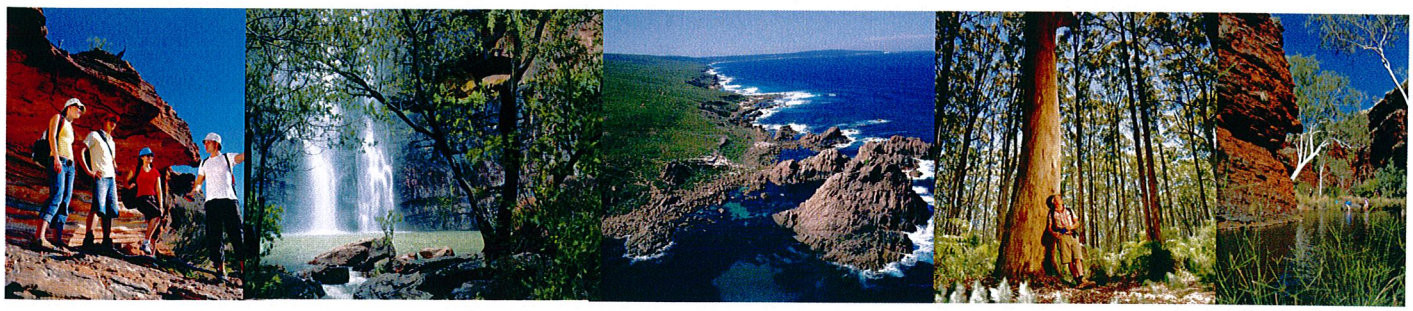
SUNDAY 23 SEPTEMBER 2007
WELCOME RECEPTION
Esplanade Hotel, Fremantle - 5.15pm
The welcome function is a perfect time to renew acquaintances or make some new friends.
Included for full, student and Sunday registrations
Extra Tickets: $44.00 per person.
sponsored by Parks Forum

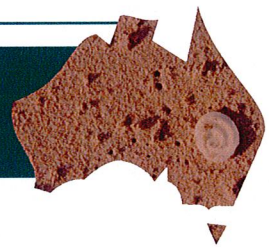
MONDAY 24 SEPTEMBER 2007
HAPPY HOUR
Esplanade Hotel, Fremantle - 5.15pm
Included for full, student and Monday registrations.

MONDAY 24 SEPTEMBER 2007
CONFERENCE DINNER (optional)
Esplanade Hotel, Fremantle - 7.00pm
After the intensity of the program, time to kick back and have some fun. The dinner is a highlight of every conference and this one will be no exception. Includes announcement of winners of the Parks and Protected Areas Photography Competition.
Cost: $99.00 per person.

FORUM PROGRAM

DAY TWO: MONDAY 24 SEPTEMBER 2007		VENUE: Sirius Ballroom
8.00am	Registration in the Southern Cross Foyer	
8.30am	**WELCOME AND HOUSEKEEPING**	CHAIR: Ross Dowling (Chair, FACET)
	SESSION ONE - PARKS AND PROTECTED AREAS	
8:45am	**International Perspectives of Park Tourism**	Paul Eagles Department of Recreation and Leisure Studies, University of Waterloo, Canada
9.15am	**Tackling the Hard Issues**	Chris Haynes Consultant on Land Management and Protected Area Issues
9.45am	**That Profound Personal Connection with Nature: The Evolving Values of Protected Areas**	Penny Figgis AO Vice-Chair, Australia and New Zealand, IUCN World Commission on Protected Areas
10.15am	Morning tea break	
10.45am	**Tourism Futures**	Richard Muirhead CEO, Tourism Western Australia
11.15am	**The Economic Values of Protected Areas**	David Wood Curtin University of Technology, WA
11.45am	Q & A's	
12.15pm	Lunch break	
	SESSION TWO - A SENSE OF PLACE, FOR ALL PEOPLE, FOR ALL TIME	
1.15pm	**Aboriginal Perspective on Country**	Sally Morgan School of Indigenous Studies, The University of Western Australia Paper to be presented by David Milroy
1.45pm	**Parks, Nature and Mental Health**	Jenny Pickworth beyondblue: the national depression initiative
2.15pm	**Parks in the Sea: For People and Other Biodiversity**	Imogen Zethoven AO The Wilderness Society
2.45pm	Q & A's	
3.15pm	Afternoon tea break	
	SESSION THREE - PARK SYSTEMS	
3.45pm	**Requirements for the Reservation of Biodiversity in Space and Time**	Pierre Horwitz Edith Cowan University, WA
4.15pm	**Australia's Protected Areas: A National Perspective**	Peter Cochrane Parks Australia
4.45pm	Q & A's	
5.00pm	Summary Day Two	CHAIR: Ross Dowling (Chair, FACET)
5.15pm	**HAPPY HOUR**	
7.00pm	**CONFERENCE DINNER** (optional)	Includes announcement of winners of photography competition





DAY THREE: TUESDAY 25 SEPTEMBER 2007

VENUE: Sirius Ballroom

8.00am	Registration in the Southern Cross Foyer		
8.45am	**WELCOME AND HOUSEKEEPING**	CHAIR: Ross Dowling (Chair, FACET)	
	KEYNOTE ADDRESS		
9.00am	**Issues in Australian Protected Area Management**	Graeme Worboys Vice-Chair (Mountains Biome) IUCN World Commission on Protected Areas	
	CONCURRENT SESSION ONE		
Theme	LIVING NATURE	ROCKS MATTER TOO	BEYOND THE COASTLINE
Venue Chair	Sirius Ballroom Pierre Horwitz	Pleiades Ballroom Peter Cochrane	Admiralty Gulf Eric Streitburg
9.30am	**Business Success Utilising Conservation Areas** Helen Lee Bushtucker River and Winery Tours, WA	**Burrup Rock Art** Robin Chapple Friends of Australian Rock Art, WA	**The Dugong and Marine Turtle Project / Bardi Jawi Rangers** Daniel Oades Kimberley Land Council, WA
9.45am	**A Tale of Two Frogs** Kim Williams Department of Environment and Conservation, WA	**The Importance of Natural Landscapes** David Newsome Murdoch University, WA	**Shifting Baselines: The Role of Marine Reserves in a Rapidly Changing World** Russ Babcock CSIRO Marine & Atmospheric Research, WA
10.00am	**Fungi and Natural History** Pat Negus Artist, Swallow's Welcome, WA	**Geoparks and Geotourism** Ross Dowling Edith Cowan University, WA	**Whalesharks off Ningaloo** Brad Norman Ecocean, WA
10.15am	**Splendid Isolation – Western Australian Islands as Protected Areas** Nic Dunlop Conservation Council, WA	**Living Landscapes** Richard Woldendorp Photographer	**Who, What, Where and When? Collecting Human Usage Information for Better Marine Protected Area Planning** Lynnath Beckley, Murdoch University, WA
10.30am	**The Pilbara Biological Survey: Preliminary Outcomes and Community Engagement** Stephen van Leeuwen Department of Environment and Conservation, WA	Speaker to be advised	**Protecting the Hidden World - Strategies and Challenges in Marine Conservation** Paul Gamblin WWF Australia
10.45am	Q & A's	Q & A's	Q & A's
11.00am	Morning tea break		
	CONCURRENT SESSION TWO		
Theme	WORKING WITH COMMUNITIES	VALUABLE VISITORS	PARTNERSHIPS FOR PARKS
Venue Chair	Admiralty Gulf Bill Mitchell	Pleiades Ballroom Neil McCarthy	Sirius Ballroom David Clarke
11.30am	**Saving the Shannon Basin: The Campaign for the Shannon National Park** Beth Schultz AO Conservation Council of WA	**Parks, People and Partnerships** Jim Sharp, Department of Environment and Conservation, WA Evan Hall, Tourism and Transport Forum Dino Magris, Australian Pacific Touring	**Partnerships & Protected Areas: Promises, Pitfalls and the Future** Sue Moore Murdoch University, WA
11.45am	**The Fate of Urban Wetlands - A Community Case Study on Pipidinny Swamp, Yanchep National Park** Dr Hugo Bekle, Yellagonga and Yanchep Community Advisory Committees, WA	**Tourism and Recreation in Protected Areas: Researching the Big Issues** Karen Higginbottom Sustainable Tourism Cooperative Research Centre, QLD	**Gondwana Link: A 'Mega-Preserve' Approach to Conservation in the Face of Climate Change and Other Threats** Robert Lambeck Greening Australia, WA
12.00pm	**Focus on Jarrah** Jenny Dewing Blackwood Environment Society Bridgetown, WA	**Safari Camps on the Edge of the Reef** Paul Wittwer Ningaloo Reef Retreat, WA	**Private Conservation: A New Model for Protecting Australia's Wildlife** Atticus Fleming Australian Wildlife Conservancy
12.15pm	**Aboriginal Land Management in the South West** Glen Kelly, CEO, South West Aboriginal Land and Sea Council	**Balancing Conservation, Recreation and Adventure Tourism** Mike Wood Mountain Design	**The Western Australian Resources Sector ... Process and Practice** Aileen Murrell Chamber of Minerals and Energy, WA
12.30pm	Q & A's	Q & A's	Q & A's

FORUM PROGRAM

DAY THREE continued

12.45pm	Lunch break		
	CONCURRENT SESSION THREE		
Theme	WORKING WITH COMMUNITIES	PEOPLE IN THEIR PARKS	JOINT MANAGEMENT
Venue	Admiralty Gulf	Pleiades Ballroom	Sirius Ballroom
Chair	Carolyn Turner	Jim Sharp	Chris Haynes
1.45pm	**Better Inter-relationships Between the Conservation Commission, Local Government & Department of Environment and Conservation** Bill Mitchell WA Local Government Association	**Words from a Bushpoet** Roger Montgomery	**The Warlu Way-A Pathway to Cultural Sustainability** Ian Walker, Ken Sandy and Maria Cosmos Department of Environment and Conservation, WA
2.00pm	**Volunteering and Community Involvement in Parks** Kosette Lambert Department for Environment and Heritage, SA	**Healthy Parks, Healthy People** Cathy Gazey Department of Environment and Conservation, WA	**Innovative Arrangements for Co-management of Parks in South Australia** Greg Leaman Department for Environment and Heritage, SA
2.15pm	**Regional Partnerships for Conservation: The Example of Regional Parks in Western Australia** Phil Jennings Murdoch University, WA	**Managing Cultural and Environmental Impacts of Expedition Cruising Along Australia's Remote Kimberley Coast** Amanda Smith Murdoch University, WA	**From an Aboriginal Perspective on Country & Joint Management Proposals** Karen Jacobs
2.30pm	**Foresters and the WA Forest Estate** Roger Underwood Fellow of the Institute of Foresters of Australia and Chairman of the Bushfire Front Inc.	**Good Tourism Creates Good Conservation** Peter Mooney Parks and Wildlife Service, Department of Tourism, Arts and the Environment, TAS	**The Indigenous Protected Areas Program** Paul Bowers CSIRO Sustainable Ecosystems, WA
2.45pm	**World Heritage Listing (If I was going there I would not start from here!)** Sue Jones Chair, Shark Bay World Heritage Property Consultative Committee	**Value of Parks – Presenting the Benefits of Parks** Neil McCarthy and John Senior Parks Forum Ltd	**Aboriginal Involvement** Patrick Fricker Parks Victoria
3.00pm	Q & A's	Q & A's	Q & A's
3.15pm	Afternoon tea break		
	PLENARY SESSION		VENUE: Sirius Ballroom
3.45pm	**Protected Areas as Flagships for Biodiversity Conservation: A Strategic Overview**	Tom Hatton Director, Water for a Healthy Country Flagship, CSIRO	
4.15pm	Summary and presentation of work program for field trips by Ross Dowling and the Organising Committee		
4.45pm	**CLOSING PERFORMANCE** by Yirra Yaakin Aboriginal Corporation		
5.15pm	Conference Close		
6.30pm	**SPECIAL EVENT** - The Thin Green Line	(A story of Park Rangers around the world who work on the frontline of conservation) Introduced by Richard McLellan , World Wide Fund for Nature	

DAY FOUR: WEDNESDAY 26 SEPTEMBER 2007 - FIELD TRIPS

FIELD TRIP 3 (optional) departs 6.00am LEEUWIN NATURALISTE NATIONAL PARK	**FIELD TRIP 4** (optional) departs 7.00am BIODIVERSITY HOT SPOT LESUEUR NATIONAL PARK	**FIELD TRIP 5** CANOEING LANE POOLE RESERVE Trip has regretfully been cancelled due to insufficent numbers.
FIELD TRIP 6 (optional) departs 7.30am PENGUIN SEA CHANGE SHOALWATER ISLANDS MARINE PARK	**FIELD TRIP 7** (optional) departs 8.00am ABORIGINAL HERITAGE SITE WALYUNGA NATIONAL PARK	**FIELD TRIP 8** (optional) departs 8.00am THE BIBBULMUN TRACK

FIELD TRIPS

A few places still remain on some of the *optional* field trips . The Sunday evening trip to the Perth Observatory is a social event that will be interesting and entertaining. Please note, that this field trip will now depart at 6.00pm, allowing delegates attending to enjoy time at the Welcome Reception. The Wednesday field trips will showcase our parks and protected areas, while also providing you with an opportunity to talk about the draft Agenda for Action. The destinations chosen reflect some of the issues which will have been considered during the conference program.

Walyunga National Park is the best choice for those people interested in the Aboriginal connection and Mt Lesueur National Park for the botanists among you. If nature-based tourism or marine protected areas are your interest, then we have the Bibbulmun Track and the Shoalwater Islands Marine Park. The Leeuwin Naturaliste National Park is the place for you if community engagement and management complexity is your focus. The field trips offer much to see and marvel at. All interested parties are welcome, including friends and guests.

Places have been allocated on a first-come, first-served basis and field trip choices can be re-confirmed at the registration desk.

All tours depart and return to the Fremantle Esplanade Hotel.

SUNDAY 23 SEPTEMBER 2007 - EVENING TOUR

FIELD TRIP 1
PERTH OBSERVATORY

Departs 6.00pm, returns 10.00pm *(tour runs 7.30pm to 9.00pm)*
If you don't want a quiet night in, why not have a night out with the stars? No Hollywood star can make quite the same impact.

Relax in the bushland setting with your own hamper of gourmet sandwiches and fruit. You will then travel through the forest to the Perth Observatory.

Perth Observatory is Australia's oldest continuously operating professional observatory. This evening will be a 90 minute tour of the wonders of the southern night sky. Objects viewed with the large telescopes in our public astronomy facility may include (depending on the time of year, phase of the moon etc) glimpses of the Moon, Jupiter, Saturn, Mars, Venus, star clusters, nebulae and galaxies. Other experiences may be spotting satellites and meteors, recognising constellations, as well as general or specific astronomy computer presentations.

Min: 12 people Max: 20 people
Cost: $88 includes entry

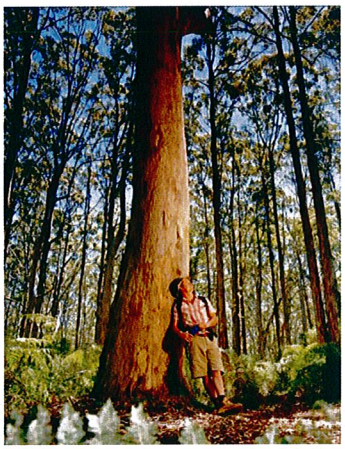
FIELD TRIP 2
MOONLIGHT MEANDERING

Field Trip 2 has regretfully been cancelled due to insufficient numbers.

WEDNESDAY 26 SEPTEMBER 2007 - DAY TOURS

A choice of five field trips is offered on Wednesday 26 September.

FIELD TRIP 3
LEEUWIN-NATURALISTE NATIONAL PARK



Departs 6.00am, returns 7.00pm
Arriving at the Wardan Cultural Centre, the team will welcome you and will host morning tea with fresh hot damper and a moment to stretch your legs. Leeuwin – Naturaliste National Park stretches over 120 km from Bunker Bay in the north to Augusta in the South with an estimated two million visits per year. This tour will explore the management issues of a high visitor park with multi entry points and diversity of recreational uses and developments in and around the park. The area is rapidly developing and we will explore the potential impacts on the National Park at two locations. A visit to Canal Rocks to view infrastructure that addresses the high visitor numbers in a unique location before we head underground to learn about the caving of the region and diversity of public access and management. Meelup Regional Park offers an opportunity to view the coastal walk trail and a short trip to Cape Naturaliste to view the wheelchair access.

Min: 15 people Max: 30 people
Cost: $88 includes guided tour, morning tea and lunch

RECOMMENDED FOR NIGHT FIELD TRIP

- comfortable closed walking shoes
- raincoat/warm coat
- water bottle

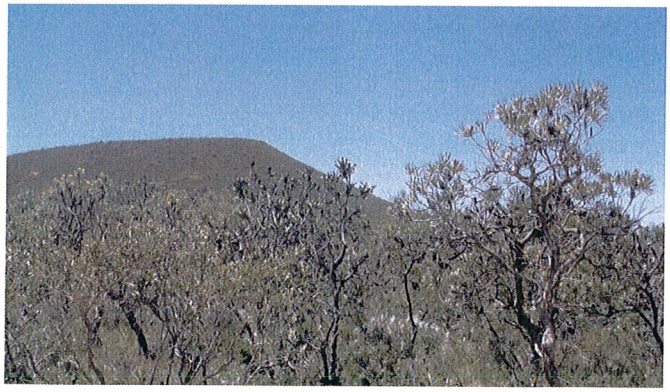
RECOMMENDED FOR DAY FIELD TRIPS

- comfortable closed walking shoes
- raincoat/warm coat
- hat, sunscreen, insect repellent
- long sleeved shirt and trousers
- water bottle and rubbish bag

FIELD TRIPS

WEDNESDAY 26 SEPTEMBER 2007 - DAY TOURS

FIELD TRIP 4
BIODIVERSITY HOT SPOT - Lesueur National Park
Departs 7.00am, returns 5.00pm
Covering 26,987 hectares Lesueur National Park ranks as one of the most important reserves for flora conservation in Western Australia. Hosting over 900 different species of flora, an estimated 10 per cent of the States known flora species, the park has seven species of declared rare flora (DRF) and nine taxa unique to Lesueur. Surveys have currently identified 52 species of reptile including 41 lizard and 11 snake species, as well as 122 species of native birds including one of the few remaining breeding habitats in the district for Carnaby's black cockatoo. The park is also one of the richest habitats for native mammals, with 15 species, including four species of dunnart and four species of bat.
With regular stops on the way to Wilson's Lookout in the heart of Lesueur National Park, eco tourism operator Don Williams will provide an insight into the diversity of flora in the park. Don is a local farmer, self taught botanist and respected expert on the flora of the area. He has played a significant role in the fight to have Lesueur protected as a National Park and has continued his involvement through the Lesueur Coomallo Community



Advisory Committee and as a volunteer. A walk part way up Mt Lesueur will allow a wider view, where DEC staff will outline the challenges of managing this unique national park in the face of a range of threatening processes, fire and introduced species.
Min: 20 people Max: 30 people
Cost: $88 includes guided tour and lunch

RECOMMENDED FOR DAY FIELD TRIPS

- comfortable closed walking shoes
- raincoat/warm coat
- hat, sunscreen, insect repellent
- long sleeved shirt and trousers
- water bottle and rubbish bag

FIELD TRIP 5
CANOEING - Lane Poole Reserve
Field Trip 5 has been regretfully cancelled due to insufficient numbers.

FIELD TRIP 6
PENGUIN SEA CHANGE - Shoalwater Islands Marine Park
Departs 7.30am, returns 4.00pm
An island of small shacks and holiday huts has been altered to make way for a real life *Happy Feet* situation, known as the Penguin Sea Change. Shoalwater Islands is a triple bottom line example of marine park management. The fees from commercial tour licences provide the funds to implement environmental and social change in Shoalwater Islands Marine Park. The park covers an area of approximately 6545 hectares and contains the waters of Shoalwater Bay, Warnbro Sound and a part of Cockburn Sound off Cape Peron.

Picturesque submerged reefs and shipwrecks abound throughout the Rockingham area. Much of the underwater environment is protected in the Shoalwater Islands Marine Park.

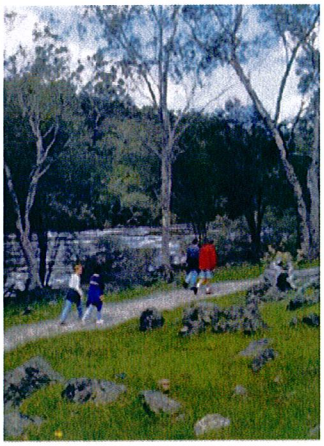
This experience will include a 45 minutes cruise to observe the marine park. You may be fortunate to see an Australian sea lion, one of the rarest seals in the world. The ferry will land at Penguin Island, where you will visit the Discovery Centre and view the penguin feeding presentation, before one of the Island Rangers hosts the 'Penguin Island Waddle', taking in the best of the marine park and wildlife in a short walk.

Min: 15 people Max: 30 people
Cost: $88 includes boat trip, entry to Discovery Centre and lunch.

FIELD TRIPS

WEDNESDAY 26 SEPTEMBER 2007 - DAY TOURS

FIELD TRIP 7
ABORIGINAL HERITAGE SITE - Walyunga National Park
Departs 8.00am, returns 5.00pm
Walyunga National Park sits on the very rim of the Darling Scarp and protects 1800 ha of bushland containing one of the largest known Aboriginal campsites around Perth, still in use by Noongar last century. Archaeological evidence suggests that the area has been used by regional tribes for more then 6000 years.
Enjoy a morning tea of fresh damper, jam, tea and coffee on arrival before being guided through an introduction into Aboriginal culture as well as learning about the significance of Walyunga National Park from an Aboriginal experience. Discover some of the traditional uses of plants and animals of the area. You will leave with an insight into the Aboriginal view of respecting the land and land management. Immerse yourself in the experience of connecting with a significant Aboriginal Heritage Site.



Min: 12 people
Max: 25 people
Cost: $88 includes guided tour and lunch

FIELD TRIP 8
THE BIBBULMUM TRACK
Departs 8.00am, returns 5.00pm The Bibbulmun Track is named after the Aboriginal language group of the Bibbulmun people. The track is the only long distance track in Western Australia and is one of the longest continuously marked trails in Australia. This world class 963 km walk trail stretches from Kalamunda, a hills suburb on the outskirts of Perth, to Albany on the south coast. Enjoy the experience of walking a 10km section of the track with members of the Bibbulmun Track Foundation and the Department of Environment and Conservation and discover what this track offers the wider community. Starting at the Perth Hills Discovery Centre you will travel along the track to Hewett's Hill Campsite for lunch and an insight from the partnerships that are assisting in maintaining the Bibbulmun Track.

Min: 12 people
Max: 20 people
Cost: $88 includes lunch and guided tour

THE STORY OF THE THIN GREEN LINE - A special screening

Tuesday 25 September 2007
6.30pm - Esplanade Hotel

This is the story of Park Rangers. A front line story of the human spirit fighting to save what is precious and rare. A story about the future, inspired by hundreds of Park Rangers from around the world, working on the frontline of conservation.

Sean Willmore, a Park Ranger from Warringine Park in Victoria, Australia sold his car and remortgaged his house 3 times to make this film. In 2003, he met his ranger colleagues from across the globe at an International Park Rangers Congress at Wilson's Promontory National Park, near Melbourne. It was here that he developed his vision to document and bring to the wider community the real picture behind the postcards of international parks and reserves. The selfless commitment of individuals who face the real prospect of death from poachers, wild creatures and other challenges. By filming rangers at work he wanted to open up a different way of looking at and communicating the wonders of our world and the daily threats to its very survival.

Sean spent most of 2004 filming the lives and stories of rangers on 6 continents and 19 countries. There were some incredible experiences: volcanoes, ascents by horseback in Chile and Argentina, a charging elephant in South Africa, drowning rivers in Costa Rica, Mountain Gorilla protection in volatile Virungas of Uganda, helicopter rescues in the Rockies, dangerous anti-poaching patrols and chases in South Africa, Galapagos, Uganda and India, and violent threats by rebel soldiers, antagonistic poaching communities, and protesting fisherman. Sean counts himself lucky to be alive. These experiences set the tone for the life stories and challenges facing the professional Park Ranger.

Filming the journey inspired Sean to deepen his belief in the devoted men and women who sometimes give their lives for their devotion to nature, people and conservation. The "Rangers' heart" helps them cope with corruption, poor resourcing, ignorance, politics and greed. This documentary moves away from the cute, cuddly or dangerous animals seen in traditional wildlife documentaries. The animals themselves become the backdrop for the human face of conservation.

The aim of the film is to expose **'The Thin Green Line'** in the hope that others will join Park Rangers to save what is endangered.

Each Ranger has threads to add to the story, from different locations, personal histories, cultural influences, and political environments. The making of this film has helped to unify rangers from many diverse backgrounds and cultures around the globe, all with the same inspiring goal: to try and save the planet.

Bookings are essential as seating is limited. Entry is by donation to the International Ranger Federation's Dependency Fund. To book, phone Lynda Green on 9387 6444 or email lgreen@wwf.org.au. A flyer is included in your satchel.

GENERAL INFORMATION

Location of Sessions
The forum sessions will be held in the Sirius Ballroom of the Southern Cross Convention Centre on Sunday and Monday. Concurrent sessions on Tuesday will be held in the Sirius and Pleiades Ballrooms and the Admiralty Gulf Room. The photo exhibition and displays are located in the Southern Cross Foyer.

Registration Desk
The registration desk will be serviced each day of the forum at the times shown in the program. Major credit cards will be accepted at the registration desk.

Speaker Preparation
All speakers are reminded to check through their presentations in advance of their timeslot. Please check with the registration desk for technical assistance.

Dress Code
Business or smart casual is suggested for all sessions.

Messages
A notice board will be in the registration area for messages to delegates. Urgent messages may be telephoned to the registration desk on 9432 4000.

Mobile Telephones
As a courtesy to speakers, mobile telephones are to be turned off within the lecture rooms during all sessions.

Smoking Policy
For the comfort and health of all attendees, the Convention Centre is a non-smoking venue.

Name Badges
Each attendee of the forum will be issued a name badge at registration. The badge is the official pass and must be worn at all times.

Parking
Discounted parking is available to conference delegates in the Collie Street Carpark immediately behind the hotel. Check for a pass from the registration desk.

Taxis
Swan Taxis 13 1330

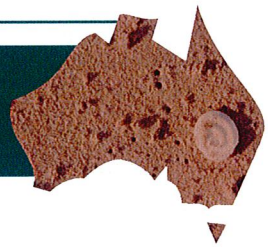
Transport
Trains depart from the Fremantle Station, a short walk from the Esplanade Hotel approximately every 15 minutes. Bus and timetable information can be obtained by telephoning 13 6213.

Shopping Hours
Shops are open from 8.30am to 5.30pm, Monday to Friday, 8.30am to 5.00pm on Saturday and from 12.00 noon to 5.00pm on Sunday in Fremantle.

Medical Emergency Numbers

Fremantle Hospital	9431 3333
Dental	9220 5777
Doctor	9328 7111
Pharmacy	9335 9633

23-26 SEPTEMBER 2007
ESPLANADE HOTEL, FREMANTLE, WESTERN AUSTRALIA



PARKS AND PROTECTED AREAS CONFERENCE

DRAFT AGENDA FOR ACTION

Parks and Protected Areas are essential for the maintenance of natural and cultural diversity. They are necessary for society to appreciate, value and care for that diversity. A secure, publicly owned and managed system of Parks and Protected Areas is fundamental to maintaining diversity and ensuring the well-being of our society.

Parks and Protected Areas provide places for people to visit, learn from and appreciate natural and cultural values which fosters a sense of place and ownership and contributes to the egalitarian values of our community.

Parks and Protected Areas provide scientific benchmarks where we can evaluate effects on natural and cultural values, as well as provide sources of information for the science and understanding of the natural and cultural world. This is particularly the case in relation to climate change where Parks and Protected Areas provide information on the impacts of changes to climate, and also a means of contributing to the protection and maintenance of natural and cultural values.

Parks and Protected Areas provide a means by which Indigenous people can pursue aspirations for the maintenance of cultural values which are inextricably linked to nature and Country and provide a means for development of a range of social benefits.

Protected areas make an important contribution to providing environmental services such as clear air, water collection and purification, carbon storage and soil retention, and fertility. The cost of repairing and replacing those services would be insurmountable.

This Forum recognises that:

1. Representativeness of biodiversity as well as of landscapes and places of geological significance and those that are valuable to society's well-being should continue to be pursued with 15 per cent of biodiversity representativeness being a minimum standard in terrestrial areas to meet in developing the Parks and Protected Areas system.

2. Indigenous people have strong and valid aspirations for involvement in Parks and Protected Areas and a potential for contributing greatly to the protection and management of natural and cultural values, as well as benefiting from their maintenance.

3. Substantial progress is being made in pursuing a comprehensive, adequate and representative marine conservation reserve system in Western Australia and nationally.

   However, marine areas are greatly underrepresented in the Western Australian system of Parks and Protected Areas and priority should be given to pursuing inclusion of further areas.

4. Complementary reserve acquisition and management systems to Parks and Protected Areas should be recognised and reaffirmed for the contribution that they make to preserving and protecting our natural and cultural systems.

5. Parks and Protected Areas have the potential to provide for a range of sustainable human activities, including tourism, which contributes not only to the social wellbeing of the community but also to a sustainable industry.

6. The contribution to the social, physical and mental wellbeing of the community by Parks and Protected Areas needs to be more widely understood and valued.

PARKS & PROTECTED AREAS FORUM
a sense of place, for all people, for all time

PARKS AND PROTECTED AREAS CONFERENCE

DRAFT AGENDA FOR ACTION

Action Plan

i Further forums should be conducted across jurisdictions and organisations in Australia to increase the understanding and promotion of the value of Parks and Protected Areas to our way of life. Such forums to be inclusive of government, non-government, private, profit and not-for-profit organisations.

ii State biodiversity legislation should articulate the value of protected areas and standards to be attained in the development of a protected area system.

iii The rights and aspirations of Indigenous people should be reflected in legislation relative to Parks and Protected Areas and biodiversity conservation.

iv Future discussions of Parks and Protected Areas should seek to have processes that encourage participation and input from a wide range of sectors, including young people as well as seniors, and rural as well as metropolitan residents.

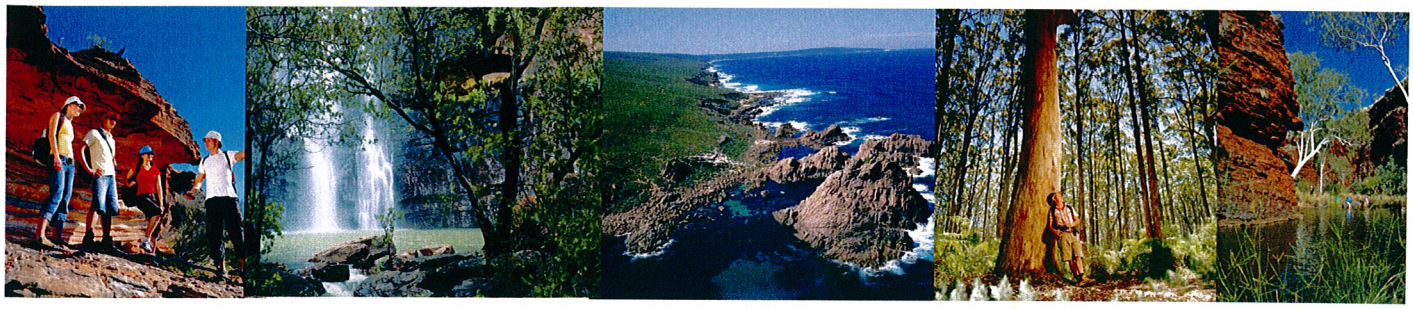
v The contribution of complementary acquisition and management of Parks and Protected Areas by non-government organisations should be reflected in legislation, and impediments in legislation and policy to such a contribution should be removed.

vi The needs and aspirations of local communities and neighbours should be considered and actively pursued in the acquisition and management of Parks and Protected Areas.

vii More effective communication and education on the values and benefits of Parks and Protected Areas should be undertaken by agencies responsible for the protected area system, particularly aimed at eliciting involvement and support for Parks and Protected Areas.

viii The pursuit of increased financial support at all levels should be a priority for all stakeholders in Parks and Protected Areas.

We invite you forward your comments following the Forum
to promaco@promaco.com.au or by fax to 08 9332 2911
by Wednesday 17 October 2007.



PAPERS AND ABSTRACTS

Sunday 23 September 2007

Papers and abstracts are included in the order of the program.

A SENSE OF PLACE, FOR ALL PEOPLE, FOR ALL TIME

John Bailey
Forum Chair

National parks and other terrestrial and marine protected areas are our shared contribution to living with, caring for and valuing our natural and cultural diversity. The natural and cultural values found within our parks and protected areas are of global significance and merit conservation and interpretation for this reason alone. Equally, these areas provide a sense of place, locations where people from varied backgrounds, both Indigenous and non-Indigenous, can meet, spend some time, and work together with a common purpose. In this way parks and protected areas provide social values that reach beyond their immediate boundaries and provide bridges and overcome barriers.
This is our hope and vision.

Parks and Protected Areas promote a sense of wellbeing, for all people, not only for those who visit our parks but even for those who may only drive through them or gain comfort by knowing that they are there. In our busy and often stressful lives, natural areas provide a space in which we can stop, rest and recover, and from which inspiration can arise.

To realise our hope and deliver on our vision requires that we re-value our parks and protected areas and define an Agenda for Action that has meaning for all those who care for these areas and to guide them in their own programs and actions in protecting these areas for all time.

The Parks and Protected Areas Forum; a sense of place, for all people. for all time, will raise public awareness and support for a secure, publicly owned and publicly managed network of protected areas, of which national parks and marine parks are the cornerstone. This forum will emphasize the value of the protected area network while recognising the importance of private and other government initiatives.

On behalf of the participating organisations, I have great pleasure in inviting you to register for this forum and help contribute to developing the Agenda and celebrating and re-valuing our parks and protected areas. A range of outstanding speakers will give key presentations and others will share their stories and champion the importance of parks and protected areas in providing a sense of place, for all people, for all time. I look forward to seeing you in September.

A CONVERSATION WITH THE FUTURE

The Hon Bob Carr
Chair of the Climate Institute Advisory Council

WESTERN AUSTRALIA'S PROTECTED AREAS – KEY ISSUES AND CHALLENGES

Keiran McNamara
Director General, Department of Environment & Conservation, WA

THE KIMBERLEY – THE LAST WILDERNESS

Malcolm Douglas
Crocodile Farmer & Conservationist

PROTECTED AREAS IN WA – SO MUCH LAND, SO LITTLE PROTECTED, AND SO DIFFICULT TO GET ADDITIONS

Chris Tallentire, Conservation Council of WA

Phone: 9420 7266, E-mail: chris.tallentire@conservationwa.asn.au
Conservation Council of WA
2 Delhi Street, West Perth, WA 6005

Successive policies on protected areas have been used to establish WA's protected areas system. Initially the concept of a Comprehensive, Adequate and Representative (CAR) reserve system was developed through the Australian Academy of Science in the 1970s. CAR then became incorporated into the Conservation Through Reserves Committee (CTRC), whose body of work became known as the Green and Red book reports has been largely ignored by successive Governments. A most alarming example is the System 6 area report where many areas recommended for conservation have now been destroyed for by urban sprawl.

More recently the reserve system has been progressed through the Interim Marine and Coastal Regionalisation for Australia (IMCRA) and Interim Biogeographic Regionalisation for Australia (IBRA) classification systems. The relationship between the successive approaches is worthy of analysis. Further, an analysis will be presented of the protected area status of each of the marine and terrestrial bioregions.

In the CTRC several reserve systems have been converted into a larger number of bioregions. The work of the CTRC did not cover the marine environment, except for a few exceptions which include Marmion and Shoalwater.

The New Horizons scheme was created to implement a CAR marine conservation system. Unfortunately the marine system hasn't been developed in the same way as the terrestrial system, such that marine protected areas represent a tiny percentage of Western Australia's jurisdictional waters. Presently only a little over 2.5% of the State's waters are in 'no take' or sanctuary zones.

There are a range of blockages that are presently stopping the extension of the terrestrial conservation estate and the meeting of conservation targets. In the south-west and wheat belt the extent of clearing for agriculture means there is little native vegetation remaining, and the amount of freehold land makes additions to the conservation estate potentially costly.

Resistance from the fishing and petroleum industries has stymied the development of genuinely protected CAR Marine Reserves.

Presently, the representativeness of conservation estate is heavily dependant on Nature Reserves, not our National Parks. National Parks have generally been created for their aesthetic values, which don't correspond with biodiversity conservation imperatives. But, their total area is small and is given significantly less funding, on a per hectare basis, than National Parks.

Ideally conservation lands would have no feral animals – no goats, foxes or cats – but this is difficult when animals like goats are being bred by some landholders, and when eradication programmes are haphazard.

Spread of introduced pastoral grasses have been a major degrading factor. Introduction of "pastoral improvements" such as *Cenchrus ciliaris* (buffel grass) have led to altered fire regimes.

The most disappointing impediment to the expansion of the conservation estate comes from some elements in the resources sector. Their concern is that additions to the conservation estate could sterilise land from minerals and energy extraction. This concern must be put into perspective. Only 17,430,677 hectares or 6.9% of the area of the State is protected in areas that meet the criteria described IUCN categories I to IV (Source: Department of Environment and Conservation 2007). These categories are sometimes used for multiple land uses, but specifically include nature conservation.

Recently some 5 million hectares of land has been purchased from pastoral leases holders for inclusion in the conservation estate. Unfortunately some (a powerful minority) in the resources sector are stopping this land being added to the conservation estate.

The opportunity exists for the resources sector to concentrate efforts on mineral and petroleum exploration, while at the same time ensuring Government finalises biodiversity

planning. Provisions exist under existing legislation to allow for the protection of land while a determination is made of its resource and biodiversity values.

A possible way forward would be to allow for both biodiversity and resource exploration, with a requitement that mining exploration funds biodiversity exploration. As a matter of course, we should roll out our state biodiversity survey as we role our survey for mineral and petroleum exploration.

It's important to note that there are increasing numbers of resources sector leaders who fully understand and support the need for an expansion of the Western Australian conservation estate.

The importance of our nature reserve system goes without question. Need for management on newly acquired lands must be biodiversity focused. This doesn't necessarily mean excluding mineral and petroleum exploration. The use of Conservation Parks could be seen as a useful staging process. Perhaps a period as a Conservation Park could precede definition of smaller areas that could be later defined as Nature Reserves.

Our Western Australian conservation estate is our best investment in biodiversity conservation, we need to be building on this investment with an immediate target of achieving a representation of at least 15% of each bioregion in our protected area system. This must be delivered within the next five years.

PAPERS AND ABSTRACTS

Monday 24 September 2007

Papers and abstracts are included in the order of the program.

INTERNATIONAL PERSPECTIVES OF PARK TOURISM

Paul Eagles

Park tourism is a fundamental aspect of park management. It is the appreciation built up by park visitors that leads government to create and provide the funds for park management. This talk will explore the different experiences with park tourism as found several countries. Tourism will be tied to the societal profiles of parks in each country. Case studies countries include: Sweden, Tanzania, Costa Rica and Canada.

TACKLING THE HARD ISSUES

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INTRODUCTION

In preparation for this paper I have spent some hours looking, and re-looking, over this year's Senate report on protected areas (Australia. Commonwealth Parliament 2007). It pays great attention to the message, delivered by many expert witnesses, that over the last decade already stretched resources of protected area agencies, as expressed by staff numbers and expenditure, have stagnated (ibid:252-253). This is in a time when Australia has had large budget surpluses at the national level, and in many of the states as well.

The report also tells us that our servicing of protected areas compares badly with the United States and Canada (ibid:257-258), two countries of comparable wealth. If you are keen to see this position improved, as I am, the report is a welcome start. It leads into the subject of this paper, tackling the hard issues of protected area management. Here I want to focus on three of them – financing, feral animals and environmental weeds, and coming to terms with the Aboriginal people, especially in what we call joint management.

FINANCING PROTECTED AREA MANAGEMENT

About fifteen years ago, as then Director of National Parks, I was in the field with a small group of CALM rangers and other field staff discussing how to deal with a particularly difficult problem. I had just put in my two bob's worth. The riposte of one normally mild mannered district officer was: 'Look, we know how to fix this. It takes money though. *Your* job is to get the money!' So far as I recall I stood my ground, but I was secretly taken aback. The junior officer was right. That *was* my main task. It was never an easy one, and there is no reason to believe that it is any easier fifteen years later.

In support of that point, the Senate report's account shows declines in resources, or leveling off, in almost all jurisdictions, federal and state, and regardless of political persuasion of the government (ibid:246, 252). It is true that there have been some political windfalls, for example the generous funding of new protected areas in the South West forests of WA after the decision to cease most logging in the karri forest. Such funds have been put to good use.

It is also true that a park visitor only rarely sees a ranger or other uniformed officer anywhere in Australian national parks, even in the large, those comparatively well-funded like Kosciusko or Kakadu. There are always good reasons for this, one of which is the administrative burden now placed on staff at all levels. If we go looking for rangers we will find them responding to emails and writing reports, that is glued to a computer screen like so many in the workforce these days. Their American and Canadian counterparts are under similar pressures, only there the visitor still sees park rangers. So what is the difference?

One obvious point is that the North American jurisdictions are well enough financed to afford the rangers in the field – *and they are in the field.* How did they get to this point? The only possible answer is that over their decades of existence their agencies have won public support. Whilst I think their long existence places the park services of these countries at considerable advantage over their Australian counterparts, they are able to *maintain* public support because the rangers are there – and they are *visible.*

Australia lacks this tradition of ready visibility, the accessible ranger. The Senate report indicates modest increases in rangers in several jurisdictions, for example a 38% increase in New South Wales between 1997 and 2005 (ibid:249). Queensland reported a boost in recruitment of 32% between 2002 and 2006, and in its 2006-07 budget South Australia foreshadowed plans to boost numbers by 20% over the next four years. These moves *should* improve the visibility of these agencies in the field and they are to be commended. Whether the rangers actually do this depends on whether they are allowed to be in the field, or more importantly, whether they are actually directed to be there.

What I am proposing is expensive. My own estimate is that it costs about $150,000 annually to get each additional ranger into the field. To place an additional 40 rangers will cost $6 million, and this is the hard part of the equation. On its own $6 million does not sound all that much, but if it is put in another way, each additional ranger is one less schoolteacher or police officer or nurse, unless public opinion is swayed to the point that governments are convinced to either raise taxes or to forgo one of these other categories of public servant.

It is a tough ask, and this is where we might note what economist J K Galbraith (1958:257) remarked half a century ago: 'In a community where public services have failed to keep abreast of private consumption, ...in an atmosphere of private opulence and public squalor, the private goods have full sway'. We live in a period where Galbraith's thinking has been eclipsed by that of his nemesis, economist Milton Friedman – and practical implementation of Friedmanism by Margaret Thatcher, Ronald Reagan, and the populist look-alikes of the current period. When push comes to shove, if the choice is between a Pajero, or even a plasma TV, and a superior national park holiday the Pajero and plasma will win. Private opulence wins over (not quite these days) public squalor.

My argument is simple. Resources are hard to get, and always will be. Putting those hard won resources into contract weed spraying, contract feral animal shooting, and worst of all, contract visitor management, might be efficient and even effective in delivering results for those programs. It does not produce the public support that a well informed and accessible ranger can do, however. It is field staff, properly located, who will make permanent the hard won gains of directors and the conservation minded members of the public. The North American evidence is that the parks services there maintain their popular support through the services they deliver face-to-face in the field. In the nation that leads the world in Friedmanism, it has not been possible to dent the popularity of the US National Parks Service.

ENVIRONMENTAL WEEDS AND FERAL ANIMALS

Last year I was, rather unwillingly, drawn into making a contribution to a major report on feral animal control in Kakadu National Park (Field et al. 2006). My unwillingness was

partly because it distracted me away from my own PhD work for three weeks, and partly because the project had been long running and messy in the end, and arguably misconceived in the beginning. As often happens, my involvement produced some serendipities, for example some useful material for the thesis, but also the opportunity to have a good look at assumptions many of us had been making over long periods.

Through the period of writing up our team members were confronted by how little hard evidence is available to demonstrate the effects of particular animals. By hard evidence here I mean that which has been written up in reputable scientific journals and peer reviewed, similar to clear demonstrations of the damage done by foxes to small mammals in WA (Kennear et al. 1988). For lack of this kind of evidence we were forced to use our informed opinions as experts to produce a ranking for the guidance of park managers. (Between them, the authors of this section of the report had over a hundred years of experience in animal population dynamics, natural resource management, and Kakadu itself.)

We also knew that the commissioning of the report had its origins in the long-standing oppositions of traditional owners of Kakadu to removal of some feral animals by rangers – buffalo and horses, for example. We had been thoroughly briefed that this report would need the authority of good science for it to overcome those oppositions. Like Aboriginal people responding to the actions of conservation departments in Cape York (Smith 2003) and Cobourg Peninsula (deKoninck 2005), these traditional owners were not going to be blinded by science or the scientism of the west. They had their ways of knowing and defining truth, and these challenged our own epistemological stances.

Confronted by this situation, how could we rate damage by feral horses against the effects of the cane toads that had first invaded the park in 2002 and spread through the rest of it within about three years? The toads had almost certainly wiped out the park's previously abundant northern quoll population. By comparison, what lasting harm had horses, or for that matter, feral buffalo done? They certainly challenge the aesthetic sense of most of us, but does that endanger park values significantly, especially in the context of the different world-view of the park's traditional owners? We *did* note the impacts of the big ungulates on erosion, and their part in spreading the invasive weed, mission grass, and these factors contributed to our ranking them as a priority for attention.

The point here, one which can equally be made in the domain of environmental weeds, is that programs for the control of both need hard-nosed evaluation, if possible on the basis of clearly argued scientific evidence, before they are implemented. After all, they are among the most expensive programs to mount.

COMING TO TERMS WITH ABORIGINAL PEOPLE

In 2006 the journal *Annual Review of Anthropology* published a major review of the effects of protected areas on the world's indigenous people (West et al. 2006). To my surprise it contained almost no reference to Australia – only seven references out of over 250, and only three of these were specifically about joint management. The focus of most of the review was how indigenous people had been *excluded* from protected areas. Evidence of how indigenous people can be *included*, which does exist in the literature about Australia, is largely ignored in this paper.

A review in the same journal a decade earlier (Orlove & Brush 1996) referred to Canadian anthropologist Sally Weaver's substantial work in Kakadu and the Northern Territory administered Cobourg Peninsula (Weaver 1991), and to other work on Kakadu. The 2006 review refers to the earlier one, but joint management in Australia has been pointedly ignored. What has happened to make such a difference in approach to Australia? Of course it is possible to argue that the latest review is inadequate (as I do), or that there is nothing new to report. My point in raising it here is simply to illustrate that, after three decades, Australia's self-proclaimed expertise and experience in joint management does not register on the radar of a major international review at this time.

One of the questions that is often asked of me is understandable enough – does joint management work? My answer is yes, it does work, but in ways that need to be more clearly understood. There are reasons why I think the now considerable literature on the subject has not thrown much light on the subject. One is that it has focused on aspects of law and organization. As the mention of disputes relating to feral animals implies, the power fields at work here are often incommensurable, and the only way to evaluate these is through looking at what happens out there in the parks – what anthropologists call practice.

It is pleasing know of five completed or nearly completed PhD theses on the practice of joint management and the management of Indigenous Protected Areas in the NT. This new body of work will illuminate how state interventions work in relation to Aboriginal people, and help us to come to terms with a difficult but important policy area. It is a policy area in which many managers and commentators, not just overseas anthropologists, are floundering. And no wonder. It is one of the hard issues of our time, after all.

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"THAT PROFOUND PERSONAL CONNECTION WITH NATURE" THE EVOLVING VALUES OF PROTECTED AREAS

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All over the world the natural wealth of the planet is in retreat. A mere hundred years ago vast areas of the earth's forests, oceans, grasslands and deserts were barely touched by modern industrial humans, yet after an evolutionary 'split second', today virtually every corner of the earth is impacted and struggling to keep supplying human beings with the bounty of healthy natural systems.

During humanity's evolutionary journey we have walked with nature, understanding that it was our source of water, food, clothes, tradeable goods, transport and shelter. We imbued our land and seascapes with special meaning, spirits, stories and songs. To some degree modern humans have lost this acute ancient connection, yet both our intellects and feelings remind us of our ultimate dependence.

Where once nature was in abundance and human settlement were 'islands' in the wild. In a fleeting moment in the history of the earth the tables have turned and human settlement is the dominant force on earth and too often nature is reduced to remnants.

Every force of current society – population growth, urbanisation, the prevailing growth economic paradigm, the remorseless concept of 'shop till you drop' consumerism and in many places war and grinding poverty, seems to be pushing our exquisite earth and its populations of myriad creatures who share it with our dominant species, to the brink of collapse.

Many have known what they were losing and the modern environment movement is driven by the intellectual and emotional appreciation of what is at stake and the sense of remorseless loss. For others appreciation of the natural world and its modern strongholds in parks and reserves went little further than the 19th century notions of picturesque scenic landscapes and opportunities for active 'hearty 'recreation – pleasant to have, but not a central issue, especially when measured against the need to boost the economy, generate wealth and develop employment.

Others have been actively hostile to the whole concept of conservation, taking their queue from a Biblical notion that the earth is God given to develop and make fruitful and therefore to 'lock up' and leave an area of land is a waste. Ironically, as humans have continued to introduce exotic plants and animals and inappropriate fire into the environment natural areas have been seen as to 'blame' for these human induced problems.

Yet finally at the eleventh hour for humans the appreciation of what we have in the natural world is slowly changing. It is a race of various discourses, but it is possible that new understandings and appreciations can build on older understandings of values and benefits and in doing so strengthen the possibility that we can hold and indeed build these critical areas.

The presentation will follow the value society has placed on nature from notions of reverence for the sacred and mysterious to conserving scenic wonders as places of refreshment and outdoor recreation in the 19th century. It will follow the growing appreciation of the value of biodiversity and parks as biological species banks. In response to the retreat of the natural world we have increasingly seen natural areas as refuges, strongholds of species and systems. Many have also argues it was philosophically and psychologically essential to our wellbeing.

In more recent decades the dominance of economic thinking and the impact of modern extractive industries have forced greater evaluation of protected areas in quantifiable dollar terms from both direct uses, like tourism and less direct but increasingly important ecosystem services.

In the 21st century we are still placing new values on parks and rediscovering old values.

Above all climate change is leading to a revaluation of natural areas as the only hope of many species, as the new 'refugia' of the future. A new approach to conservation which stresses the values of the whole landscape or seascape across a spectrum of uses and owners is changing the whole idea of a park from a discrete area or island of conservation to a core essential refuge in the heart of an integrated whole landscape which is sustainably managed for conservation outcomes. Natural areas will also be seen as valuable sinks for the carbon we have so recklessly poured into the air. New dollar values for standing trees not fallen logs may emerge.

We are also discovering in the age of materialism and urban living that "that profound personal connection with nature" is not lost in many people and through rediscovering this connection they personally, and more generally the community can be mentally and physically better off.

The paper will survey this emerging spectrum of values and identify new understandings of the role natural spaces play in big issues such as understanding our place in nature, building healthy societies and building social capital in our fragmented world.

TOURISM FUTURES

Richard Muirhead

A thriving tourism sector is integral to the economic and social interests of all Australians. It opens valuable business and employment opportunities in regional and Indigenous communities and offers a great way to interact with the natural environment. Western Australia, in particular, is in a unique position to embrace eco-tourism, enriched by authentic Aboriginal experiences and products. As home to the world's oldest living continuous culture, Aboriginal tourism is an indispensable and distinctive part of a visit to Australia. Western Australia's Aboriginal people have a unique and rich tapestry of stories to share and their 40,000-year connection to the land and environment is inextricably linked to the State's eco-tourism experiences.

The future of tourism depends on preserving the State's natural attractions and promoting awareness of eco-friendly practices – particularly at a time of changing consumer patterns, rising fuel prices and of course, climate change. As the world changes rapidly, travellers are becoming increasingly concerned with reducing the damage their travel habits have on the natural environment.

Planning for the future is essential and this means ensuring the right mix when it comes to sustainable tourism development. Nature-based tourism is an important part of the State's tourism future and we must consider economic viability, as well as environmental management. This involves working across government agencies, in close partnership with local communities.

THE ECONOMIC VALUES OF PROTECTED AREAS

David Wood
Curtin University of Technology

ABORIGINAL PERSPECTIVE ON COUNTRY

Sally Morgan
School of Indigenous Studies, UWA

PARKS, NATURE AND MENTAL HEALTH

Jenny Pickworth, Board member
beyondblue: the national depression initiative

beyondblue is a national, independent, not-for-profit organisation working to address depression, anxiety and related drug and alcohol problems in Australia. It was established in 2000 by the Australian and Victorian Governments and is now supported by the Australian Government and **all** State and Territory Governments. *beyondblue* works in partnership with health services, schools, workplaces, universities, media, community organisations and businesses to bring together expertise around depression. *beyondblue* has five priority areas:

1. increasing community awareness and addressing stigma;
2. working with people living with depression and promoting their needs and experiences;
3. developing prevention and early intervention programs;
4. improving training and support for the primary care workforce around depression; and
5. initiating and supporting depression-related research.

Depression is very common in Australia with around 1 million Australians living with depression and related disorders each year, however, less than 50% receive medical assistance. Its incidence makes it the most disabling non-fatal illness in the country. On average, one in six men and one in four women will experience depression at some time in their lives. Yet while rates of depression and anxiety are high, awareness is increasing, effective treatments are available, and people can do a number of things to help manage their condition.

Keeping active can be extremely beneficial in terms of helping to manage depression or a related disorder. Research shows that regular physical activity significantly reduces the risk of people developing depression and people who do not take part in physical activity are more likely to have depressive symptoms compared to people who exercise regularly. Regular aerobic and strength-training activities of light or moderate intensity can result in up to a 50 per cent reduction in symptoms of depression and anxiety, especially for women and older people. Furthermore, in older people, exercise has been found to be just as beneficial as antidepressant medication or social contact in the treatment of depression.

The cycle of depression can be broken by participating in a range of outdoor activities including riding a bike, jogging, playing football or going for a 20 minute walk. The effects of physical exercise can help mental health in a number of ways, including lifting mood, helping sleep, feeling more energetic and less tired, blocking negative thoughts, and increasing social contact. As such, public spaces, parks and protected areas play a significant role in mental health and wellbeing.

Parks and protected areas need to be a fundamental element of public health strategies as they have a part to play in the promotion and achievement of better mental health and wellbeing by providing and improving the social and physical environments of communities.

Collaborative strategies between researchers, primary health, social services, urban planning and environmental management sectors that support health and wellbeing promotion should be a priority. Emphasis should be placed on mental *health* benefits that can be gained from parks and protected areas and this should be promoted to all of the community.

Parks and protected areas are not simply about recreation – they are about enhancing the mental health and wellbeing of the community.

PARKS IN THE SEA: FOR PEOPLE AND OTHER BIODIVERSITY

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This paper will firstly look at the creation of parks in the sea. It will then look at the current situation, particularly after the rezoning of the Great Barrier Reef. It will provide an overview of key stakeholders and argue that a new direction is needed that builds a public constituency of support for marine conservation generally.

Early Parks in the Sea

The world's first marine park was created at Key West, which lies at the western-most edge of the Florida Keys. The year was 1908. A year later, the world's second marine park was created in the Hawaiian Islands, to the west of Honolulu.

Australians had to wait until 1966 for saltwater to be protected for its own sake – rather than because it was an appendage to a terrestrial park. The Coorong National Park was created in 1966. However, officially it was a wetland.

In 1974, our first proper marine park was established in the waters surrounding Green Island near Cairns. But this decision was very soon eclipsed when a year later the Great Barrier Reef Marine Park erupted on to the scene.

Last year President George W. Bush announced the creation of a slightly bigger Marine Park in the northwest of Hawaii. The area is 362,000 sq kms, compared to the Great Barrier Reef Marine Park's 344,000 km^2. This decision puts the heat back on Australia to reclaim the mantle of custodian of the world's largest park in the sea.

The Need to Change Direction

Even with this major addition to the global estate of marine parks, the areal extent of parks in the sea lags decades behind parks on land - in both real terms and percentage terms. The global target to establish a representative network of marine protected areas in all the world's marine bioregions by 2012 will help improve this situation. The Federal Government's regional marine planning process will help to deliver this goal. But the context we are now operating in has changed from just a few years ago. Marine park advocates need to understand the current situation and consider whether a change in direction is needed. The following sections assess the key stakeholders.

Recreational Fishers

After the GBR rezoning, some irate recreational fishers established the Fishing Party. The Party won a commitment from the Government to review and weaken the Great Barrier Reef Marine

Park Authority. The Fishing Party will continue to use its influence to extract election commitments in order to avoid new marine parks.

Commercial Fishers

After the final GBR zoning plan had passed through Parliament, the commercial fishing industry and related seafood processing sector placed enormous pressure on the Federal Government. Their strategic intent was to push the price of RAP through the roof, so that the Government would never again introduce a high level of protection. The final cost of the 'compensation' package is thought to be around $180-200 million. This compares to an independent assessment commissioned by GBRMPA of $13 million.

Oil and Gas Industry/Geosequestration

As global oil consumption continues to rise unabated, oil and gas exploration and drilling will move into new areas. Governments are already looking to offshore geosequestration opportunities, clearly an incompatible use in a marine sanctuary.

Environmental NGO's

Environmental NGO's have been effective at running campaigns about saving particular areas. These campaigns have usually been about iconic areas (GBR or Ningaloo) or coastal areas such as in Victoria. For a range of reasons, including the ever present shortage of funds, environmental NGO's were not able to run an effective public campaign about the South East Regional Marine Plan, which was a much harder challenge than the GBR or Ningaloo. But NGO's need to rise to this challenge to have a positive influence on the remaining regional marine plans.

Federal Bureaucracy

Marine park officers, at least at a federal level, have become extremely cautious about marine parks. This is a product of the political backlash against GBRMPA for establishing a world class network of highly protected areas and the current lack of a marine park champion in the Ministry.

A New Direction

This analysis of stakeholders makes it clear that the effort to establish more parks in the sea has become even more challenging. To meet that challenge, we need to do two big things:

1. effectively engage the public
2. raise awareness about the status of the marine environment generally, not just specific areas

We can all learn a lot from Al Gore. He saw many policy focused climate change campaigns over the years, with enormous expenditure of effort and slight or no gain. These campaigns

were small picture efforts, dealing with a little bite size of the problem. And so, a powerpoint was born, and then a film. Al Gore told the BIG PICTURE.

Public awareness and concern shot upwards. Politicians started to take notice. As a result, the small picture policy focused campaigns are now more likely to succeed.

We need an equivalent transformation of public consciousness about the global marine environment. We need a major communications effort about the status of our seas and marine life generally – not on a specific area, or on a particular species. In essence, we need to build a major public constituency for marine park conservation.

Conclusion

We now have a global target and a national planning framework; good science; and the experience of how to implement a network of marine sanctuaries.

On the down side, key stakeholders have been effective in organizing themselves politically, inflating the financial costs of marine parks and encroaching into pristine areas. The federal bureaucracy is extremely cautious.

On the upside, environmental NGO's are aware of the need to build a public constituency of support for greater marine protection. Resources are being mobilized and I predict that marine conservation will become a far more prominent issue in our national consciousness over the next five years. The end result: more marine parks to protect biodiversity and for future generations to enjoy.

REQUIREMENTS FOR THE RESERVATION OF BIODIVERSITY IN SPACE AND TIME

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We can take it for granted (and maybe we have) that the Australian continent is associated with a rather remarkable flora and fauna, and the effects of human activities on that flora and fauna over the last 200 years have diminished that endowment. The south-western corner of the continent is a regional example, having received in a global review (Myers et al. 2000), the *mixed-blessing* of 'biodiversity hotspot': where extraordinary richness is under severe threat. There is a clear imperative to provide for the reservation of biodiversity, and it is timely to assess how well our reservation instruments have fared. In this context, and in order to facilitate the immediate survival and on-going evolution of plants, animals, and their habitats, and the continued existence of geoheritage, this paper seeks to address three questions:

i) What do we perceive to be the reservation requirements of biodiversity?
ii) What might be required in organisational terms to provide for those needs?
iii) Are there matching organisational models for the protection and reservation of biodiversity?

RESERVATION REQUIREMENTS OF BIODIVERSITY

Biodiversity can be judged by its dimensions of relative abundance, richness, endemism, and relatedness, at all spatial scales. One feature of biodiversity is that it is spatially distinctive, a reflection of unique combinations of geological origins, past and present climate, ecological events and biological evolution. Any location will have its own characteristic assemblage of species, as different life forms, in different abundances and with different genetic make-ups. The landscape ('place' or 'locality') will be made up of common components that are found 'beyond' as well, and those components that are restricted ('endemics' restricted to one locality). At some places a thing's abundance (or lack of it) is a characteristic feature, at some places richness (the variety) is a feature. Others are examples of evolutionary history, where relationships over time are graphic and valued.

Globally, according to the Millenium Ecosystem Assessment (2005), the most important drivers of biodiversity loss are habitat modification, climate change, invasive alien species, overexploitation of species, and pollution, and these too operate at all spatial scales. For Australia, Cork et al. (2006) used expert opinion to rank eight pressures experienced by different aspects of biodiversity: total grazing, feral animals, weeds, changed fire regime, habitat fragmentation, vegetation clearing, changed hydrology and salinity. They argue that some of these drivers will decline due to adequate control (like controls on land clearing improving habitat modification pressures), some will continue in the future, and some (like climate change) will increase in importance and severity.

This is our agenda for biodiversity: keeping characteristic features of places, where "keeping" them also means:

a) allowing ecosystems to self-organise through processes like dispersal of biota and their propagules, natural selection, species evolution and biotic regulation of local and biogeochemical water cycles, and

b) managing the pressures: the way we degrade them.

Reservation is one of the instruments that we use, and from numerous accounts, the pressures described above operate *within* reserves as well as *outside* them.

The southwestern corner of the continent serves as a good example, showing the dimensions of biodiversity, biodiversity loss, and the *need for reserves* to play an important role. The biotic variety extends from common widespread species and assemblages, to

those that are locally common or highly restricted and endemic, and to relictual species from a time long past, and patterns of explosive speciation. All of this is matched by a vulnerability due to isolation and invasion, some appalling examples of habitat modification, and hydrological change, the pointy end of which is declining rainfall.

ORGANISATIONAL REQUIREMENTS FOR BIODIVERSITY

Our biodiversity agenda might aim to ensure that the above dimensions of biodiversity are represented comprehensively and adequately in 'reserves', or that a whole of government conservation process which includes reserves, explicitly incorporates these dimensions. Either way, this is challenging, to say the least. Another organisational challenge for the reservation of biodiversity is to manage better the drivers of biodiversity loss, and to adapt to the changing nature of some of these drivers. These are as much socio-political and psychological as they are ecological; breaching not just the boundaries of our reserves, but our bureaucratic and disciplinary boundaries too.

Is our environment (conservation) sector, or government system at large, institutionally equipped to deal with the ***links*** between reservation of biodiversity, places, economic imperatives, Indigenous values, social communities and land management? Since organisational approaches to these links require understandings of semi-permeable boundaries, complex cross-scale inter-relationships, interdependencies, nestedness, and emergent properties, systemic thinking is an important first step.

A useful principle is one that derives from Ashby's law of requisite variety. The law states "only variety can absorb variety": organisations must develop sufficient information management and decision making capacity to cope with the complexity in the environment in which they operate (Lewis and Stewart 2003). Every good regulator of a system must be a model of that system. So we can't use homogeneous prescriptions (ie. reservation by boundaries on maps, *even if they are* representative, comprehensive and adequate) to manage heterogeneous systems (like the southwest; Wardell-Johnson and Horwitz 1996).

CURRENT ATTEMPTS

A standard model (=homogeneous prescription) still largely dominates in the minds of the public, the offices of the bureaucracy and policies of decision makers, and our legislature, where biodiversity conservation and protected areas are perceived to be the domain of government. However, the spectrum of reservation for biodiversity requirements has broadened over the last 30 years, where multi-tenure conservation planning attends to both systemic thinking and requisite variety (in part, at least):

- Most strategic plans for natural resource management regions recognise the role of protected areas in integrated catchment management, but these operate under the 'ownership' of government (and usually the sector concerned with agriculture).
- National action plans dealing with biodiversity and climate change (ie. National Resource Management Ministerial Council 2004) recognise the challenges but seem silent on the role of protected areas.
- Private ownership of nature reserves has flourished, aided by the National Reserves System (emphasizing the critical role of partnerships between all governments, and between governments and non-government organizations), to give organisational flexibility. Conservation covenants are part of the multi-tenure mix.
- Indigenous protected areas and co-management agreements in some ways challenge the dogma of 'land ownership'.
- The "Man and Biosphere Reserve" nested approach, with a core area managed primarily for nature conservation, a 'buffer' zone where activities that impact on the biodiversity of the core are minimised, and a 'transition' zone, where the sustainable use of natural resources is encouraged (Batisse 1993), has social ecological relevance, and has recently been evaluated (Fitzsimmons and Wescott 2007).

- Sub-continental scale networks for nature conservation and reservation include multiple land uses: their challenge is to gain legitimacy of purpose across land owners and jurisdictions.

One example, southwestern Australia's *Gondwana Link*, contains aspects of all of the above; it also has explicitly dealt with some of their challenges. The profound advances made by such networks have occurred without government leadership, and with only antiquated and some cases irrelevant legislative support. Perhaps this is good.

Appropriate evaluation will allow us to determine if these mutli-tenure approaches, can provide the adaptive capacity to meet biodiversity requirements through protected areas. However, despite these advances, questions remain - whether current demographic and land ownership patterns and trends for rural, regional and remote Australia, and some institutional change, will be sufficient to sustain the enormity of the management effort required on the ground.

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AUSTRALIA'S PROTECTED AREAS: A NATIONAL PERSPECTIVE

Peter Cochrane
Parks Australia

PAPERS AND ABSTRACTS

Monday 24 September 2007

Papers and abstracts are included in the order of the program.

ISSUES IN AUSTRALIAN PROTECTED AREA MANAGEMENT

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Background

The National Reserve System of Australia is one of the great land-use and sea-use successes of this country. It is an inspiring story of dedicated and visionary individuals, community leaders, conservation organisations, bureaucrats and outstanding politicians who, from the reservation of Australia's first national park, the Royal National Park near Sydney 128 years ago, have helped establish more than 7700 protected areas up to 2007. As a concept, protected areas have stood the test of time despite diverse and pervasive human pressures from surrounding lands and seas. Australia has invested in the active care and management of these lands to achieve this outcome. The Royal for example, originally established in bushland adjacent to early Sydney settlements, is now surrounded by suburbs, and thanks to sustained management, its coastal scenery, heathlands, rainforests, beaches, headlands and native animals continue to provide enjoyment and inspiration, regional economic benefits, and protection of these natural systems for their own sake.

In the 1960s, grand parks such as the Lamington, Wilson's Promontory, Kosciuszko, Cradle Mountain, Belair, Katherine Gorge (now Nitmiluk) and Rottnest Island were prominent, but there were relatively few others. Most of Australia's protected areas were established after the 1970s. Driven by community-based pro-conservation campaigns, and in some cases guided by land-use planning processes such as those adopted by Land Conservation Council in Victoria, many protected areas have been established Australia wide. From an obscure land- and sea-use, protected areas of various kinds are now a major feature on the Australian landscape.

Protected area management is thus in the direct eye of the community. By the 1980s, every state and territory had established a professional protected management organisation, but park staff often needed to play catch up in dealing with a formidable array of threats such as weeds, pest animals, inappropriate fire regimes, pollution, illegal hunting, fishing, and taking of water and timber. This protection work and clean up still continues in 2007, and many areas will require major investments for the long term. A lack of resources, inadequate knowledge and sub-optimal systems are also hampering the achievement of effective management outcomes. Working with communities and building capacity through partnerships, participatory planning, and sharing successes such as species conserved and tourism destinations opened, has been a wise investment. The system as a whole, as well as the professionalism and diligence of park staff, are generally valued and respected by the community. For example, a survey of Tasmanians showed that 70% agree that Tasmania has about the right amount of reserve area, while 27% think that more areas need to be protected; 45% place 'very high', and 33% 'fairly high' value on Tasmania's protected areas; 80% of respondents were satisfied with the performance of Parks and Wildlife Service; and 98% think that having the parks and wildlife system in Tasmania is a valuable part of the Tasmanian community (Roy Morgan Research 2005).

The community has also expressed concern about the environment. A targeted 2007 Galaxy Research poll identified that 95% of voters were concerned about climate change impacts to wildlife and natural areas (WWF 2007). Commissioned by WWF for some marginal

electorates in Australia, the survey also identified that voters were willing to invest higher than recommended funds in new protected areas to protect wildlife and natural areas (WWF 2007). This conclusion is reinforced by a 2006 community survey which found that 88% of Australians believed that if we don't act now we will never control our environmental problems (Roy Morgan Research 2006). In a global context of significant climate change effects by 2100; 9.3 billion peoples on Earth by 2050; and post peak-oil impacts by 2020, these concerns are very real.

Protected area managers need to be responsive to community issues and concerns. They need to build on the good work of those who have helped establish protected areas and the professional way in which they are managed. We have identified three key issues as being of particular significance as we move forward into the 21st Century: 1) establishing an effective reserve system; 2) sustaining community support; and 3) targeting the effective management of protected areas.

Achieving an effective reserve system

Australia's National Reserve System (NRS) is unfinished, and there are two imperatives to complete this action. The first is an obligation to Australia's current and future generations that there are sufficient Royal National Park equivalents extant for the long term to help maintain a sample of natural Australia. A benefit of such action is the biodiversity and other heritage that is conserved, as well as the ecosystem services that are sustained. However, the rate of habitat change is very great in many locations, and this action is urgent. The second imperative is to be a responsible party to an international effort by the Secretariat of the Biodiversity Convention for each nation to achieve a comprehensive and representative terrestrial reserve system by 2010. For marine environments, a similar international target has been established for 2012.

An effective NRS must embrace not only the reserves managed by government protected area organisations - Indigenous, private and NGO managed areas are increasingly important. Securing and supporting such areas and their different governance modes are vital. Percentage area reserved for each bioregion across all governance types is one method for determining the adequacy of the NRS - other crucial factors are achieving an adequate balance between IUCN Categories I-IV and Categories V-VI; the strategic nature of some lands and seas (such as refugia and connectivity areas); and the biodiversity conservation quality of reserved terrestrial and marine environments.

Reinforcing the reserve system is another element of an effective NRS. Many existing protected areas are surrounded by lands and seas that will never be part of the reserve system. A land management ethic guided by stewardship must be fostered by governments and the community. There is no longer any need or justification for the historic and perverse incentives that helped destroy or modify much of Australia's native habitats, particularly when these are increasingly valuable as water catchments and are vital to help buffer the forecast impacts of climate change. Strategic investments such as the Alps to Atherton (A2A) connectivity conservation initiative are providing leadership for such work. Such initiatives are addressing the "adequacy" part of a comprehensive, adequate and representative NRS. They require protected area managers to think and act at landscape and seascape scales. They demand that protected area managers work in partnership with local and regional communities. They are part of a new future for protected areas.

Sustaining community support for protected areas

Maintaining community support for the long term is critical to the future of protected areas. Building broader support, including from 'non-traditional' constituencies in both rural and urban communities is essential for 'mainstreaming' protected areas and securing a higher level of political comment. Key to this is a wider promulgation of the diverse economic, social

and environmental benefits that protected areas supply. The historic formula of being relevant, supportive and responsive to community concerns is also key. New challenges and opportunities continue to emerge. Climate change is of course currently at the top of the agenda, and is likely to remain so. In this arena, as with other issues, protected areas need to be seen to be part of the solution, not part of a perceived problem. Some examples illustrate the point.

1. For southern and eastern Australia, including Tasmania, fires are forecast to be more frequent and more intense. Working with communities to help mitigate the risks is imperative. This includes dealing with planning and zoning issues such as amenity migration to bushland environments adjacent to reserves.
2. With increased drying, water supply catchments become even more valuable, and the special efforts being taken to maintain the natural integrity of catchments by protected area organisations need to be known and widely supported.
3. With tourism destinations such as the Great Barrier Reef and Snowy Mountains impacted by climate change, alternative arrangements will need to be considered and introduced to assist the industry.

Such initiatives will mean new partnerships. Unexpected issues will also need to be dealt with, such as sudden changes in pest animal populations and increases in extreme weather events. Building an enhanced adaptive planning and management capacity, in partnership with governments, communities and civil society institutions, is critical to ensure an effective response to such contingencies.

Targeting effective management of protected areas

Lack of funding for protected area management is the single greatest factor impacting effective Australian protected area management in the 21st Century. At an average investment of $AUD7.69 per hectare, Australia provides about 50% of an estimated $AUD14.20 per hectare needed for a High Human Development Index country (James *et al.* 1999, Worboys 2007). Adequate resourcing would positively transform pest animal, fire management and weed control programs and could secure improved resilience against threats to water supply catchments in the face of climate change. It would also underpin investment in tourism through upgraded maintenance of vehicle access, walking tracks, waste removal and other visitor services. This would come at a time when domestic tourism will become more important thanks to very high post peak-oil aviation fuel prices.

While enhanced government investment will be crucial (indeed, every effort must be made to ensure governments place sufficient priority in meeting their public-good obligations related to protected areas), sustainable financing of an effective NRS will also require more concerted efforts to broaden the funding base. Protected area managers need to get better at recovering the costs of service provision to particular user groups such as tourists, as well as more effectively accessing private sector and philanthropic willingness to pay to secure nature conservation outcomes.

Improved funding will help investment in the critical research needed to support adaptive management, and therefore effectively managed parks. Additional finances for parks would increase investments made in regional (local) communities and boost local economies through employment and the purchase of local goods and services. Economic activity generated by protected areas can be a new source of long-term prosperity for areas impacted by the declining profitability of agriculture.

A Masters of Protected Area Administration (MPAA) degree is needed by protected area professionals in senior managerial and executive positions. We envisage a time when such a qualification will have a similar stature to a Masters of Business Administration. Its curriculum

would be driven by the need for capable professionals who can respond to the complexity, size and sophistication of running the business of protected area management. This is big business, and we are long past the stage where base-level bachelor degrees are adequate. Protected area executives and senior managers must have content knowledge and experience; as well as the leadership, governance, business and political skills to be effective in what is a highly contested and competitive environment. Specialist training is an obvious path to this end.

Knowledge is critical for protected area management. Science, both natural and social, provides an essential base for decision-making. More than ever, knowledge-based decisions in support of new government initiatives, resourcing protected areas, and forecasting risks are needed. With climate change, an understanding of the variation in values from a known baseline is critical information, as is the nature of threats. New science-management partnerships with research organisations will be needed to generate the new knowledge to manage protected areas in the 21st Century.

State of the Parks reporting is emergent in Australia. This is a significant step reflecting both the theoretical underpinning of protected area management (such as the IUCN Management Effectiveness Evaluation Framework) and a degree of sophistication in planning, organising and reporting on management achievements by organisations. More of this work is needed, and a goal for a State of the Parks Report for Australia is a minimum position. Achieving such a report provides a transparent statement about the condition and threats to our parks nationally, and provides a service to the community, for such information will also track what is happening to our country from threats such as climate change. Importantly, such reports are supporting evidence-based arguments to government treasury departments for increased funding. An Australian State of the Parks reporting system will demand collaboration between organisations to establish data collection frameworks and protocols, determine on-going monitoring regimes, and pursue new research into the core evaluation subjects required for protected areas assessments (Worboys 2007). Effective State of the Parks reporting capacity will also require improved information management systems, new partnerships with research organisations, and new staff competencies to design and implement adaptive management regimes. Reporting must become a springboard for learning and improved management effectiveness. Systems that inspire a national State of the Parks capacity will also facilitate co-operative management initiatives such as A2A and the Australian Alps Memorandum of Understanding.

Conclusion

Australian protected area management in the 21st Century needs to focus on achieving an effective National Reserve System. Managers need to work with the community by participating in a range of partnership and governance initiatives designed to deepen and broaden the support base and management capability for protected areas. A range of measures are needed to secure effective management, including establishing sufficient and sustainable finance, enhancing training for senior managers and policy-makers, and implementing new levels of national accountability and learning.

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BUSINESS SUCCESS UTILISING CONSERVATION AREAS

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A TALE OF TWO FROGS:

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Geocrinia Frog and Reedia Communities
in the south west of Western Australia.

Defining the necessity and value of a formal conservation reserve system is problematic. In the southwest of Western Australia despite the recognition of the region's biodiversity "hotspot" status at both national and international levels, relatively few examples exist which clearly and undeniably demonstrate the essential role of conservation reserves to protect conservation assets. The comparison between the status and probable fate of the White-bellied Frog (*Geocrinia alba)* and the Orange-bellied Frog (*Geocrinia vitellina)* is one such example.

In Western Australia the frog fauna is comprised of approximately 77 species, three of which are contained on the state and national threatened species lists. All three threatened species occur in the higher rainfall zones of the SW of the state and all are comparatively recent discoveries to science, the earliest being 1983.

The White-bellied Frog and the Orange-bellied Frog are members of the Geocrinia rosea complex, a monophyletic group of 4 species of small myobatrachid frogs endemic to the SW. Each species occupies a discrete geographic zones between Witchcliffe and Walpole with no overlap. This pattern is consistent with an allopatric speciation model where subtle geographic barriers have led to their differentiation. *(Wardell-Johnson et al 1995)* At their closest G.alba are separated from G.vitellina by only 8 km and one relatively minor waterway.

This group of frogs are notable for their unusual form of reproductive biology known as direct development and their simple call structures *(Roberts and Wardell-Johnson 1995)*. The basic tenet of this reproductive mechanism is the use of a shallow moist burrow into which a fertilized egg mass is deposited and the full sequence of larvae/tadpole/froglet development occurs, ie no free swimming, free feeding tadpole stage. *(Roberts et al., 1990)* Once free of the burrow the juvenile stage is prolonged with recruitment into the breeding population taking 2-3 years. Adults can live for 6+ years, though the majority only breed for one season as survival rates are amongst the lowest observed for any frog species. *(Driscoll 1996; Conroy 2001)*

Habitat and Distribution

Both species inhabit sites that are structurally, edaphically and floristically similar. Described as shallow moist flats either side of creek channels or at the junction of tributaries where swampy flows form, these sites typically have a dense overstorey of *Taxandria* species over a dense ground layer of rhizomatous vegetation such as *Loxocarya sp.* In some sites other high value conservation assets including the critically endangered Reedia Threatened Ecological Community and freshwater burrowing crayfish communities occur.

The White-bellied Frog is a critically endangered species found in tributaries primarily associated with three minor waterway systems south of Margaret River; McLeod Creek, Chapman Brook and Upper Chapman Brook which all flow into the Blackwood River.

The extent of occurrence (~130 km^2), falls within a highly modified environment in the Margaret River Wine Region and the rapidly expanding viticultural industry. At the time of species discovery the majority (~80%) of populations occurred on privately owned lands, today a targeted program of land acquisition has delivered some balance to this with 40% now in the conservation estate. Within the distribution the species has an estimated area of occupancy of 190 ha. In reality this is likely to be a considerable overestimation as the species is highly selective in the habitat it occupies.

In contrast the Orange-bellied Frog is listed as vulnerable (2 categories below G.alba) despite being restricted to six minor creeks with an extent of occurrence of only 6 km^2. All populations are found within the relatively undisturbed Blackwood River National Park. The estimated area of occupancy is 8ha but is more likely to be 2-3 ha, making them one of the most restricted vertebrate species in Australia.

Yet how they have fared and their outlook for survival is markedly different.

Population Statistics

An annual monitoring program based on counts of calling males commenced in 1983 and now encompasses 126 sites representing all known sub populations of both species.
Unequivocal and disturbing trends are evident from the monitoring. As at December 2006..

1) 25% of all known G.alba monitoring sites have become extinct. That is four consecutive years of nil observations.
2) In the same period no G.vitellina monitoring sites have become extinct.
3) A further 38.4% and 24.1% of G.alba monitoring sites have <5 and 5-10 calling males respectively.
4) For G.vitellina the same categories are 21.4% and 7.1%. with the <5 category reflecting the outcomes of 3 translocations attempts since yr 2000.
5) Only 4.5% of G.alba monitoring sites have 20 or more calling males whereas 28.6% of G.vitellina sites have 20 or more calling males.

For G.alba ,further analysis comparing the tenure of land reveals the following;

1) 77% of the total extent of G.alba falls on private lands.
2) 65.6% of the total area of private lands have been cleared.
3) 22 (32.4%) of all G.alba monitoring sites on private lands have become extinct .
4) 23% of extent of G.alba lies within conservation estate.
5) 6 (13.6%) of G.alba monitoring sites on conservation estate have become extinct.
6) Only 3 (10.7%) extinctions across both tenures have occurred within undisturbed micro catchments, all other extinction sites have had their micro catchments cleared to a greater or lesser extent.

Paulli (1999) found that "the pattern of clearing resulting in fragmentation and isolation of populations showed the strongest relationship with population status".

Where local extinctions have occurred recolonisation has not been observed despite apparently suitable habitat being available. This is further supported by the observation of the inherently low mobility of these species, individuals averaging less than 5m per breeding season, the high genetic subdivision between populations (Driscoll 1997, Driscoll 1998b) and

the contribution that minor barriers to dispersal make to population isolation. The resultant genetic and physical resilience to stochastic events is low.

Threatening Processes

Many threatening processes contribute to the decline of these species. Some such as wildfire, introduced animals (pigs), disease (*Bactrachochytrium dendrobatidis* "chytrid fungus") are common to both species and act predominately at the single site or occasionally multiple site scale. Examples exist for both species of sub populations surviving and recovering from these threats albeit at a significantly reduced size. Management strategies under the guidance of a recovery team are in place to minimise the impact and frequency of these disturbances.

Some threats are associated exclusively with lands in private tenure. Habitat loss, habitat fragmentation and habitat degradation at both the micro and sub catchment scale have occurred historically and continue to occur as a result of the changing patterns of land use. (ie. commencing in 1920 with clearing for diary and beef cattle, followed by eucalypt and pine plantations, and in the last decade extensive viticultural plantings and installation of large dams. Fashion crops such as olives, truffles and aquaculture (marron) appear with entrepreneureal zeal). The trend is for the intensity of use to increase and as a consequence further modification of hydrological regimes and/or nutrient & chemical pollution and sedimentation of the natural waterways. These threats are addressed through the statutory and regional planning processes, where negotiated outcomes and compromise solutions at the individual development scale preside. Recovery from these events is yet to be recorded.

Other threats at the landscape scale are just emerging ie: the potential for altered hydrological patterns resulting from climate change or large scale ground water abstraction proposals (eg: SW Yarragadee proposal) could render much of the current habitat unsuitable.

Conclusion

Put simply, any evolutionary advantage conveyed on G.alba by occupying a distribution and habitat area more than 20x that of G.vitellina, has demonstrably been eroded by its occurrence on privately managed lands and their impacts. The rapid rate of changing land use, the intensification of the agricultural activities and increased economic worth of these industries have and will continue to push this species towards extinction at an extinction rate that by any measure is very rapid.

For populations of G.alba already in the conservation estate 50% have been so for less than 10 years and are still subject to many of the legacies of the previous land use. Unfortunately many of the remaining conservation estate populations border private lands and their fate is uncertain. For all White-bellied Frog populations it is the cumulative and often subtle impacts of human disturbance over time that will have a greater influence on the eventual fate of the population than a single disturbance event excluding habitat clearing.

In comparison the Orange-bellied Frog has demonstrated a resilience to disturbance that belies its tenuous distribution with no observed extinctions or long term declines. As both species inhabit sites that are structurally, edaphically and floristically similar the advantages of residing in a relatively undisturbed conservation reserve can not be understated.

New threats operating at the landscape scale are of concern for the both species, but given the observed pattern of survivorship over the last 20 years it is likely that those populations residing in the formal conservation reserve stand a far better chance of persisting. Without substantial catchment and habitat reconstruction works the fate of the White-bellied Frog on private lands appears bleak. Given the economic values of the land it is improbable that voluntary conservation actions by landholders will be of a type or scale to be effective. Further additions to the conservation estate and a well supported program of restoration works will be required to improve this species conservation..

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SWALLOWS WELCOME

Mrs Patricia Mary Negus
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I live with my husband at Swallow's Welcome, a winery ten minutes south of Margaret River. We are within a stone's throw of the coast and the magnificent Boranup Forest and the Leeuwin-Naturaliste National Park.

Today May 4th, I have just returned from a wander in the forest; it's been raining and the forest is damp and soggy. My interest is Natural History and I'm there to see what I can find. I'm never disappointed.

At present my particular interest is 'FUNGI'. Today I found ten species, including a number of the magnificent ghost fungi around the base of a Karri tree. These fungi glow in the dark. I didn't find the two fungi species I was looking for; maybe tomorrow. Also on display were frequent delicate Bunny Orchids, the magnificent Templetonia or Cockies' Tongues and some unexpected Emu Plums.

For the last ten years, I have been working closely with Jane Scott and Ray Forma producing eight books, all based on walks and the Natural History of our area including the Leeuwin-Naturalist National Park. I have illustrated these books with flowers, birds, shells, fish, fungi, butterflies, moths etc.

Books:

1. Walking the Capes. Twenty-one walks in and around the Leeuwin-Naturaliste National Park, November 1999.
2. The Cape to Cape Track Guide Book. Incorporating the Meelup Trail, July 2001. Now a fully revised 3rd edition, April 2006.
3. Field Guide to the Wildflowers of Australia's South West. Augusta-Margaret River Regions, September 2002. Now 2nd edition, January 2006.
4. The Art of Fishing. A fisher's log book. Record and cook your catch, May 2003.
5. South West Wildflowers Birthday Calendar, November 2004. 2nd edition December 2006.
6. Swallows Welcome Garden Birthday Calendar, November 2004. 2nd edition March 2007.
7. The Magical World of Fungi, September 2006.
8. Walking Round in Circles. 27 circular walks in the Leeuwin-Naturaliste National Park. This to be released May/June 2007.

   Also published several series of cards and poster 'Shells of the South West of Australia'.

I feel eternally grateful that my life has bought me to this beautiful part of the world with its rich and diverse Natural History

SPLENDID ISOLATION
WESTERN AUSTRALIAN ISLANDS AS PROTECTED AREAS

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Introduction

Western Australia has over 3000 islands with archipelagos within all of its major biogeographical regions. Most, with the exception of the Kimberley coast, are at least notionally, are Nature Reserves vested in the WA Conservation Commission and managed by the Department of Environment and Conservation (DEC) to protect their biodiversity. A notable exception is the unique Houtman Abrolhos Archipelago off the mid-west region which is a multi-purpose Reserve vested in the Minister for Fisheries for conservation, tourism and purposes ancillary to the fishing industry. Rottnest Island is managed by the Rottnest Island Authority under its own legislation. Penguin Island off Rockingham is a DEC managed Conservation Park and nearby Garden Island is controlled by the Australian Navy.

Continental Islands & Relict Faunas

The vast majority of Western Australia's Islands (ie. those within the coastal waters of the State) are 'continental', that is elevated residuals of coastal landforms isolated by the last marine transgression 7-10 000 years BP. The rising sea levels marooned microcosms of the continental flora and fauna of the time. The current biodiversity of these islands is largely the result of the ecological shake-out that followed as species within the original 'meta-communities' struggled to maintain viable populations with a reduction in habitat and food resources, a situation where former co-habitants may become competitors. Species less suited to the remaining habitats and the new more maritime environments were extirpated. Others, particularly mammalian predators, may have had energetic demands that could not be met with small populations of prey. Others still may have been just plain duded in the lottery of life. The survivors prospered however, increasing their population densities by filling the niches of the lost.

Meanwhile environmental changes across southern Australia and the arid zone, resulting primarily from European colonization, have dramatically altered the meta-communities from which the flora and fauna of the islands was originally derived. One group in particular, the middle or critical weight range mammals, suffered waves of extirpations and extinctions beginning in the colonial period due to the introduction of exotic grazing animals and predators, changes in fire patterns and new diseases. Populations of mammals on some of the larger islands were miraculously spared from the ecological holocaust on the mainland. Priceless, relictual mammal population are present on Barrow (Pilbara), Bernier and Dorre (Shark Bay), Dolphin (Dampier Archipelago), Mondrain (Recherche) and Boullanger (Jurien Bay), Rottnest and Garden Islands, to name a few. Today these islands are jewels in the conservation crown, at least from a mammal fauna perspective. Although vitally important in their own right these relict populations will also be the cornerstone of future programs to

return extirpated species to the mainland and to restore the healthy functioning of continental ecosystems.

Other Conservation Values and there Management

Islands are naturally protected areas where a significant barrier, the sea, has allowed ecosystems to evolve independently and in most cases, relatively free from the human induced impacts. Isolation has created and protected their biodiversity and maintaining that isolation (bio-security) is one of the fundamental challenges facing island managers.

Increasing pressures on at risk populations on the mainland, particularly now in the northern tropical savannahs of the State, may see more threatened species (eg. Gilbert's Potoroo) being deliberately introduced to some larger offshore islands, at least where there are no endemic species of high conservation priority.

The smaller islands, and sometimes the promontories of larger ones, provide secure breeding sites for marine wildlife (seabird & pinniped) colonies. The protection of such populations depends on both habitat security (from introduced predators and excessive human disturbance) and food security, appropriate management of prey resources within foraging distance. Island management plans usually deal with the on-island issues but as yet no attempt has been made to set marine trophic objectives for wildlife populations.

Beaches on many of our Islands from Shark Bay northwards are important breeding sites for threatened Loggerhead, Green, Hawksbill and Flat-back Sea Turtles.

Importance of Islands for Biodiversity Research

The theory of island biogeography as originally promulgated by McArthur & Wilson (1967) has largely under-pinned terrestrial biological conservation, particularly in relation to reserve design in fragmented landscapes. Although broadly valid and generally informative the factors influencing the number of species have proven to be far more complex than simple functions of island area, elevation, distance from sources and time eg. Lazell 2005).

Disturbance and the introduction of taxa (weeds / pests) from outside the regional meta-populations clearly produce different outcomes than equilibrium theory might predict. Another factor that has until recently been overlooked is the flow of energy and nutrients from the ocean to the terrestrial ecosystems of islands, particularly on relatively small ones with high concentrations of wildlife such as seabirds and marine mammals. Ecosystem subsidies may alter the fundamental relationships between species diversity, land area and trophic structure, possibly increasing or decreasing extinction rates. From a management perspective many small islands need to be managed in sympathy with the marine areas used by central-place foraging wildlife.

Despite being one of the earliest and most influential fields of ecological study the paradigms of island biogeography may be becoming increasingly unstable. Island biodiversity research needs to be reinvigorated not least because of its seminal importance to biological conservation. Climate change will drive the extirpation of

species and the dismantling of biological communities. Refugee taxa may contribute to new assemblages, habitats and food webs. Hard decisions will have to be made about the biodiversity conservation objectives of land managers in the face of climate shifts. When and where should we adopt responses that resist change (bio-security), accept change or facilitate change in ecosystems and in particular within our protected area system?

Increasing Threats to Islands as Protected Areas

Whilst many of our islands are inaccessible and / or under some form of protected area management the threats to their biodiversity are increasing. The proposed and existing presence of oil and gas infrastructure and workforces on important Nature Reserves (eg. Barrow Island) is of major concern, particularly from a bio-security perspective. Although much needs to be done to improve the quality and environmental management of authorized (commercial) tourism the greatest risks to biodiversity values (particularly on small seabird islands) come from rapidly increasing numbers of recreational / boating visitors.

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THE PILBARA BIOLOGICAL SURVEY: PRELIMINARY OUTCOMES AND COMMUNITY ENGAGEMENT

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The Pilbara region in North-western Australia is unequivocally Australia's most important region with respect to the economic wealth and prosperity of the Nation. In 2001 the Pilbara contributed over $105B to the Australian Economy or over 15% of GDP. With the current resources boom juggernaut appearing unstoppable this figure is expected to approach in excess of 22% in 2007, a situation which is fuelling the national skills shortage and the chronic housing shortage throughout Western Australia, particularly in the Pilbara where house rentals routinely approach $2500 per week. This economic hotspot is driven by the mineral and petroleum wealth of the Pilbara, particularly the regions endowment in iron ore, precious metals, natural gas and conditions suitable for solar salt production.

Commensurately, the Pilbara also has a wealth of biodiversity and has been recognised as one of the Nation's 15 biodiversity hotspots. Documenting the Pilbara's biodiversity commenced when William Dampier collected several plants, including Sturt's Desert Pea, from the archipelago which now bears his name – Dampier Archipelago - during his voyage along the coast of New Holland in 1699. Over the subsequent 300 odd years, research has continued to document the biodiversity of the Pilbara with the greatest efforts being associated with the current resources boom and those of the late 60's and early 70's. Such effort has culminated in the Pilbara being recognised as one of the most extensively trapped and sampled areas in Western Australia. This is particularly so for the iron rich Hamersley Range and the coastal fringe where the ports and processing facilities are located.

Nevertheless, despite a wealth of knowledge no rigorous assessment has been undertaken of biodiversity across the entire 18M sq km of the Pilbara. Simple questions critical for making informed nature conservation, sustainable land use and development decisions are hindered by a lack of regional perspective as to how biodiversity is distributed across the region, the condition of this biodiversity and the threats that impinge upon it. To address this shortcoming and provide a framework on which to base future sustainable land use and biodiversity conservation decisions the Department of Environment and Conservation (DEC) commissioned the Pilbara Biological Survey.

The Pilbara Biological Survey is a $13.5M project funded principally by DEC with contributions from the Federal Government (NHT), W.A. Museum and several resource companies, in particular Rio Tinto, BHP-Billiton and Straits Resources. The survey, the largest of its kind to be undertaken in Western Australia and arguably Australia, commenced in 2002 and is due for completion in 2008. It is a multidisciplinary project involving over 80 researchers who are documenting terrestrial and aquatic flora and fauna, including invertebrates, and the communities into which they are arranged across the region. All field work for the survey is now complete with voucher sorting, specimen identification, data compilation and analysis underway.

During the survey a total of 304 terrestrial, an additional 104 botanical, 90 aquatic and 550 stygofaunal biodiversity sites were sampled on at least two occasions to document the biodiversity of the region. The location of sample sites across the region was designed to

capture the major geological and landsystem units that characterise the Pilbara while also taking into consideration patterns in climatic variation and fire history which strongly influence the patterning of biodiversity. A secondary consideration in the site selection regime was land tenure type as this attribute is critical to any assessment of the comprehensiveness, adequacy and represenativeness of the exiting Pilbara protected areas network. It must be stressed that these types of regional surveys are designed to sample the characteristic widespread community of a region and not the rarer and often charismatic special habitats which are very important biologically however do not provide insight into how the biodiversity of the region is distributed, the sustainability of current land use practices or the effectiveness of the existing protected areas network.

Preliminary results for the survey indicate that the Pilbara is a very biodiverse natural region. This diversity was unexpected for many of the targeted biotic groups sampled but in hindsight can be attributed to a number of factors associated with the heterogeneous climate, geology, landforms and soils of the region, and the impacts of important selective pressures such as tropical cyclones and fire. It is now clear that the Pilbara is indeed one of Australia's biodiversity hotpot as substantiated by:

- Over 350 stygofaunal invertebrates from 7 Phyla and 35 families of which the majority are ostracods and copepods that are new to science;
- Over 1 100 aquatic invertebrates of which many are new to science and endemic to the region;
- Over 600 species of ground dwelling beetle from 45+ families where 80% are new to science, many of which occupy very short geographical ranges;
- Over 320 species of ground dwelling spider with 80% new to science and richness values approaching 50 species per half hectare;
- Up to 248 species of ground dwelling ants of which 10 % are new to science;
- Over 100 reptiles including several new gecko species and species range extensions which represent new records for the Pilbara;
- Approximately 250 species of non-oceanic birds including several rare species like the Grey Falcon;
- 18 species of terrestrial mammal including the Nationally threatened (Vulnerable) Mulgara;
- Identification from sub-fossil records of approximately 57 pre-European mammals of which 11 are now extinct;
- 18 species of bat with one Nationally threatened species appearing to have a ubiquitous but cryptic distribution across the region;
- Over 300 species of planktonic freshwater algae plus four genera of Stonewarts (1 new) representing approximately 30 species; and
- 10+ new species of vascular plant including several *Acacia* and *Eremophila* species.

A key component of the project that has been instrumental to the success of the field sampling program which underpins the survey is the comprehensive community engagement program rolled out to land owners and natural resource managers throughout the Pilbara during the survey. This program comprised a informative web site, a brochure mail out to over 250 land owners/resource managers, popular science articles in local and peak-body printed media periodicals, local/national television and radio interviews and most importantly public and targeted audience presentations to Local Government Authorities, at Land Conservation District meetings, at NRM forums, at Native Title Working Group gatherings and through numerous repeated visits to homesteads, living areas and aboriginal communities. This community engagement is ongoing and evolving and will shortly involve a road show type presentation of the survey's preliminary results that will be delivered in several key Pilbara towns as well as in Perth.

A measure of the success of this community engagement program has been the complete acceptance by the Pilbara community of the survey to the extent that survey teams were not denied access to any area of land within the region. Actually, in many instances access was facilitated with assistance from land owners/resource managers to the extent that many actively encouraged survey team to visit and were disappointed if survey sites were not established on land under their control. The development of collaborative partnerships with traditional owners and large resource companies is also an outcome strengthened by the good will fostered between DEC and the Pilbara community throughout the survey as exemplified through DEC's input to the native flora (Wanggalili) and fauna (Gurruragan) books published by the Juluwarlu Aboriginal Corporation in Roebourne. Multi-industry support of the Mulga Taxonomy project (the largest non-government funded taxonomic study in Australia) by three Pilbara resource companies (BHP Billiton, Rio Tinto Iron Ore, Fortescue Metal Group) is also an indication of the success of the liaison program rolled out for the Pilbara survey.

The presentation will provide information on the Pilbara Biological Survey to support the proposition that the Pilbara is a biodiversity hotspot. Information will also be presented on the community engagement program employed during the survey and highlight the good will established with the community and the outcome this is delivering to land management within the Pilbara and beyond. A final mention will be made of the challenges ahead for the survey team in respect to publicising and popularising results from the survey and the implication such results have for sustainable land use, natural resource management and land tenure issues in the Pilbara.

THE DAMPIER ARCHIPELAGO AND THE BURRUP PENINSULA: THE VALUES OF INDIGENIOUS HERITAGE

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THE DAMPIER ARCHIPELAGO AND THE BURRUP PENINSULA

The Heritage values of the Dampier Archipelago

There is little evidence of early understanding of the heritage values of the Dampier Archipelago, though in 1964 the West Australian Sub-Committee of the Australian Academy of Science National Parks Committee requested that the Dampier Archipelago become a either a Reserve or a National Park. They wished to see the area vested in the National Parks Board of W.A., and had applied to the Under Secretary of Lands for such a decision. In January 1967 the matter was shelved at the request of Mines Department (Under Secretary for Lands, 1967).

In 1964, the first contracts for export of iron ore from the Pilbara region of W.A. were signed, thus starting an intense period of industrial development in that region. Before this time, very few white people had ever set foot on the islands of the Dampier Archipelago. As time has gone on, the vastness and complexity of the petroglyph[2]-strewn landscape has become more readily apparent.

By 1973, Enzo Virili had recorded 6,000 carvings in a five square mile area, and 4,000 of these were in Gum Tree Valley alone (F L Virili, 1973). As industry has moved into the area, heritage reports continue to confirm the world significance of the area's heritage values.

There is now general consensus that the Dampier Archipelago is a place of outstanding importance because of the extraordinary diversity and density of its archaeological remains, and particularly because of the richness of its rock art. The area is also of huge significance to contemporary Aboriginal groups in the Pilbara region, particularly the recognised Native Title claimants, for its cultural and spiritual associations. It is clear that the Dampier Archipelago has been occupied for a long period of time, and occupation of the site can be unequivocally demonstrated archaeologically over the last 9000 years. But there are also strong grounds for inferring that occupation goes back much further than this, to the earliest colonisation of Australia's arid core some 30,000 years ago (Bird, C. and Hallam, S.J. 2006 - McDonald, J, 2005 - McDonald, J, 2006).

The association between different cultural elements and the natural environment means that the Dampier Archipelago forms a unique and effectively continuous cultural landscape. This landscape was formed as sea levels rose at the end of the last Ice Age over several thousand years ago. The archaeological evidence documents the adaptation of Aboriginal people to this changing environment, since the area was probably a focus for human activity throughout much of the occupation of the Australian continent.

There are hundreds of thousands of petroglyphs in the Dampier Archipelago, only a fraction of which have been recorded, but the total number has been estimated at a million (McDonald, J., 2005) Some complexes (sites) contain tens of thousands of images. This may well be the world's largest concentration of rock art and possibly the only site that provides distinct evidence of the changes to environment, culture and society over such an extended period.

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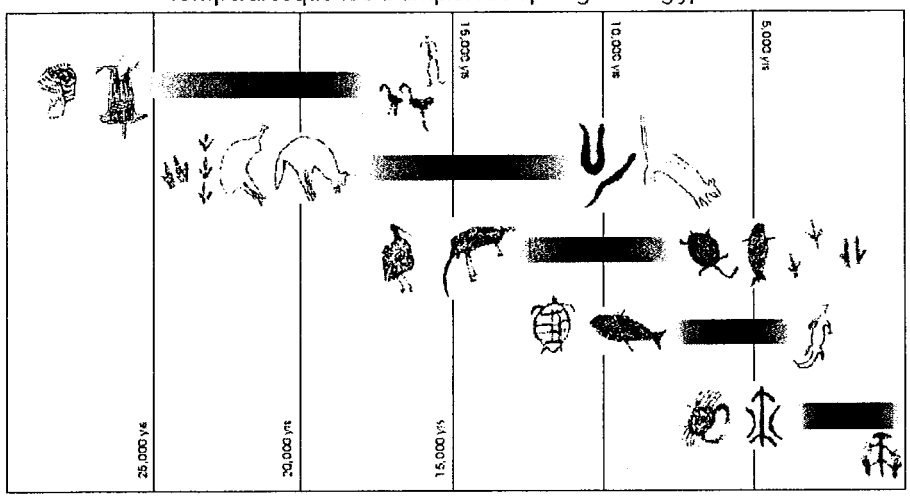
[1] Friends of Australian Rock Art Inc (FARA) was established on 23 November 2006. It has the objective of raising 'public awareness in Australia and internationally of the significance of Australian Aboriginal and Torres Strait Islander heritage as manifest in rock art and in other material of cultural significance.'

[2] Images created by removing part of a rock surfaces by incising, pecking, carving, and abrading

The archaeological material provides evidence of complex adaptations to a distinctive and unique coastal environment on the margins of the present arid zone over the last 9000 years. The long time span of occupation provides an opportunity to document human adaptation from when the 'Dampier Ranges' was part of the Ice Age mainland, through the period of rising sea levels and long-term climatic changes, and thus throws light on our understanding of the long term colonisation of the Australian continent by Aboriginal people. The Burrup rock art has the potential to reveal complex associations between different cultural elements and yield insights into the relationships between sacred and secular aspects of life over a huge time span.

Possibly the oldest and most unique material that remains visible on the Burrup are the Granophyre[3] galleries with their 'archaic-face' motifs. Their most distinctive features are the concentric circle patterns representing eyes and the fact that the carving methodology used reverses the normal technique used to produce rock art by removing surrounding rock to expose the petroglyph features in relief.

Temporal Sequence Dampier Archipelago Petroglyphs



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Industry on the Burrup

The Burrup Peninsula, as it was named in 1979, or Dampier Island, as it was originally known, was first considered for industrial development in 1963. There seems to be no documentation which would indicate there was any awareness of the heritage values of the area at this time.

As early as 1908, the State Mining Engineer, (Montgomery, A, 1908) suggested that Depuch Island might be a satisfactory port for the region's expanding minerals industry, as long as it could be connected to the mainland by a causeway. Depuch was surveyed by the Department of Harbor and Rivers in 1961-2, as a result of interest shown in port facilities by Hamersley Iron and Mount Goldsworthy Mining Associates,.

Depuch was already known to have a large number of petroglyphs, so as a result of the proposed development, the WA Museum Board offered its services to the Government to survey and record them. The survey of Depuch lasted 22 days, with the zoologists and botanists leaving after six days and heading to the Dampier Archipelago to prepare a report on the flora and fauna of the area, which they described as being of very great richness.

It is surprising is that the *WA Museum Special Publication No 2* published on the Depuch expedition states that researchers had discovered approximately 5000 engravings on the

[3] Porphyritic granite, an igneous rock that contains quartz and alkali feldspar

11.7 sq km of Depuch, but only 200 engravings in the Dampier Archipelago (WDL Ride, IM Crawford, GM Storr, RM Berndt & RD Royce, 1964).

The Depuch proposal was subsequently rejected, and instead, the port development at Parker Point on the Burrup commenced in 1965, this resulting from the 1963 agreement between Hamersley Holdings and the W.A. Government for the development of Mount Tom Price, The first shipments of Iron ore left the Port of Dampier in August 1966.

The objective of industrial development on the Burrup were first enunciated in 1973 (Graham, Hon HE, Minister for Development, 1973), and by 1978, Woodside had begun investigations for the location of an LNG facility. Two sites on the Burrup, Sloping Point at the north-east tip, and Withnell Bay were compared, though it is not known if any locations off the Burrup were considered.

Today the Burrup remains the main focus of the WA Government for development in the Pilbara region. Even though the heritage values of the Dampier Archipelago are now clearly understood, there has been no major development of the nearby Maitland industrial estate area which is devoid of rock art.

The official position of the WA Government was clearly articulated in 2006 by Fred Riebling, the Speaker of the Legislative Assembly: "we've dreamt of this area (Dampier Archipelago) becoming the most important industrial region in the southern hemisphere for twenty to thirty years, and finally the realization is starting to happen" (Riebling, F, MLA, 2006).

Others now seem to be wiser. The Former Premier of Western Australian, Dr Carmen Lawrence states, "successive governments — my own included — have failed to appreciate the global significance of the Peninsula. Indeed the current Federal Government opposes heritage listing of 'all or any part' of the Burrup because of 'potentially grave consequences' for the resources sector. No mention of the potentially grave consequences for our heritage" (Lawrence, Hon, C., 2006).

This position is also shared by the Hon Colin Barnett MLA, former Minister for State Development and Opposition Leader: "World heritage listing [of the Archipelago] is inevitable. [But] you would not think we are some struggling Third World country which needs to be dictated to as to how it deals with heritage. The status of the rock art [makes it] in my opinion without doubt the most important heritage site in WA and possibly the nation. However, today with our level of knowledge, enlightenment and sophistication, the challenge we face is to reconcile them where those conflicts exist. We certainly cannot use ignorance today as an excuse. If there is one part of Western Australia where this conflict between conservation and development is most apparent it is on the Burrup Peninsula" (Barnett, C J, MLA., 2006)

THE VALUES OF INDIGENOUS HERITAGE

Recent heritage controversies including the abolition of the Aboriginal heritage protected status of Abydos/Woodstock and the ongoing destruction of Aboriginal rock art on the Burrup Peninsula in the Pilbara suggest there are good grounds for arguing that Western Australia's Aboriginal heritage protection regime represents the nation's worst practice.[4]

In 1996, Justice Elizabeth Evatt presented a report into state and Commonwealth Aboriginal heritage processes commissioned by the Federal Government. None of her recommendations for reform of WA heritage legalisation and processes have ever been adopted by the State Government. (Evatt, E. 1996).

[4] See Special Heritage Issue, *Indigenous Law Bulletin* Volume 4, No. 16, November 1998. Available at: http://www.austlii.edu.au/au/journals/ILB/1998/#4(16

Aboriginal writer and academic Sally Morgan has described from firsthand experience as a member of the Balyku native title group negotiating with FMG Resources over protection of her country in the Abydos/Woodstock region how the odds are stacked against Aboriginal people in WA. (Morgan et al 2006).

Deficiencies in the WA Aboriginal heritage protection regime have economic, political and legislative origins. In a devastating critique of the State's flawed WA Aboriginal Heritage Act, 1972, former Yamatji Land and Sea Council principal legal officer David Ritter argues that

'It is a myth, expressed by the objects of the *Aboriginal Heritage Act*, that the main purpose of the legislation is to protect Aboriginal heritage. It may be more accurate to describe the AHA as an act to regularize the obliteration of Aboriginal heritage. ...It is legislation by the non-Indigenous community for the non-Indigenous community that creates a superficial veneer of protection for Indigenous interests. The result is that the colonizing power can continue to do with Aboriginal places and materials exactly as it wants' (Ritter, D, 2003).

Bird and Hallam reveal that the State's management of Aboriginal heritage in the Dampier Archipelago is locked in crisis mode as it responds ad hoc to individual applications for the destruction of Aboriginal sites under the *Aboriginal Heritage Act (1972-1980).*

Under section 18 of the Act, a developer may apply to the Minister for Aboriginal Affairs for permission to destroy any Aboriginal site. The Minister is required before making an s 18 decision to consider advice from the Department of Indigenous Affairs' Aboriginal Cultural Materials Committee. In the rare cases in which the ACMC has recommended against site destruction, the committee has been overruled by the Minister, most notably in the Windarling/Mt Jackson, Abydos/Woodstock and Pluto decisions.

A 2004 parliamentary question in relation to s 18 applications established that the current Government had received and approved 208 applications to destroy Aboriginal sites since coming to power in 2001. Only three of these had been opposed by the ACMC, but each of these recommendations were subsequently overruled by the Minister. (Chapple, Hon., R 2004)

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THE IMPORTANCE OF NATURAL LANDSCAPES

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The conservation, recreation, tourism, ecological, scientific, physical fitness benefits and cultural values of natural landscapes are well known and clear to many people and to decision makers around the world. As the human population continues to grow millions of people are increasingly living in large overcrowded cities that are noisy, polluted and devoid of natural vegetation and wildlife. This coupled with a frantic pace of life, frequent traffic jams, and in some cases long working hours, means that many humans look towards nature for peace, solitude and to re-kindle a sense of wonder about the planet they live on. Natural areas provide an escape from oppressive city environments (e.g. Figure 1) and provide opportunities for new experiences and for people to learn about nature that has not been exploited or dominated by human activity. The psychological value of natural landscapes in terms of their authenticity, natural soundscapes and visual amenity, although obvious in terms of benefit to many humans, is often overlooked. The aim of this paper and the associated presentation is to present an argument that highlights the importance of protecting natural landscapes for these psychological values.

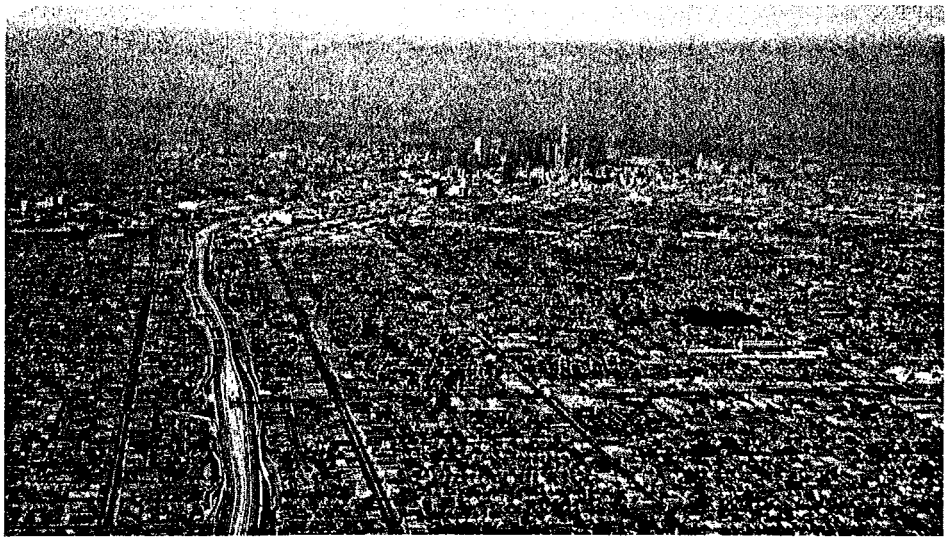

Figure 1 Los Angeles, USA. Significant air pollution is visible and no green space is detectable form the air. Urban development and the need to grow food have altered much of the world. Large areas of land have been reshaped by the application of science and technology and exploited by industry in order to create economic growth and provide jobs for the increasing human population. Living is large cities is often socially complex with many people experiencing long working hours, traffic jams and stress. (Photo D, Newsome)

The case of cities like Los Angeles is exemplified by the sentiments of Owens and Owens (1984) expressed on their return to the vast natural landscapes of Botswana in southern Africa.

> *'The trappings and anxieties of man's artificial world- the airport crowds, the city traffic, the wars and watergates-were all behind us. Primitive, unscarred Africa embraced us again'*

The before mentioned view reflects a perspective that has increased in importance and more pertinent today that it was in 1984. Visits to established natural areas around the world are continually increasing. For example, in Western Australia the estimated total annual visits to DEC (formerly CALM) managed national parks, state forests and reserves had increased from 5.8 million in 1993/4 to 11,843,000 in 2005/6. In the USA, a single national park, the Grand Canyon had 4.6 million visitors in 2006. People visit natural areas for visual amenity, to be free from noise, pollution and overcrowding and, sometimes without realizing it, authenticity. The desire for authenticity (of undisputed origin, genuine) and visual amenity (useful or enjoyable), whether it is conscious or subconscious in origin, is reflected in the results of two studies conducted almost 30 years apart from one another.

In 1978 McKenry, a doctoral student, conducted research as to how people perceive natural landscapes (cited in Read (1987). McKenry explored various perspectives according to the percentage of people who see natural areas as:

- Bad, ugly, noisy, dirty, repulsive evil, wasteful, boring, dead, uninviting, dull, useless or depressing (<4%)
- Bleak, dangerous or fragile (4-25%)
- Happy, friendly, sacred, huge, roadless or pure (25-50%)
- Good, remote, alive, exciting, unique, wild, challenging, inspiring, valuable, restful, unspoiled, free, beautiful or natural (>50%)

It is worth noting that greater that 50% of respondents identify positive values, such as good, alive, unique, wild, inspiring, valuable, restful, unspoiled, free and/or beautiful when thinking about natural landscapes. A number of these values also reflect aspects of authenticity and visual amenity. Very few humans see natural landscapes as bad, ugly, noisy, dirty, repulsive evil, wasteful, boring dead, uninviting, dull, useless or depressing. But all or some of these terms can be readily used to describe certain cityscapes and plenty of mine sites, industrial and degraded landscapes

Of additional interest are the findings of studies conducted in Western Australia by Smith (2004), Smith and Newsome (2005) and Smith *et al.* (2005). This more recent work reveals that in the southwest forests and along the northwest coastline >90% of survey respondents stated that their reason for visiting a natural area was *to be in and enjoy*

natural environment. Smith (2004) confirmed that visitors to the southwest forests wished *to get away from the city* (87%), enjoy *outdoor activities* (89%) and expressed a desire for *solitude* (77%). Smith and Newsome (2005) found that 63% of visitors to the northwest coast stated their preferred natural area experience was a very natural to totally natural landscape with limited or no facilities (e.g. Figure 2)

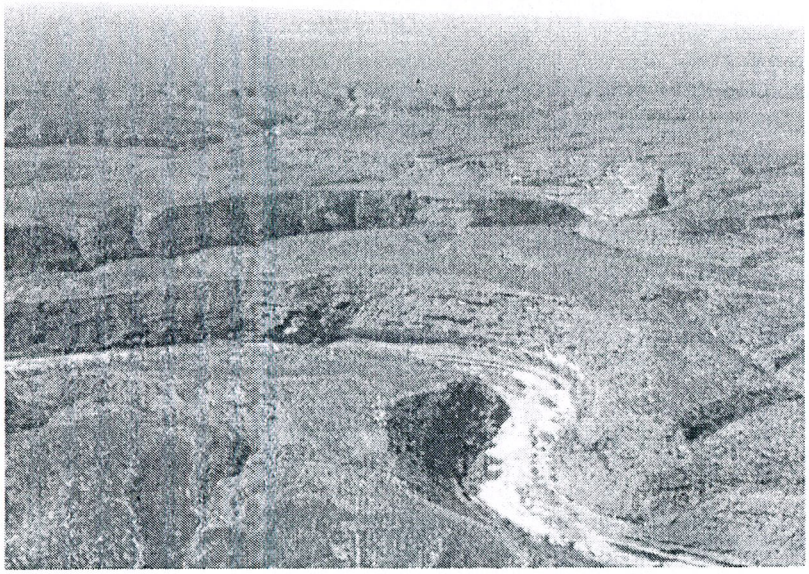

Figure 2 Incised meanders, Murchison River system, Kalbarri National Park, Western Australia. Landscapes will vary in the degree of naturalness they exhibit. In the case of Kalbarri there are faunal elements in the landscape such as goats and feral pigs, which are not authentic. Some landscapes contain highly modified floras. In the vast majority of cases, however, it is geology and landforms that comprise the most 'natural' and authentic aspects of the landscape. (Photo D. Newsome)

What do the visitor statistics and results of these visitor surveys mean for our decision makers? First it means that an ever increasing number of voters ascribe significance to natural landscapes for their recreational and other values. Secondly, visual amenity and authenticity are becoming more important as part of the visitor experience. Lastly, due to the highly urbanized nature of our world, the vast areas of 'nature' that have been modified, coupled with wealth and increased travel and tourism, those countries with substantial natural landscape will be attractive as visitor destinations in the future. These are three good reasons for adequate protection and expansion of the protected area network in Western Australia, Australia and the World as a whole.

There is plenty of evidence that natural landscapes are important to people as can be seen from visitor statistics to natural areas and the increase in wildlife viewing along with the growing membership of natural history societies, wildlife organizations, conservation groups, green organizations and hiking clubs (e.g. Newsome *et al.* (2002; 2005). Having

said this, challenges remain as various threats and a lack of funding jeopardize the integrity of existing protected areas. The words of Owens and Owens (1984) highlight the reality that can appear and threaten a highly valued natural area anywhere in the world and at any time.

> *Surface Uranium deposits had been discovered in dry riverbeds in Australia; the same could be true of the Kalahari. Our reports to the Botswana government, urgently requesting that the Game Reserve be spared mineral exploration received no response. All we could do was wait.'*

Moreover, all governments could do more to designate additional land as protected area. The following list of countries with percentage of land designated as protected area is worthy of consideration. Wealthy countries like Australia are not setting a strong example in designating natural environments as protected areas

Costa Rica 29%
Tanzania 25%
Nepal 19%
Thailand 13%
Australia 10.5%
Western Australia 7% (9%)

A call for greater recognition of our protected areas as important 'psychological' resources and the need to designate more protected area is exemplified in words of Sir Peter Scott

> *Developing the resources of a country without destroying the environment is not an impossible achievement for those who are motivated, but it requires a willingness to make minor sacrifices.....*
>
> *We must set our goals to ensure that an appreciation of nature will grow alongside all other aspects of human development.* (Hails and Jarvis, 1984).

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COASTAL GEOHERITAGE IN WESTERN AUSTRALIA

Ross Dowling
Edith Cowan University, WA

LIVING LANDSCAPES

Richard Woldendorp
Photographer

"My talk will be predominantly on the aerial aspect of viewing our landscape - natural and man-made. Sometimes the aerial point of view has a greater clarity and gives a better overview of the magnitude and evolution of our natural environment. We also become very much aware of the man-made intrusion which has taken place over the last 200 years."

COUNTRY AND THE SACREDNESS OF THE GEOLOGY

David Milroy
Musician, Director and Writer

The Dugong and Marine Turtle Project / Bardi Jawi Rangers

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Background

The Dugong and Marine Turtle Project is being undertaken on Bardi Jawi and Mayala country on the Dampier Peninsula 200km north of Broome. The joint project between the Bardi Jawi and Mayala traditional owners in partnership with the Kimberley Land Council (KLC) Native Title Representative Body and Northern Australia Indigenous Land Managers Alliance (NAILSMA) is linking indigenous land managers across the North of Australia in Kimberley region of WA, Northern Territory, Gulf of Carpenteria, Cape York and the Torres Strait.

The Kimberley project involves working with the people from the two major communities of Lombadina/Djarindjin and Ardyaloon (One Arm Point) as well as seeking input from the many family blocks or outstations. The country that the project is being undertaken on has recently been granted exclusive native title on the mainland with non exclusive rights to the low tide mark. Unfortunately this does not recognize the islands and waters claimed for and the Bardi and Jawi people are currently awaiting an appeal of this decision with the Federal Court.
Once the associated Bardi Jawi Prescribed Body Corporate has become established for the Bardi and Jawi people further issues of land and sea management will come to the fore for these people's land which is also under increasing tourism pressure. The idea of a Indigenous Protected Area may be something strongly considered by the Bardi Jawi people as it provides for ongoing funding for management and the traditional owners develop their own management mechanisms.

The Bardi-Jawi people on the Dampier Peninsular were identified to undertake the pilot project within the Kimberley because of their strong connection to sea country and utilization of the sea resources such as turtle and dugong. Resources and factors such as turtle, dugong, fish, tides and reefs have been essentially made inherent into Bardi Jawi culture as documented by their knowledge, language and place names for many aspects of marine and coastal life.

The Dugong and Marine Turtle Project sits within the Land and Sea Management Unit of the KLC. This unit specifically undertakes Land and Sea management projects with traditional owners on their lands to offer specialist advice and co ordination with the communities in the form of project officers or coordinators often placed within the communities the project is being undertaken or in close by towns.

The Project is guided by its' Regional Activity Plan (RAP) that sets out what is to be achieved and how these activities will be undertaken. The RAP has been prepared by the Kimberley Land Council on behalf of the Bardi Jawi and Mayala peoples, and the contents reflect the aspirations and concerns of these people for marine turtle and dugong management. The RAP was pulled together by Zoe Carr a PhD Student with Edith Cowan University who was also studying perceptions of traditional hunting with the Bardi Jawi for her thesis.

The major aspects of the RAP which were identified by the Bardi Jawi in collaboration with NAILSMA was the establishment of a Sea Ranger Program, establishment of databases for dugong and turtle catch monitoring, seagrass beds, cultural knowledge, cross cultural information exchange, cultural and hunting workshops, cleaning up and looking after country and learning from experiences.

The guidance of the RAP has been a useful tool to ensure the project is continually on track with the goals originally aspired.

The project is regularly reported to a steering committee, consisting of elders as well the younger generation of traditional hunters from the community, the committee steers the project activities as identified in the activity plan and is also a way of informing the community of activities.

This seminar will document the work done to date through reporting on aspects of the RAP and the development of the Bardi Jawi Ranger Unit along side evaluation, monitoring and the development of culturally appropriate models of management of saltwater country. In particular, we will examine the relevance of Indigenous community engagement from the ground up as an essential element of any successful program aimed at caring for country.

Establishment of a Sea Ranger Program

In early October 06 the recruitment process of enlisting community members began and a group of interested CDEP participants joined in the new activities of the Dugong and Marine Turtle Project, creating the CDEP activity of Rangers.

With direction from a steering committee consisting of elders, the committee overlooks the ranger works program which includes the documenting of traditional harvest, cultural and ecological knowledge.

Other forms of work such as fee for service for the Australian Quarantine Inspection Service has provided for purchasing of additional operational equipment, while protecting the West Kimberley coastline from foreign mosquito, ants and illegal foreign fishing boats.

Satellite telemetry tagging and genetic sampling of turtles are other areas of work in which the Bardi Jawi Rangers have been able to take part in and involve the wider community, including school children and traditional hunters

The program also seeks to provide recognized training and skills for those rangers participating in the project offering a career pathway in natural resource management in remote Aboriginal communities.

Further activities, including documenting the cultural and ecological knowledge particularly hunting, breeding and feeding areas discussed with elders. The rangers program have also been managing the traditional harvest of dugong and turtle and importance within the social context, in partnership with Australian National University.

The Dugong and Marine Turtle project will hopefully lead to a continuing of their traditional lifestyle and looking after culturally important species such as goorlil (turtle) and odorr (dugong) and explore how participating in a "both ways approach" and enlisting external sources such as science institutions and government departments to help manage their country for future generations can have substantial community benefits.

SHIFTING BASELINES: THE ROLE OF MARINE RESERVES IN A RAPIDLY CHANGING WORLD.

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Introduction

Marine Protected areas, particularly no-take marine reserves, have a crucial role to play in helping us to learn about, and protect, marine ecosystems. This is not so much because they are a cure for all the pressures that beset our coastal seas, but because of what they can tell us about how marine ecosystems work and what we can do to restore or maintain their vital functions and values into the future. It is not always easy to tell what our impacts on a kelp forest or a coral reef are. In many areas these systems have been subjected to major changes even before marine biologists started to study them. So when scientists and managers are asked to assess the likely impact of an activity like fishing, which has been happening all along the coast for decades, we may be starting from a baseline that has shifted from what it was originally.

This shifting baseline syndrome is a worldwide problem, but one that we can overcome with the help of marine reserves. Marine reserves have provided a range of surprising insights into marine species and ecosystems, and our impacts on them, which would not otherwise have been possible. Species that were never thought to prosper from protection have flourished, leading us to re-assess assumptions about their behaviour and life cycles, and wholesale changes to ecosystem structure have been found to occur inside marine reserves requiring a re-evaluation of the broader impacts of fishing activities. A range of case studies from Australia and overseas will show how marine reserves can be used not only to directly protect marine flora and fauna, but to provide baselines and scientific understanding that can be used to better the overall management of marine resources.

This paper briefly outlines cases from Western Australia and other parts of Australasia to demonstrate how we can use marine reserves to gain unique insights into marine ecosystems, how they work, and how this information can be used to improve management, and increase the appreciation of marine natural resources. The reason that many of these insights are unique, and not likely to be gained by studies outside marine reserves, is that often the changes seen in reserves were not predicted.

Changes in Reserves: exploited species

While we might reasonably expect the numbers of fished species to increase in areas where there is no fishing, such as no-take marine reserves, this is not necessarily the case. It may well be that if the protected area is too small, animals will move in and out often enough that, in effect, they will still be subject to fishing. This means that populations of highly mobile species may not respond to protection. In fact it is commonly predicted that heavily fished species will not respond precisely because these species are often quite mobile. This was the case for snapper and southern rock lobster in New Zealand since both species display large scale population movements or migrations and were thought to be so mobile that there would be no detectable effect on their populations in the relatively small marine reserves established in northeastern New Zealand (Ballantine 1989). However this has turned

out not to be the case, and the populations of lobster and snapper are respectively 3.7 and 14 times more abundant in these reserves than in fished areas (Willis et al. 2003, Kelly et al. 2000).

In Western Australia a similar situation can be seen in the case of western rock lobster. The western rock lobster is a species characterised by high mobility and migratory behaviour, in which young lobsters settle on shallow seagrass and inshore reef then migrate out into deep water on the shelf as they mature (Phillips 1983). It was quite surprising therefore to find that in the tiny Kingston Reef marine sanctuary (average depth 5-6 m) at Rottnest Island the density of the lobster population is around thirty times higher than in nearby fished areas (Babcock et al. 2007). Fished species such as Dhufish and Breaksea cod are either more abundant or reach larger sizes in the sanctuary (Babcock et al. 2007).

Unexpected findings such as these beg the question of just how much do we really know and understand about the life history and behaviour of these species? Cleary not as much as we need to know in order to accurately predict how they will be affected by spatial management initiatives such as marine reserves! Acoustic tracking studies using pingers to follow individual snapper and lobster in New Zealand showed that there was a previously unknown level of individual variation in behaviour within these populations. Some "resident" individuals seem to have very high levels of site fidelity, staying around small patches of reef (Parsons et al 2003), while others may roam more widely (Egli and Babcock 2004). Individuals with resident behaviour types built up quickly in no-take areas (Denny et al 2004). Similar patterns were found by tracking southern rock lobster which were found to travel widely but return to their home den, often after wandering extensively in off-reef areas (Kelly et al. 1999). In both species these behaviours were most evident in large individuals, so the reserves once again played a vital role in our gaining a fuller understanding the range of a species' behaviour.

Large individuals are hard to find or catch in fished areas, and even if they could be found and tagged they might be caught before they could be tracked for any length of time. Similar acoustic tracking studies of western rock lobster are now underway in Western Australia and are showing that, contrary to common assumptions, many maturing rock lobster (whites) stay on inshore reefs over the migration season, and that this pattern is shown by at least half the whites population, perhaps up to 90%. Importantly, this work is also being conducted in a marine sanctuary. It is probable that in a fished area these lobsters would be quickly caught, before it was clear whether or not they would migrate, making it impossible to gain these insights into lobster behaviour.

Indirect effects

Because the most important fished species are usually predators, other unforseen insights can be gained from reserves, since even in species we don't directly exploit, indirect effects can be seen in populations of prey in response to increases in predator abundance. One of the most abundant prey species in the kelp forests of Australia and New Zealand's temperate coasts are kelp-grazing sea urchins. In New Zealand the abundance of sea urchins is much lower in marine reserves than in nearby fished areas (Shears and Babcock 2002), a pattern that can also be seen in Tasmanian marine reserves (Barrett et al. 2007) and to some extent in Western Australia (Babcock et al 2007). Other important kelp grazers are marine molluscs whose populations are also affected strongly by predation (Langlois et al. 2005, 2006a). It would be impossible to gain a definitive understanding of such indirect interaction effects and how predation affects these populations without reserves for

two reasons. Firstly the size of the organisms involved, their behaviour, and the rigours of the marine environment mean that caging or other experiments are simply impractical. Secondly, since predation is often very size-specific, effects may be absent in fished areas simply because large individuals are absent of present at very low densities (Langlois et al 2006b).

Cascading interactions

Indirect interactions can extend beyond immediate predator-prey interactions involving fished species to affect many different parts of the foodweb, and may extend to the entire ecosystems. One of the best examples of the far-reaching effects of indirect trophic interactions comes from the demonstration of what is known as a "trophic[1] cascade" involving predators, urchins and kelp. In some New Zealand marine reserves urchin populations have been reduced to such low levels that they no longer are able to prevent kelp forests from establishing (Babcock 1999, Shears and Babcock 2002). In contrast, fished areas outside the reserves support abundant urchins that graze so heavily the rocks there are mainly barren, covered by a thin layer of coralline algae. These "barrens" were thought to be the normal state of affairs on reefs in northeastern New Zealand until monitoring of marine reserves showed us that in fact they were an unexpected indirect impact of fishing. These barrens develop because the natural predators of urchins (lobster and snapper) were too depleted in number and reduced in size to prevent explosions of urchin populations. Barrens are common on large areas of the eastern Australian coast (Underwood et al.1991), and are extending down to Tasmania (Johnson et al. 2005), however they are not a feature of Western Australian coasts, despite apparently high levels of fishing (Babcock et al 2007). Ongoing studies of no-take areas in WA may help explain these differences.

Because kelp forms the base of the food pyramid for much of the coastal ecosystem, as well as physically providing shelter for many smaller plants and animals, the indirect changes to kelp forests resulting from fishing may have quite significant impacts. For example it has been estimated that benthic plant production in fished areas dominated by urchin barrens is reduced by around 40% compared to what it would be on northeast New Zealand coasts covered by kelp forests (Babcock et al. 1999) and this change is likely to produce large effects on secondary production (Taylor 1998). The abundance of kelp-associated molluscs (Shears and Babcock 2003) and fish (Willis and Anderson 2003) have been shown to differ measurably in fished and unfished areas. Because these species are all part of the food web that supports the larger exploited predator species, there may well be a negative feedback leading to ever lower useful production. This is not a scenario that it would have been possible to paint without the knowledge gained from marine reserves, yet it is exactly the kind of information desperately needed by management agencies now charged with the job of ensuring that fishing is sustainable at the ecosystem level. Ironically fisheries agencies have often led (or tacitly supported) the opposition to marine reserves, however this position seems to be rapidly changing.

Marine reserves as a research tool

Modern fisheries research is making increasing use of marine reserves since the information provided by studies from reserves has the potential to improve decision making by fisheries managers. One such example is the broad system-level ramifications of trophic cascades that can result from fishing. The details of how Ecosystem Based Fisheries Management (EBFM) and spatial management

[1] feeding

decisions may play out, can also be informed in a number of important ways. Often the results of system-scale manipulations represented by marine reserves are counter-intuitive, as has been found in the temperate reef ecosystems of Tasmania. In Tasmania invertebrate fisheries are very important and two of the largest are the rock lobster and abalone fisheries. However while the lobster populations in reserves such as Maria Island have recovered to a remarkable extent, abalone populations have shown no real change. In fact abalone populations in the Maria Island marine reserve seem to be shrinking, and have very few juveniles, most likely because of predation by rock lobsters (Barrett et al. 2007). Clearly not all exploited species respond to management in the same way, and potentially attempts to manage at the ecosystem level need to take account of the fact that what benefits lobster populations or the lobster fishery may have the opposite effect on abalone.

Single species fisheries management has also benefited from research in marine reserves. No-take marine reserves have also been used to derive fisheries independent estimates of fishing mortality for snapper in New Zealand (Willis and Millar 2005) and to improve models of the rock lobster fishery in Tasmania. Tasmanian rock lobster growth estimates are based on animals captured in the fishery, as is the case for most fisheries. However where most of the population above minimum legal size is missing due to fisheries exploitation, there are few large animals left on which to make estimates of growth rates, reproduction etc. By using individuals in the marine reserve in their mark recapture program fisheries scientists were able to fill a large gap in their data and greatly improve estimates of lobster growth rates for that proportion of the population larger than the minimum legal size (Buxton et al 2006).

No-take zones established specifically for the purposes of scientific research are not a new idea. Even in New Zealand the first marine reserves were set up for the purposes of scientific research and fisheries research areas have existed in Western Australia for decades. While some WA Fisheries research closures are still in existence, such as those at the Abrolhos Islands others, like the closed area at Garden Island, have been allowed to lapse meaning the loss of a valuable scientific resource. Now the idea of using no-take areas to help provide key information to fisheries management is undergoing a revival. A major reason for this is the growing need to understand the ecosystem-wide impacts of fishing, and as trite as it sounds, the best way to do this may actually be to stop fishing!

The examples provided above show some of the reasons why this is so. In recent decades the responsibility for creating marine reserves and no-take areas has fallen largely to conservation agencies, but the responsibilities of conservation and fisheries agencies are beginning to have more and more in common. Therefore in terms of overall management philosophy, as well as because of legal obligations to implement ecosystem based management, there is the potential to move into a new style of multiple use, for conservation and research, that will help achieve the best outcomes for marine environmental management both inside and outside marine reserves.

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WHALESHARKS OFF NINGALOO

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Murdoch University and Ecocean Inc. are combining to undertake a broad study on the whale sharks on Ningaloo Marine Park (NMP) in an effort to better understand several aspects of whale shark biology and ecology to assist with the long-term conservation of this threatened species.

The method used to identify whale sharks using natural markings on the skin of each whale shark was developed from research undertaken at NMP between 1995-2007. The resultant ECOCEAN Whale Shark Photo-identification Library has become the global sightings database for this species, with entries logged from 37 countries (to date) and a total of 833 whale sharks identified. The computer-aided system used to test for 'matches' of individuals was adapted from an algorithm used by Hubble space telescope scientists to 'map' stars in the night sky. Population monitoring is employed to determine the status of whale sharks at NMP, updated on an annual basis with input of images collected by researchers, industry videographers, tourists and volunteers.

A stereo-camera system, developed in association with the University of WA, was tested at NMP in 2007 with the view to expanding this program in 2008 and beyond to determine an accurate mean length of whale sharks visiting NMP. When used in combination with the ECOCEAN Library, it will provide the first data on growth rate for this species in the wild.

In association with researchers at the University of Swansea, specially developed data-logging tags were successfully tested on whale sharks at NMP in 2007 and will be deployed in a broader study in 2008 to enable a better understanding of whale shark behaviour and assist in the development of refined guidelines to minimize impacts on whale shark sharks resulting from ecotourism pressure at NMP.

In collaboration with Curtin University, a survey regime incorporating data on visitor satisfaction and visitor expenditure will continue in 2008 and beyond and provide data to assist stakeholders to further refine the service provided to tourists at NMP and to assist in targeting their promotion to the public.

Public education of participants in whale shark ecotourism is a major focus of this broad program to assist the long-term conservation of whale sharks at NMP and abroad.

WHO, WHAT, WHERE AND WHEN? COLLECTING HUMAN USAGE INFORMATION FOR BETTER MARINE PROTECTED AREA PLANNING

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Planning for Marine Protected Areas in the vast state of Western Australia suffers from poor spatial information about human use of marine resources. For example, although well-maintained and continuous data sets on commercial fishing catch and effort exist, they are recorded in ~12 000 km^2 blocks (1° x 1° grid). Creel survey data for boat-based recreational fisheries are collected irregularly, usually using ~80 km^2 blocks (5 nautical miles x 5 nautical miles). Spatial information on non-extractive usage (e.g., SCUBA diving, snorkelling, whale watching, bird watching etc) is rarely collected.

Consequently, when Marine Protected Areas are planned, although there may be locality-specific biodiversity data and habitat maps for the region, there is usually considerable uncertainty as to the fishing effort, the number of people that actually use particular areas of the marine environment and historical usage patterns. But, progress is being made, and in this paper a series of examples is presented to illustrate how collection of spatial data on human use of marine resources can be used to better inform the marine conservation planning process, and allow some resolution of conflict amongst stakeholder groups.

Rottnest Island Reserve comprises terrestrial and marine components. Although harvesting of terrestrial plants and animals is prohibited, in the marine reserve, extractive uses such as fishing and crayfishing are popular. A comprehensive creel survey (Smallwood *et al.* 2006) allowed spatial and temporal variability in shore-based recreational fishing effort to be clearly demarcated and this information was used to assist in preparation of the new marine management strategy for Rottnest Island (RIA 2007). This avoided location of sanctuary zones in heavily fished areas thereby conserving areas with more intact ecosystems and reducing conflict.

The Blackwood Estuary near Augusta is to be included in the proposed Capes Marine Park. A spatial and temporal assessment of human use of the estuary and a creel survey of the recreational fishery (Prior & Beckley 2006, 2007) clearly indicated that the fishery was focussed in specific areas of the estuary which are generally related to access points and boat ramp proximity. Some parts of the estuary are infrequently used and, if biodiversity conservation targets can be met, it is highly recommended that such areas be demarcated as sanctuary zones.

At Ningaloo Reef, data on extractive use of resources have been reported in a 5nm x 5nm spatial grid based on interview responses by recreational anglers (Sumner *et al.* 2002). However, zoning of the Ningaloo Marine Park (CALM & MPRA 2005) actually required information on a much finer spatial scale. As part of the Wealth from Oceans Ningaloo Collaborative Cluster, a research project elucidating the spatial and temporal distribution of human activities (e.g. snorkelling, fishing, diving) in Ningaloo Marine Park (at a spatial resolution of <100m) is currently underway in order to improve this state of affairs and provide a solid basis on which a comprehensive monitoring programme can be built.

This presentation makes the case for *a priori* collection of high resolution spatial data on current and historical human use of marine resources in areas designated for marine biodiversity conservation, so that modern reserve planning algorithms can be used effectively, the issue of displaced activities can be objectively assessed, and more intact ecosystems can be conserved.

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PROTECTING THE HIDDEN WORLD - STRATEGIES AND CHALLENGES IN MARINE CONSERVATION

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The marine environment has been claimed incrementally and with vigour by resource users over time. Historically there has been little if any systematic, integrated planning for conservation purposes, particularly with regard to the allocation of space. This leaves contemporary conservationists with the challenge of 'claiming back' some marine territory that would likely have been allocated for conservation had systematic, science-based planning ever occurred.

Marine protected areas, the most obvious spatial conservation measure, are an important conservation tool and are essential in many places, although other tools are also important. However, in keeping with the themes of this conference, this presentation will trace some of the recent history of marine protected area, or 'marine park', conservation in Western Australia, touching on the universal theme of heated conflict over protected area planning but also describing an attempt to design an approach to marine planning and conservation in a less confrontational manner.

Western Australian peak body leaders, accustomed to being at loggerheads over marine protected area planning, have been meeting over the past few months in an attempt to forge agreement around a new policy framework that would support integrated regional marine planning, including fully protected areas, but not restricted to this.

This presentation will provide one perspective on this process and some of WWF's proposals for how integrated marine planning can best proceed to deliver real conservation wins. Will the experiment work? Can it be improved? Will it have wider application? You be the judge.

SAVING THE SHANNON BASIN: THE CAMPAIGN FOR THE SHANNON NATIONAL PARK

Beth Schultz

The Shannon River Basin, 50 km south-east of Manjimup in the south-west of Western Australia, covers an area of some 60,000 ha. Roughly one-third is karri forest, one-third jarrah forest and one-third wetlands and coastal heath.

In 1974, the Conservation Through Reserves Committee, set up by the newly created WA Environmental Protection Authority, recommended that because of concerns about clearfelling of karri forest for the woodchip industry, a whole 'pristine ' catchment be withheld from clearfelling until 1991. A substantial area of karri forest should then be preserved in perpetuity as a national park.

The Shannon River and its estuary, Broke Inlet, were chosen as the only large relatively undisturbed river basin in the region. It was almost all public land and was buffered by surrounding forest. This proposal provided a rallying point for conservationists and their community supporters.

The forest conservation groups that formed in 1975 to oppose the woodchip industry, the Campaign to Save Native Forests (WA) and the South-West Forests Defence Foundation, adopted as a goal the creation of a Shannon National Park.

The Forests Department and the logging industry strenuously opposed the withdrawal of the basin from timber production and proposed temporary conservation areas as alternatives. The EPA supported these proposals and the Coalition Government endorsed them, so clearfelling in the basin continued into the 1980s.

About a quarter of the karri forest and a sixth of the jarrah were logged.

In the late 1970s conservationists persuaded the WA Branch of the Australian Labor Party to make Shannon National Park a platform commitment, so when the ALP was elected to government in 1983, it stopped any further logging in the basin and eventually, in 1988, passed legislation to establish the National Park.

Some personalities involved in the "Save the Shannon Basin" campaign and some milestone events are discussed from an insider's perspective.

THE FATE OF URBAN WETLANDS – A COMMUNITY CASE STUDY ON PIPIDINNY SWAMP, YANCHEP NATIONAL PARK

Dr Hugo Bekle
Yellagonga and Yanchep Community Advisory Committees, WA

FOCUS ON JARRAH

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INTRODUCTION

WA is the largest and driest of Australian States. The tall forest in its South West - one of the world's 34 "biodiversity hotspots" (Wilson 2006) - is only 1.2% of WA's area. Further east and north, the "*kwongan*" heathlands were even more biodiverse, but have now nearly all been cleared for agriculture. Although in part, forests suffered a similar fate, luckily, because of their fine hardwood timber, much has been retained in public ownership. However, barely 2.5 million hectares remain.

A few unique and endemic tree species dominate these forests and Jarrah is the most prominent. It is remarkable as it is the only tall forest to grow in a truly Mediterranean climate. It possesses some specialised adaptations, such as its very deep sinker roots which enable it to withstand a harsh climate and the infertile soils of its only home (Dell *et al.* 1989). It became well known for its timber – a strong, dark red and durable mahogany. The other major timber – Karri – was also sought for its exceptional strength and availability in very long lengths. In the early days of European settlement the trees were so huge and plentiful, the forest seemed inexhaustible and it was logged unsustainably, too often and too hard.

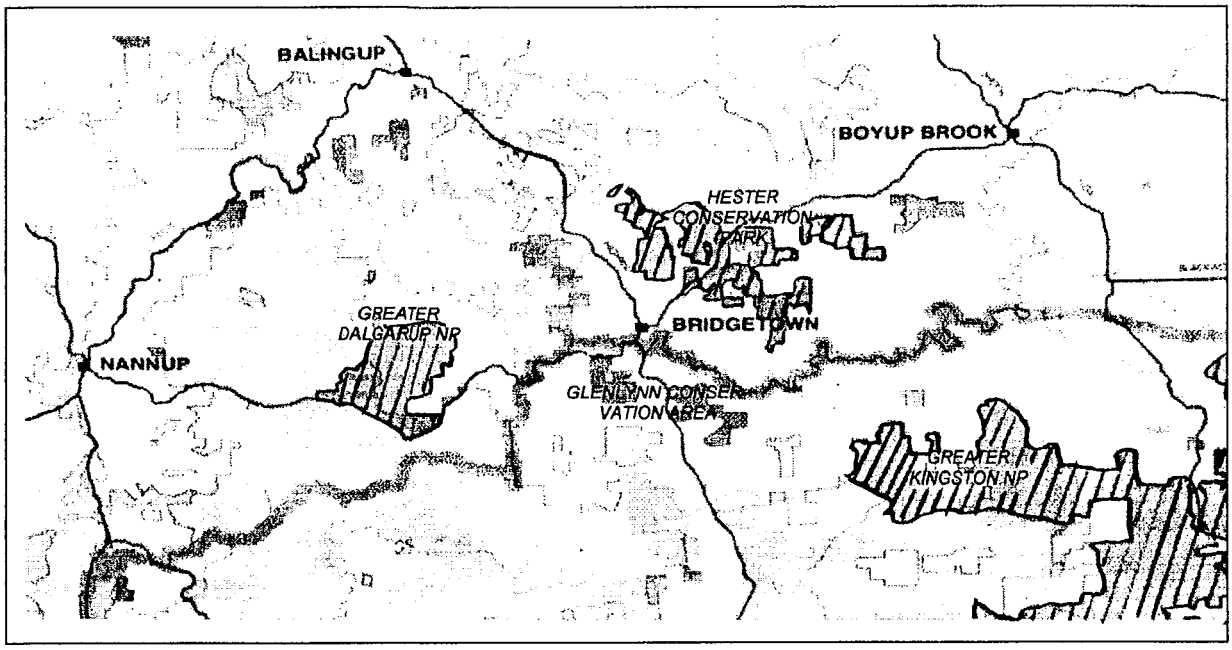
Bridgetown – Greenbushes is a small Shire situated 285 kilometres south of Perth, in the heart of the Jarrah forest of south-west Western Australia, with Bridgetown at the intersection of the Blackwood River and South West Highway.

Originally the Blackwood Valley was clothed in Jarrah in pure stands or mixed with Marri and Blackbutt. Flooded gum woodlands fringed river and streams. In the West, Wandoo occupied higher rocky sites and small perched wetlands carried paperbark and Ti tree. In the south-western tip of Bridgetown Shire the Jarrah forest meets the northern tip of the Karri.

Today the Shire retains 58% of its original area of native vegetation with 51% on public lands (Grein 1995). Until the 1980s all of the forest in the Shire was available for logging right up to the town boundary. There were no National Parks and just a few small bushland reserves vested in the Shire, not available for agriculture, but not protected. These doubled up as rubbish dumps, pits for sand and gravel and as a firewood resource.

Unfortunately, the jarrah ecosystem, weakened by over-exploitation, is now further threatened by the drying trend of climate change. It will need total protection if it is to survive far into the future.

This paper briefly highlights the extraordinary efforts of the Bridgetown-Greenbushes community, through the Friends of the Forest Group, to protect the Jarrah forest in our Shire over the last twenty years.



HIGHLIGHTS OF THE CAMPAIGN TO PROTECT THE JARRAH FOREST REMNANTS

The story starts in 1987, when the Burke Labour government put out forest management plans for public comment for the first time. In Bridgetown, the recently formed Department of Conservation and Land Management, CALM, convened a public meeting to introduce the 1987-1997 Central Forest Regional Management Plan (1987b). An invitation was extended to communities to form "Friends" groups to work with CALM on the management of forests. Two groups emerged in Bridgetown, the Bridgetown – Greenbushes Friends of the Forest (BGFF) and the Blackwood Environment Society (BES). The former focused on saving the Jarrah forest around Bridgetown and the latter tackling also broader environment issues.

Bridgetown was in the heart of the "production" forest, so BGFF started by aiming for 10% of the Shire's forest to be protected for conservation. First was Hester, the forested backdrop to Bridgetown that separates the township from the agricultural land and integral to Bridgetown's sense of place, our "green belt". Secondly, we needed a National Park and the very best bit was the Greater Dalgarup forest, noticeably taller than the surrounding forest. The Greater Kingston forest was added later.

The first action of BGFF was to prepare a short submission to save Hester (BGFF 1987).

Hester Forest
Hester is eight small Jarrah forest remnants totaling 5869 hectares and forming an arc on the high ground to the north and east of Bridgetown. Parts of it have old growth components and hence high biological diversity value.

The Hester submission was completely ignored. A ten year battle began in November 1994 with the Hester Forest Action when CALM started to log a little forest patch at Winnejup, Hester 0703. Logging was stopped on the first day when BGFF successfully applied for an interim injunction to halt it. Then followed four years of proceedings in the Supreme Court of WA and eventually the High Court of Australia.

With BGFF confronting CALM on every coupe planned for logging, all of Hester Forest has been protected, with the individual bits turned into Conservation Parks and Forest Conservation Areas all totally protected by 2004.

Dalgarup Forest

The Greater Dalgarup forest (about 4000 hectares) is 20 kms to the west of Bridgetown. It includes some of the finest remaining mixed tall forest in Western Australia, our four major tree species, Jarrah, Marri, Karri and Blackbutt, and includes the most northern occurrence of Karri. Casual observations by locals who frequent the forest report Bandicoot, Western Brush Wallaby, Woylie, Quokka (often observed as road kill on Brockman Highway), Red-tailed Black Cockatoo and Baudin's Cockatoo, just to name a few. Dalgarup was lightly cut for Jarrah sleepers from 1939 to 1951 but the forest remains relatively natural, clearly qualifying it for its high conservation value status, which has been progressively documented since 1976 when it was placed on the Register of the National Estate.

Dalgarup has a long history of community attachment and includes significant Aboriginal heritage sites. The campaign stepped up in 1994 when, at a major public meeting on the future of WA's unique old growth native forests, Mary Frith spoke on Dalgarup.

Despite the long recognition of the high conservation status of Dalgarup, it was scheduled for logging in 2001. A change of government that year provided an opportunity to persuade CALM to postpone logging until further assessment was carried out. Intensive lobbying and letter writing followed, then assessment by an independent consultant to the government, then more letters and finally Minister Judy Edwards announced the creation of the Greater Dalgarup National Park in 2003. The final boundaries were disappointing, in that Water Corporation grabbed the Gregory Brook catchment for water harvesting. Recently Nunn Block, a small freehold forest incursion into the area, was added to the Dalgarup National Park.

Greater Kingston Forest

The Greater Kingston forest is a large continuous area of Jarrah-Marri forest with old growth elements contiguous with the Perup-Tone Nature Reserve. Together they comprise over 72,000 hectares of conservation network including a significant ecotone, the transition from the wetter western tall Jarrah forest to the drier eastern Jarrah forest and Wandoo woodlands (R. Catomore 2001). The Greater Kingston forest is scientifically recognized as a species rich "hot spot" for small native mammals (Landscope1998-99) and is a refuge for a number of species, including the Numbat (our state emblem), the Ngwayir (Ring-tailed Possum) and the Chuditch, species that were once widespread but have now all but disappeared from south-west forests.

Prior to the 1990's the Greater Kingston forest was lightly logged and remained relatively undisturbed. After 1990 "integrated logging" by the Bradshaw method was carried out in

Kingston, Dudijup and Corbal blocks, creating clearfell coupes with just 3-4 habitat trees left. Both Jarrah and Marri were removed and the forest has not recovered.
The trigger for stepping up the Kingston campaign was the commencement of the long awaited Kingston Study (Burrows *et al 1994*) in 1995, to assess the impacts of current logging and burning practices on native flora and fauna. Its controversial approach of logging at the same time as studying the fauna alarmed conservationists and prompted a campaign that lasted until the change of state government in 2001, when the Gallop Labour Government swept to power on a platform of *Protecting our old-growth forests* and the formation of 30 new National Parks, one of which was the proposed Greater Kingston National Park. As with Dalgarup, the final park boundaries, announced in 2003 encompassed less than we proposed: a horse-shoe shaped park compromised by the exclusion of the logged blocks, still used by the ongoing Kingston Study.

PROTECTING JARRAH REMNANTS ON SHIRE RESERVES

BiG.liNCS

Parallel to the forest campaign BGFF and particularly BES also looked at local bushland reserves, river restoration and landscape ecology. In 1999, with Natural Heritage Trust and Shire of Bridgetown-Greenbushes funding, and the support of Agriculture WA's Spatial Resources Group, the Bridgetown–Greenbushes Nature Conservation Strategic Plan (later named BiG.liNCS) was initiated. This three year project identified and mapped all of the remnant vegetation in the Shire, with ground truthing of condition and conservation value of larger remnants on private land. In essence the project looked for the "big links", ecological corridors across the Shire that would connect otherwise isolated bush remnants, stream and roadside vegetation, state forests and conservation reserves. It also referred to the links being developed through the project between land managers, funding bodies, conservation groups and government agencies. (Singe 2003). The project aimed to create a living landscape rather than the museum style approach to forest conservation.

The notional linkages developed by the BiG.liNCS project were incorporated into the Bridgetown – Greenbushes Draft Rural Planning Strategy in 2001. BiG.liNCS highlighted the value of Jarrah remnants on Shire reserves as habitat nodes in landscape linkages. A review of shire reserves resulted in more appropriate vestings of conservation of flora and preservation of bushland.

Helping Hands for Shire Reserves

BiG.liNCS developed a cooperative partnership between the Shire and BES in which the Shire funded BES to prepare management plans for six of the more significant reserves. The project recognised the value of small Shire reserves but also the lack of resources in funds and expertise to manage them. BES successfully applied to Lotterywest in 2005 to implement *Helping Hands, an* "on ground" community project on local bushland. In 2006, thirty volunteers participated in forty busy bees on six reserves, achieving a total of 372 volunteer hours of weeding, planting and maintenance. The Helping Hands program is ongoing and is currently coordinated by Blackwood Valley Landcare, the Natural Resource Management group for our area.

CONCLUSION

The future of Bridgetown Jarrah forest looks more secure. We have two new National Parks partly within our Shire boundary, a Nature Reserve and thousands of hectares of Conservation Park. The community and Shire work together to improve the management of small Jarrah reserves and the Bridgetown- Greenbushes community looks forward to becoming involved in the management of the new National Parks and Forest Conservation Areas. However there are pressing issues to address and new challenges emerge. Of particular concern is the management of forest outside the conservation estate – overcutting and burning, the uncertainties associated with climate change and lack of resources afforded to DEC to manage environmental weeds, ferals and unlawful activities such as stealing logs and firewood from the conservation estate.

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ABORIGINAL LAND MANAGEMENT IN THE SOUTH WEST

Glen Kelly
CEO South West Aboriginal Land and Sea Council

VALUABLE VISITORS

PARKS, PEOPLE AND PARTNERSHIPS

Jim Sharp, Dino Magris, Evan Hall

Parks and Protected Areas are dependent on the support and involvement of the public in terms of ensuring they are valued and that public and private resources continue to be made available for their establishment and protection. Parks also provide an incredible opportunity for people and therefore society to experience nature and participate in the health, emotional, physical, mental and spiritual benefits that are derived from protected areas.

To quote Nelson Mandela "ultimately, conservation is about people. If you don't have sustainable development around national parks, then people will have no interest in them and the parks will not survive".

Parks are therefore about people and are dependent on the provision of opportunities for involvement, engagement and quality experiences while maintaining the scenic, landscape, biological and cultural values on which they are based.

Much of the significance that is derived from natural areas come from local or host communities that use parks 'recreationally' for the benefits gained or are engaged in 'voluntary activities' providing stewardships for the parks.

Visitors, who derive benefits, whether they are local or from further afar depend on the offerings made by partners to the managers of these areas. The sustainable use of parks and protected areas is dependent on tourism operators who bring knowledge, capital, expertise and business acumen as well as the capacity to engage more broadly in partnerships that benefit parks.

Visitors can bring financial resources to assist in management as well as creating a supportive constituency. In the case of Australian Pacific Touring a world-class accommodation facility has been developed in the World Heritage listed Purnululu National Park, developed in partnership with the Department of Environment and Conservation and incorporating sustainability criteria which sets a new standard in protected area management. The KWA safari camp operation has formed significant partnerships, one with the Indigenous community which has take up a 40 per cent equity in the business and is providing educationally and employment opportunities for Indigenous people and secondly with other tourism organisations in the provision of services and promotion of Purnululu. Local operators provide on-ground transport, helicopter and fixed wing access and regional and national promotion. The value of these partnerships is being outlined.

At a national level the Tourism and Transport Forum (TTF), the peak industry groups representing tourism and transport nationally is vigorously pursuing partnerships with parks and protected area managers to ensure that protected areas management is integrated with the needs of the tourism industry to ensure quality experiences based on nominally sound principles which are consistent with the protection of conservation values.

The TTF 'Climate Change Summit' resulted in a recently released 'National Tourism Partnership Action Plan' which includes strong arguments to expand the reserves system.

This follows the TTF report which is entitled 'A National Partnership: Make National Parks a Tourism Priority' which outlines the significance of Australia's protected areas and how to realise their tourism value while ensuring the protection of conservation values.

TTF has developed extensive partnerships in the tourism industry while pursuing partnerships with park and protected area managers, to ensure a world-class system of parks which is both relevant and beneficial to the tourism industry.

The range of partnerships outlined demonstrate the convergence developing between the private and public sectors, tourism and conservation interests in the pursuit of sustainable benefits through parks.

TOURISM AND RECREATION IN PROTECTED AREAS: RESEARCHING THE BIG ISSUES

Dr Karen Higginbottom
Sustainable Tourism Cooperative Research Centre/ Griffith University

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The Sustainable Tourism CRC is about half way through a six year research program on tourism in Australian protected areas. The mission of the program is 'to deliver, and promote the uptake and application of, nationally strategic knowledge and knowledge-based products in order to facilitate enhanced economic, environmental, social and cultural sustainability of tourism in natural areas, with a focus on protected areas'. The research agenda has been driven primarily by state protected area agencies, with some input from tourism interests. The projects involve university researchers working in partnership with agency staff in the planning, conduct and dissemination of research.

The research to date falls mainly within the following 'big issues' involved in planning and management of tourism and/or recreation in protected areas:

- Valuation of protected areas – what are they 'worth' and how should this be assessed?
- Visitors to protected areas – understanding more about them, and how to best collect and use visitor information
- 'Strategic communication' with visitors and tourism industry (including interpretation, marketing, and partnerships with tourism industry) – how should it be done?
- User-pays systems for protected areas – how should these be applied?
- Environmental impacts of visitors on protected areas – what are the impacts and how can they best be managed?
- Monitoring and evaluation of visitor use of protected areas – how can it be done better?
- Modelling of resorts in sensitive natural areas – how can this be used to support planning and management for sustainability?
- Sustainable environmental design for natural areas – principles and technical ideas

This presentation presents an overview of the research, including key findings and outputs to date. Further information can be found at:
http://www.crctourism.com.au/research/programs/SustainableResources/default.aspx

SAFARI CAMPS ON THE EDGE OF THE REEF

Paul Wittwer
Ningaloo Reef Retreat, WA

Safari camps have emerged as one of the hot new tourism products in Australia.

But a safari camp means different things to different people. This presentation will look at some of the different types of camps that have emerged and examine how the operational model influences the visitor experience and the economic benefits of the operation.

BALANCING CONSERVATION, RECREATION AND ADVENTURE TOURISM

Mike Wood
Mountain Design

PARTNERSHIPS AND PROTECTED AREAS: PROMISES, PITFALLS AND THE FUTURE

Associate Professor Sue Moore
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South Street
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AUSTRALIA

Partnerships are widely advocated as the only way forward in times when the resources available for protected areas are limited and their futures are becoming increasingly contested. The appeal of partnerships is not unique to protected area management. Health care and other domains of service delivery have seen a parallel and increasing interest in and application of partnerships. This presentation explores the reasons for this rapid increase in the popularity of partnerships and what makes them succeed or fail. It concludes with some speculations about the future and what might be our potential roles if partnering is to succeed.

GONDWANA LINK: A "MEGA-PRESERVE" APPROACH TO CONSERVATION IN THE FACE OF CLIMATE CHANGE AND OTHER THREATS

Robert Lambeck, Greening Australia WA. 10-12 The Terrace Fremante, WA 6160

Context: A history of extinction

Over the past 400m years, the world has seen five great extinctions. These events have seen as much as 50-90% of the world's biota exterminated. Recovery following such extinction events is slow, taking up to 10 million years for equivalent levels of diversity to be regained.

We are currently in what is claimed to be the 6th great, human induced, extinction event - the Holocene extinction which commenced 50,000 years ago as modern humans imposed their footprint upon the face of the planet. We are facing impacts attributable to both the legacy of the past - massive loss, fragmentation and degradation of habitat, and to the threats of the future - climate change and its associated impacts. The threats that face today's biota are huge and our response needs to be equally large.

The combination of past, present and future pressures threatens the fundamental processes that underpin the persistence of many of the world's plants and animals. In the face of changing climates, plants and animals that are unable to adapt or move in order to track their moving environmental domains (the combination of environmental attributes that are necessary for their persistence) are unlikely to persist.

Unfortunately, as climates shift across landscapes, or along altitudinal gradients, much of the biota is unable to follow, either because they are boxed into the fragments of remaining habitat surrounded by hostile land uses, or the rate at which they (or their genes) can move is insufficient to keep pace with a rapidly moving environmental envelope.

Clearly, in the face of such pressures, the gazetted reserve system – a disconnected scatter of locations often selected for scenic values or lack of value for exploitation - will not be able to protect Australia's unique biota.

Mega-preserves: conservation at scale to match the challenge

In response to these massive challenges, we are seeing the emergence of conservation initiatives that cross regions and continents. E.O. Wilson talks of "mainstream conservation writ large for future generations". In the US these projects take the form of four broad mega-preserves or mega-linkages: from Alaska to Mexico along the spine of the Rocky Mountains; across the Boreal from Alaska to Labrador; down the Atlantic coast via the Appalachians and along the Pacific via the Sierra Nevada into the Baja Peninsula – huge landscapes in which core protected areas are to be connected by mosaics of public and private lands increasingly managed for conservation.

In Australia, this concept is also gaining traction. In Western Australia, the Department of Environment and Conservation have developed the notion of a "Macro-corridor" extending along the coast between Albany and Esperance, and in the south-west of Western Australia,

a group of environmental organisations have come together to embark on what is one of the largest and most ambitious conservation projects in Australia. Designed to protect and restore a globally important ecological communities, the completed Gondwana Link will stretch for about 1,000 kilometres across south Western Australia, from the coast at Margaret River to the woodlands of Kalgoorlie (Fig. 1).

Gondwana Link: Restoring ecological connectivity from the south west forests to the arid interior

Leading national and global conservation groups, local communities and other organisations are working together to achieve the Gondwana Link vision. Using a combination of innovative conservation tactics and the best restoration science, the partners are strategically reconnecting and revegetating this massive network of private and Public Lands.

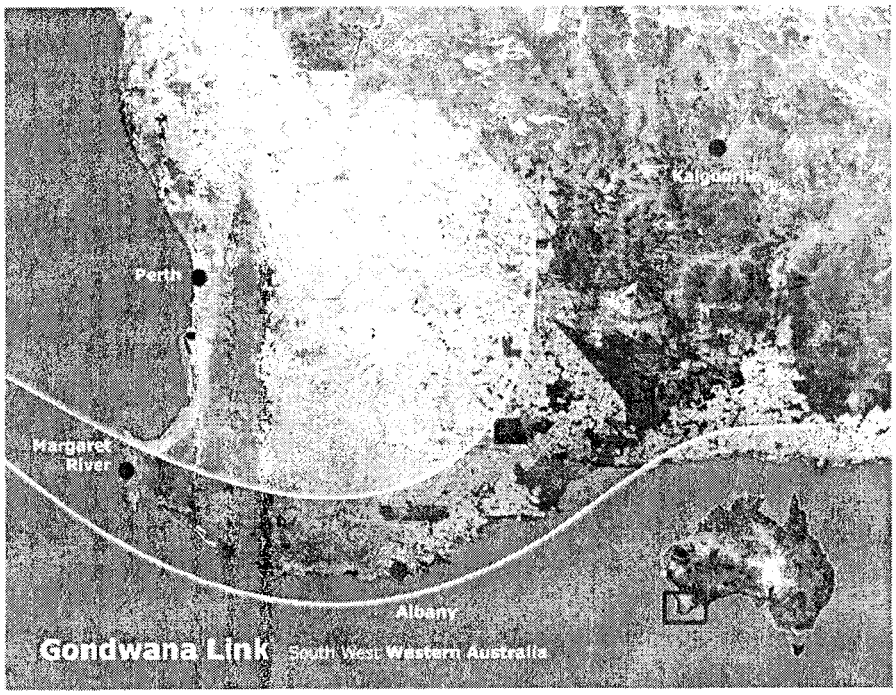


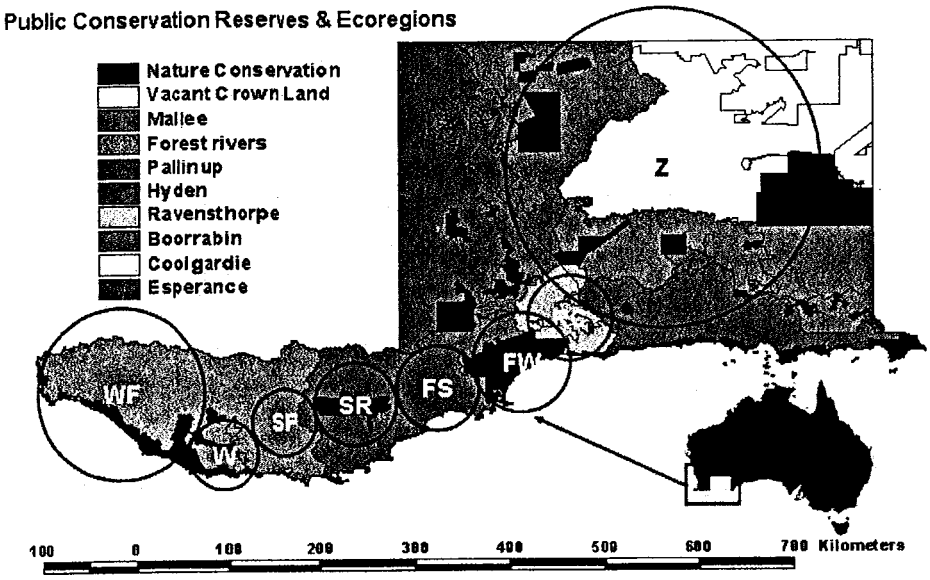
Fig. 1. The Gondwana Link vision: reconnected country from Kalgoorlie to the karri, in which ecosystem function and biodiversity are restored and maintained.

This initiative focuses on one of the most diverse areas within what is recognised as one of the world's 35 global biodiversity hotspots. The South West region of Australia is home to a staggering wealth of more than 10,000 plant and animal species—most of them found nowhere else in the world and many of which lie within the Gondwana Link pathway. .

Unfortunately, this region has also seen the widespread fragmentation and destruction of native habitat resulting in the loss of many plants and animals with many others endangered.

Conservation Planning

In order to tackle this massive challenge, the groups involved have partitioned the link into a number of operational areas (Fig 2) with different groups playing a lead role in different places depending on the main issues affecting those areas.



GONDWANA LINK OPERATIONAL AREAS
WF- Southern (Wet) Forests; W - Walpole Wilderness; SF- Stirlings to Forest to; SR- Stirling Range Wilderness; FS- Fitzgerald-Stirling; FW- Fitzgerald Wilderness; RC- Ravensthorpe Connection; Z- "Z" Land Wilderness

Fig 2. Gondwana Link operational areas

For each of these areas, a functional Landscape Plan is developed using the Conservation Action Planning framework of The Nature Conservancy. These functional landscape plans identify a carefully selected suite of targets which, if protected, will hopefully also protect a much larger range of species or ecological communities. For example, in the area between the Fitzgerald River National Park and the Stirling Range National Park, the primary targets include Proteaceous communities, mallet and moort woodlands, flat-topped yate woodlands, freshwater streams and pools and Tammar and Black-gloved Wallabies.

Conservation Action

The Gondwana Link groups are applying a suite of tools and actions to implement their conservation plan. Land acquisition, covenants and conservation buyers help protect the most ecologically important and at-risk private lands. Once land is secured, the latest revegetation techniques are used to enhance and restore native habitats at a scale never before attempted.

To date, nine properties have been secured in the "Fitzgerald – Stirling" operational area by the project partners or by individuals wishing to protect the conservation values on key properties (Fig 3). Over 1000 hectares of diverse habitat restoration has been undertaken and the intention is to significantly increase the area restored over coming years. Other parties with an interest in agroforestry are also working with the project to integrate their activities into the overall plan.

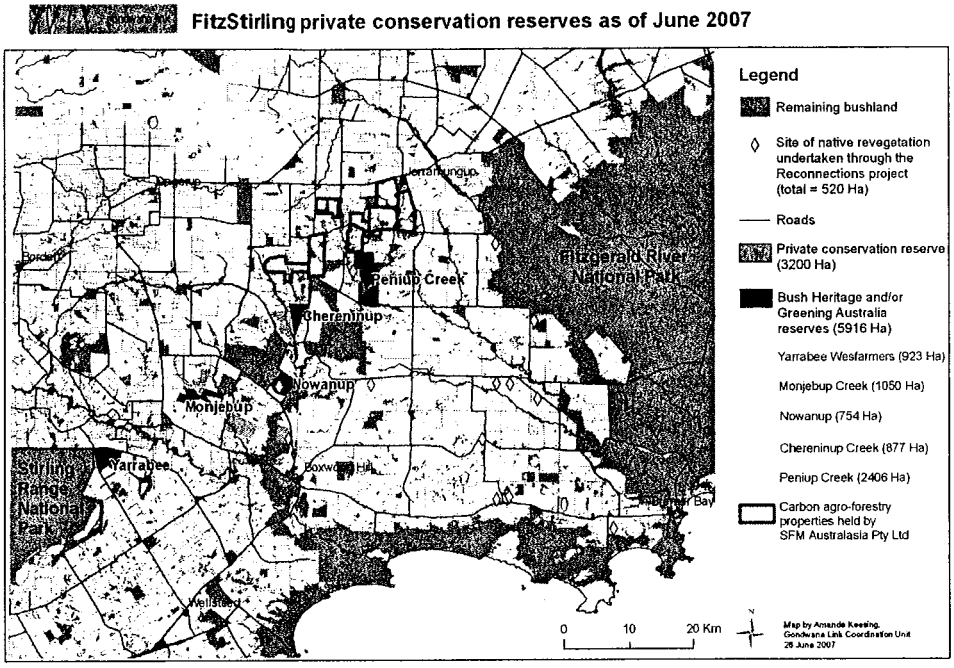


Fig 3. Conservation actions in Gondwana Link.

Community participation

Gondwana Link's restoration of the natural environment is also impacting the people who live in the area. The project participants include Noongar groups who are seeking to revitalise their connection to country and to their community and to create new job opportunities. Local farmers are participating in tree planting activities and establishing sandalwood plantations to improve the sustainability of farming enterprises in the region.

Corporate sponsors such as Shell Development Australia and Wesfarmers are actively involved, bringing staff to the project area to build their appreciation of the issues facing rural Australia, and to establish better relationships between their staff and rural communities.

A long-term challenge

The Gondwana Link vision is bold and the challenge is great. Securing funding for the long term and managing the governance arrangements of multiparty projects is challenging and time consuming, but strong leadership and a strong commitment to the project outcomes by all of the parties involved will ensure that the groups can constantly adapt and adjust to meet these challenges.

Acknowledgements: Gondwana Link Lead Groups

Australian Bush Heritage Fund
Greening Australia
The Wilderness Society
The Nature Conservancy
Fitzgerald Biosphere Group
Friends of the Fitzgerald River National Park
GreenSkills

PRIVATE CONSERVATION: A NEW MODEL FOR PROTECTING AUSTRALIA'S WILDLIFE

Atticus Fleming
Australian Wildlife Conservancy

THE WESTERN AUSTRALIA RESOURCES SECTOR...PROCESS AND PRACTICE

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The Western Australian Resources Sector is a significant contributor to the State and National economies. In the past 12 months the value of the State's resources sector has grown by 23 per cent to $48.4 billion, with resource exports from WA representing around 80 per cent of the State's total merchandise exports. The contribution of the resources sector is now delivering record royalties, high employment and flow on economic benefits for all Western Australians.

An estimated $80 billion in resources projects are either being planned or presently underway in Western Australia. With increased global demand for Western Australian resource commodities, there is confidence that the resources sector will continue to drive the Western Australian and Australian economies in the medium to long term.

However this unprecedented growth in the resources sector in Western Australia presents challenges for government, industry and the community at large in endeavouring to sustain the economic growth, whilst protecting the State's social structure and biodiversity and conservation areas.

Western Australia enjoys some of the most stringent environmental protection laws and processes found anywhere in the world. The resources sector accepts these high standards, with many examples of companies surpassing their environmental obligations in recognition of the key role they can play helping to identify and protect the State's biodiversity. However the resources sector does advocate for an approvals system that is streamlined and more certain to aid investment decisions.

Whilst the resources sector clearly does have a "footprint", this impact needs to be placed in context. Arguably, the footprint is relatively small and the obligation to restore it very high, relative to the impact of other sectors and the wealth generated. Resource companies are investing heavily in minimising the size of their footprint, rehabilitating the land, funding research, identifying offsets and building community infrastructure. There are many examples of the investment companies have made in funding research into local flora and fauna to aid in their identification and protection, again in recognition of the important role they can play in helping protect and conserve the State's biodiversity.

Underpinning the continued growth of the resources sector in Western Australia, and the need to protect and conserve the environment, is a commitment from government, industry and other key parties to work together so that these goals can be achieved, in the spirit of balanced sustainable development.

There is a very real prospect that in many cases the net environmental benefit from the investment of resources companies may actually be greater than if no development had occurred.

BETTER INTER-RELATIONSHIPS BETWEEN THE CONSERVATION COMMISSION, LOCAL GOVERNMENT AND DEPARTMENT OF ENVIRONMENT AND CONSERVATION

By Cr Bill Mitchell

Since 1871, Local Government has had considerable land management responsibilities, managing over 125 000km of road and road reserves and in excess of 1 million hectares of lands across the state. Many of these assets are of high ecological importance in their own right, or are critical in providing ecological linkages across agricultural, peri-urban and urban landscapes. Increasingly, these assets are under pressure from potentially conflicting or competing uses.

As a member of the Conservation Commission, a councillor on the Murchison Shire and as Chair of the Rangelands NRM Coordinating Group, Cr Mitchell will offer a unique perspective on how to better the inter-relationships between the Conservation Commission, Local Government & Department of Environment and Conservation, necessary to maximise the expertise available for the conservation of public land vested in Local Government.

VOLUNTEERING AND COMMUNITY INVOLVEMENT IN PARKS

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The Department for Environment and Heritage, South Australia (DEH) boasts a long and successful history of volunteer involvement. Voluntary service to national parks in South Australia dates back to their inception in 1891. Volunteers have been engaged in a structured format with the Department - and its predecessors – since 1980. By 2007, around 6,000 volunteers were engaged with the Department. The largest group, Friends of Parks, currently has 141 member groups across the State.

Whilst many of DEH's volunteers belong to Friends of Parks groups, established in relation to individual reserves, groups of reserves or individual sites/issues, not all volunteers are involved in on-park activities. Volunteers are engaged in a diversity of activities, ranging from threat abatement and tour-guiding, to protection of local heritage, conserving specimens at the Herbarium, and doing field work for fire research. In addition to on-ground works, DEH volunteers contribute through fundraising, raising community awareness, community education, cultural involvement and public relations. Friends of Parks Inc is the umbrella organisation for these Friends of Parks groups.

In the past twelve months alone, volunteers contributed around 30,000 days of work – or, to put it another way, about 550 FTEs(!) – to South Australia's natural and cultural heritage through DEH.

Planning for Volunteer Engagement

In 2005, a comprehensive review was undertaken of the Department's volunteer engagement. This was consistent (and remains so) with the South Australian Government's strong focus on increasing and supporting volunteerism in South Australia*.

The purpose of the review was to develop a vision for future volunteer engagement; a volunteer engagement strategy for building on the existing volunteer involvement.

Planning for volunteer engagement is important for a number of reasons. As an example think about how communities have and are changing. Given that communities are volunteers, then by default, volunteering is changing too. Shifting demographics, the impact of information and communications technology, the discretionary amount of time people have available, is all impacting on how people engage in volunteering, as well as their expectations of their volunteering experience.

Therefore in developing the volunteer. engagement strategy for the Department it was essential that trends in volunteering, the community and the environment were acknowledged. The resulting volunteer engagement strategy, *Success Through Partnership*, identifies:

1. trends in volunteering

* *South Australia Strategic Plan – Creating Opportunity* (March 2004), and *Advancing the Community Together: A Partnership between the Volunteer Sector and the South Australian Government* (May 2003)

2. new programs and projects that the community could be involved in, and
3. those things that DEH needs to pay attention to, to ensure the volunteer base continues to be well-supported.

Importantly, the volunteer engagement strategy provides a framework to allow the Department to position itself to respond to, embrace and even determine the future of environmental volunteering. In essence it is about making volunteering work for DEH.

Making Volunteering Work for DEH

What does that mean? To make volunteering work for DEH, DEH needs to be driving the volunteering agenda. That is, the Department needs to focus the valuable volunteer resource effort to assist it in delivering its program priorities in a coordinated, strategic way. When achieved this means significantly better outcomes for DEH, the community, and, importantly, the environment. The phrase "find the work, then find the volunteer" crudely sums up the approach that is needed.

As already acknowledged, DEH has a significant volunteer resource in the Friends of Parks network. However, inherent in the Friends of Parks model are some significant challenges, such as groups being generally aligned to specific parks. This can limit our thinking about how, where and when that volunteer resource can be used, and often limits the flexibility to mobilise volunteers to respond to emerging Departmental priorities. In addition DEH is providing only limited direction to some groups, resulting in the volunteers driving the volunteering agenda. So Friends of Parks groups are generally being managed as an interest group. They are considered as another priority of the Department and an end in themselves. To move forward, however, they must be considered as a means to an end, that is, a resource that can assist DEH to achieve its program priorities. Management of these groups must move from interest group to integral resource.

This does not mean that we don't care or we stop caring about our volunteers. Neither does it mean that there is no room for the volunteers to be involved in developing or proposing projects. It is about focussing the efforts of the volunteer base to where it is needed. This is usual practice in most volunteer involving organisations. Consider Meals on Wheels, Red Cross or even Conservation Volunteers Australia. Their volunteers join the organisation to undertake a specific role as defined by the host organisation. Why should DEH be any different? By strategically engaging volunteers in our business we can achieve significantly better outcomes than we could if we relied on DEH resources alone, including meeting key goals of involving and educating the community in natural and cultural protection and conservation.

One of the major challenges for DEH in implementing the volunteer engagement strategy is the conceptual shift needed to bring about the change. That is getting staff and volunteers to change the way they think about volunteering and to redefine their working relationships. In doing so it is important that we acknowledge and reflect on the past, whilst actively embracing the possibilities of the future.

In March 2007, DEH appointed two Senior Rangers – Volunteer Support as one step towards changing the way we work with volunteers on parks. Early indications suggest that this will be a significant and valuable step in building, supporting and driving volunteer engagement in the future.

REGIONAL PARTNERSHIPS FOR CONSERVATION: THE EXAMPLE OF REGIONAL PARKS IN WESTERN AUSTRALIA

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1. Origins of the Concept of Regional Parks

The need to set aside Regional Open Space within the Perth Metropolitan Area was recognised by Stephenson and Hepburn (1955) when they drew up the first regional planning scheme in Western Australia. They foresaw a need to protect and manage large regional reserves of high conservation, recreation and landscape value, including the ocean beaches, the rivers and estuaries, the foreshores, the escarpment, central parks and areas of conservation significance. These regional open space reserves were to be multipurpose areas that met the needs of an entire region.

This concept was implemented, to some extent, in the 1960s and 70s via the creation of Bold Park and Whiteman Park by the WA Planning Commission. However, the work of George Seddon, who published several influential books, including *A Sense of Place* (1972), made people more aware of the unique biodiversity and character of the Swan Coastal Plain, including the Metropolitan Area. Seddon argued for a system of large conservation reserves that conserved the character of the Swan Coastal Plain and enabled people to enjoy it for recreation. He identified the coast, the offshore islands, the rivers and estuaries, the banksia and jarrah woodlands, the escarpment and the wetlands as the key landscape features that gave Perth its special character.

When the Environmental Protection Authority was established in 1972, it set up a series of studies called the Conservation Through Reserves Study to identify a comprehensive, representative set of reserves to conserve the flora and fauna of the State. The System Six Study focussed on the Swan Coastal Plain, between the escarpment and the coast, from the Moore River in the north to Dunsborough in the South. The System Six Study took up the Regional Open Space concept from Stephenson and Hepburn and the ideas of George Seddon and developed them into a set of proposals for Regional Parks, which would have multiple uses and could be managed by several agencies, coordinated by the State Government. The EPA made specific recommendations for Regional Parks, including locations and boundaries, in the System Six Red Book (1983) and suggested how they could be planned, funded and managed.

2. Implementation of the Concept

In 1987 the WA Planning Commission commissioned a definitive study on the Corridor Plan for the Perth Metropolitan Area. (Neutze, 1987) It identified key areas of conservation, recreation and landscape significance and recommended that they be set aside for Regional Parks. The Plan aimed to protect key natural areas that had values of significance to the Perth Metropolitan Area, including the groundwater mounds.

In 1989 the Conservation Council, concerned about the lack of progress in establishing Regional Parks, published a set of recommendations for ten Regional Parks and this encouraged the Government to initiate planning to create three of them.

Eventually the planning was commenced for eight parks and in September 1997 the State Government set up a Regional Parks Unit (RPU) in the Department of Conservation and Land Management (CALM, now DEC) to manage them. The Regional Parks Unit was given the task of developing management plans for the eight parks listed in Table 1, establishing appropriate facilities and signage, amending land tenure arrangements and managing the parks in accordance with their intended uses. The RPU's recurrent funding is provided through DEC (CALM) and further capital funds have been provided by the WA Planning Commission from the Metropolitan Region Improvement Fund, to assist with the development of community infrastructure in the Parks.

The RPU subsequently set up community advisory committees (CACs) for each of the parks and began management and planning activities.

Name of Park	**Location**	**Features**
Herdsman	Cambridge/Stirling	Wetland
Woodman Point	Cockburn	Coast and built heritage
Beeliar	Cockburn/Melville/Kwinana	Wetlands and banksia woodland
Jandakot	Cockburn/Armadale/ Kwinana/ Serpentine-Jarrahdale	Seasonal wetlands and banksia woodland
Yellagonga	Joondalup/Wanneroo	Wetlands
Canning River	Canning	River estuary
Rockingham Lakes	Rockingham	Wetlands and coastal vegetation
Darling Range	Swan/Kalamunda/Mundaring/Gosnells/Armadale/Serpentine-Jarrahdale	Escarpment and jarrah forest

Table 1: Perth's Regional Parks, locations and key features.

Community Involvement in Regional Parks

Community groups played a major role in the development of the Regional Park concept and in the planning of the eight parks. The Conservation Council of Western Australia and several of its affiliated groups campaigned strongly for the Regional Park system in the years following the release of the System Six Red Book (1983) until the system was established in 1997. They continue to campaign today for further Regional Parks in the Perth Metropolitan Area and in the major regional centres of Mandurah, Bunbury, Busselton and Geraldton.

Since the Parks were established under the care of the RPU in 1997 community involvement has occurred in the following ways:

(1) **Planning**: community members and NGOs have contributed to the development of management plans for each of the parks through their involvement in community advisory committees and via submissions on drafts of these plans. Community groups also continue to suggest possible extensions to the existing parks.

(2) **Park Management**: community groups work closely with the RPU in monitoring and reporting incidents and locations that require attention. They also monitor

flora and fauna and report fires or rubbish dumping to RPU or local government rangers. Most of the parks have one or more Friends Groups associated with them and they provide voluntary assistance to the RPU.

(3) **Revegetation**: community groups are heavily involved in park maintenance and revegetation including planting, watering, weeding and rubbish removal.

(4) **Visitor Education**: the parks receive many thousands of visitors each week seeking a range of recreation and educational opportunities and experiences. Community groups have established environmental education centres in most of the parks where visitors and school groups can learn about the ecology and heritage values of the park. These centres also act as a base for community groups working on landcare projects in the Parks. Most of them are run by NGOs with financial support from local government, industry and the community.

3. Avenues for Community Involvement in the Parks

Community involvement in the Regional Parks is facilitated by a number of factors including the following:

(1) **Regional Parks Grants**: community groups generally have an abundance of voluntary labour and a lack of financial resources. Recognising this, DEC has made available a small grants scheme of $50,000 pa to assist groups wishing to work on revegetation, facilities or education projects in the Regional Parks. There are usually about 20 projects funded each year with the volunteer groups required to contribute labour and expertise in designing and executing the projects. The projects are reviewed by the RPU and the results are most impressive.

(2) **Local Government and other grants**: funds provided by local government, industry and the NHT has been used by some groups to support their revegetation and environmental education efforts, particularly in the local government managed sections of the Regional Parks.

(3) **Community Advisory Committees**: each of the eight Regional Parks has its own Community Advisory Committee which meets bimonthly to advise the RPU on the planning and management of the parks. The CACs consist of RPU staff, community representatives and local government officers and councillors, with an independent chairperson. These groups are useful forums for sharing ideas and information and the RPU uses them as a sounding board for its planning and management proposals. They also help to maintain constructive interaction between the various stakeholders in the Parks.

(4) **Environment Centres**: some of the Parks have environmental education centres, run by community groups or local government, where volunteers can assist in environmental education, revegetation or special events such as conferences, seminars and workshops. Visitors also use these centres to obtain information about the Parks.

4. Strengths of the Model and Areas for Improvement

The establishment of the Regional Parks system has brought many benefits. It has improved the quality of landcare and provided avenues for the public to participate in the management of these urban bushland reserves. Public involvement has helped to create awareness and support for the concept and has reduced the incidence of arson and vandalism in the parks. This process has been assisted by the educational efforts of the RPU and the community groups, particularly via their web sites, displays, signage and publications. Through the Regional Parks Grants Scheme the RPU has been able

to effectively multiply the value of its funds through the engagement of voluntary labour and expertise and this has facilitated their education and revegetation work.

Through the CACs and the management plans an integrated management system has been put in place to cover large, fragmented areas of regional open space with a variety of owners and managers.

Despite these successes there have been some failures and shortcomings. In some of the parks, local government agencies have declined to participate fully in the spirit of cooperative management of the parks, especially where the parks are complex and involve several LGAs. In some of the parks valuable land has been excised for roads, marinas, pipelines, easements, schools and railways and other areas are under threat from opportunistic developers. Community involvement has helped to thwart many attempts by government and private interests to take over sections of the parks for their pet projects, but the lack of secure land tenure for the parks has made it easier for the developers.

Another frustration is that the Parks are not well-funded and, if it were not for the existence of funds from the Metropolitan Region Improvement Fund, their infrastructure needs would not have been met. The lack of recurrent funds has limited what can be done in planning and maintenance of the parks. However, with community assistance, the RPU has been able to maintain an impressive development program, despite restricted resources.

5. A Vision for the Future

It is now more than 25 years since the concept of Regional Parks was formally proposed by the EPA in its System Six Green Book (1981). The Regional Parks system has now been established for a decade and we are able to judge the effectiveness of the concept. From this writer's perspective as a member of several NGOs and chair of a CAC for the past decade, it appears that the parks are widely supported and the RPU is highly respected for its work. Some of the major landscape features and ecosystems of the Perth Metropolitan Area have been protected via the Regional Parks system and valuable restoration and education work has been carried out.

There are still several key natural features of the Perth Metropolitan Area that need to be included in Regional Parks. These include the Wanneroo Lakes (Eastern Chain), the Gnangara Mound, the lower Serpentine River, the upper Canning River and the banks of the Helena River. Some of the existing Parks should be extended to include adjacent areas that have been identified through Bush Forever, particularly those over the Jandakot water mound. Some large nature reserves such as Leda and Forrestdale should also be included in adjacent Regional Parks to ensure that they are managed in an integrated and efficient way.

While it is acknowledged that land tenure changes are being made, the reserve status of these Parks needs to be expedited as soon as possible, to provide better protection.

The success of the Perth Regional Parks has led to proposals by community groups to establish regional parks in other urban centres such as Mandurah, Bunbury, Busselton, Moore River and Geraldton. Important natural areas have been identified and some planning has been done, but the question of funding has impeded their development. There is provision in the planning legislation for regional improvement funds but this has

proven to be a controversial issue outside the Metropolitan Area. This issue needs to be addressed as a matter of urgency before the opportunity to protect these areas is lost.

The community has also asked for more involvement in policy development and strategic issues affecting Regional Parks. There is currently no avenue available for this, although occasional meetings have been held between Regional Parks Chairs, RPU and DEC staff and Ministers. This is an issue that the Conservation Commission could address, perhaps through a Regional Parks sub-committee.

Community involvement in the eight existing Regional Parks is strong and ongoing. The model used by the RPU for community engagement has been very successful. Some improvements are possible and these should occur as the management plans are implemented. Communication, education and research plans need to be developed and implemented and these will provide excellent opportunities for community engagement.

Some community groups believe that the RPU should continue to manage the Regional Parks system, even after the parks are fully established, rather than transferring them back to the Swan Division of DEC. The reason for this is that Regional Parks are quite different in their composition and purpose to national parks and nature reserves and they require a special unit with excellent communication skills and a dedicated budget to manage them. Conservation in an urban environment is a complex business and it requires creative partnerships between the managers and the community if it is to succeed. The RPU has achieved this goal and the Regional Parks have truly become examples of government and the community working harmoniously to achieve conservation, recreation and aesthetic objectives.

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FORESTERS AND THE WA FOREST ESTATE

By Roger Underwood

Abstract

Foresters in WA take particular pride in their two most significant achievements: the creation of the forest estate in the southwest of WA, and the professional management of this estate over nearly 80 years. Both were achieved in the face of opposition from vested interests, and apathy from the wider community.

Forests were not originally regarded as a legitimate land use, but as land awaiting conversion to a higher use, i.e. agriculture. It was only after the creation of the Forests Department in 1919 and the appointment of the first professional foresters that forests were dedicated as inalienable Crown reserves.

It took over 40 years to secure today's forest estate, a process requiring technical, professional and political skills. Foresters were driven by an ideal of sustainable management which was not fashionable at the time. WA's early foresters were also required to develop from scratch an entire forest management system. They did not always get it right at first, but effective systems evolved through adaptive management based on research and experience.

Originally mostly classified as State Forest, the estate has now been significantly reclassified to national park, nature reserve and conservation park, plus there is a comprehensive network of "informal reserves" within State forests. Foresters were also responsible for initiating this reclassification, through the designation of Conservation MPAs within State Forest, which later formed the core of a new reserve system developed since about 1990 and through measures introduced in the 1980s to minimise the visual impact of timber cutting.

The role played by foresters in native forest management in WA has been greatly diminished in recent years. Nor are the forests as intensively managed as was once the case. Nevertheless, the secure and widely admired estate of forested national parks and protected areas in south western WA stands as a memorial to the work of the forestry profession, and the management systems they developed remain available for future managers to adopt.

1. Introduction

The forest estate in Western Australia referred to in this paper is the area of tall eucalypt forest in the southwest corner of the State. It is dominated by two main species: jarrah *(Eucalyptus marginata)* and karri *(E diversicolour)*, although there are several other tree species found in abundance in some areas, notably marri *(E calophylla)*, wandoo *(E wandoo)*, tuart *(E gomphocephala)*, WA blackbutt *(E patens)* and red and yellow tingle *(E. jacksonii* and *E guilfoylii)*. Inland of the southwest corner there was once a magnificent sweep of eucalypt and acacia woodland, extending over tens of millions of hectares. Almost all of this has been cleared and converted to farmland. There remain extensive multispecies woodlands on the rangelands further east which are today managed for grazing and conservation; they are not discussed in this paper.

The tall forests of the southwest have moved through three phases since European settlement in 1829.

Phase 1: Forests as farmland-in-waiting

For most of the first 80 years forests were considered to be expendable. The popular concept was that the highly valuable timber would be cut and then the cutovers converted to a "higher" land use, i.e. agriculture. This process was encouraged by government and moved rapidly up along the fertile river valleys in the

jarrah forest. The conversion of forest to farm would have been even more widespread had it not been for two factors: (i) upland jarrah forest soils are lateritic and infertile; and (ii) the karri forest was remote, dense and comprised very large trees which were difficult to clear. Early settlers quickly realised they could move through the forest belt east to the Avon Valley and beyond where they found native pastures, good soil and easy clearing.

This phase of forest history began to draw to a close after the appointment in 1916 of Charles Lane-Poole as Conservator of Forests, the first professional forester in WA who knew what he was doing and was supported by good legislation and an agency of his own. A Forests Act ("an Act to Provide for the Better Management and Protection of Forests" as it was succinctly subtitled) was passed in 1918 (Wallace 1968) and the Forests Department came into being in 1919 – the first, only and last government department in Western Australia solely dedicated to forest conservation and management. The pressure to convert forests to farmland was still high during the 1920s, and persisted until the 1960s, but from the late 1920s onwards it faced legislative barriers as well as opposition from foresters.

Phase 2: Forests as multiple use forests

From about 1920 for about another 80 years, the objective of management for southwest forests was multiple use with a long-term vision of achieving a sustainable yield of all forest values. Initially the dominant value was timber, because in those days timber from native forests was a valuable commodity which contributed significantly to the development of the State. The timber industry was the largest manufacturing industry in WA and sawn timber was the third major export after wheat and wool. The timber industry also provided employment for many thousands of West Australians. From the outset, however, foresters knew that if forests were managed properly for the sustained production of timber, all of the other forest values could also be sustained. These were recognised as including water catchment protection, conservation of soils, waterways and landscapes, provision of recreational opportunities and habitat for native fauna and flora. In fact the Forests Department's very first planning document was a management plan for the forests surrounding the Mundaring Weir, and the priority for management was water catchment protection, not timber production.

The forester's vision of a multipurpose forest however was not shared by that section of the community who became known as environmentalists. They believed that timber production and conservation of other forest values (especially the protection of biodiversity) were not compatible. These views arose in the 1970s, a time when the timber industry was declining in economic importance, and a more prosperous community could afford to meet their demand for timber by importing forest products. Eventually the environmentalists' views became politically dominant and a widescale conversion of State Forests to national parks began. Ironically, this process had been initiated by foresters, although they did not envisage it going as far as it has, nor that it would lead ultimately to foresters having little involvement in native forest management in WA.

Phase 3: The patchwork forest

During the late 1970s and early 1980s, the Forests Department accepted the need to formally state that State Forests were to be managed for the whole range of forest values. A forest policy statement to this effect was published (Forests Department 1976), and a new management strategy adopted. This involved the designation of Management Priority Areas (MPAs) within State forest (White and Underwood, 1988). The concept was that multiple use would continue to be the underpinning philosophy, but particular uses would receive a priority for management in particular forests. Any activity in an MPA must ensure that the nominated priority use did not suffer. Of most interest in this paper were the MPAs for Conservation of Flora, Fauna and Landscape which were designated over some of the finest areas of State Forests at that time, the process of selection being based on detailed biological surveys (Christensen 1992). Timber production was not a permitted use in these areas, and they became in effect pseudo-national parks. There were also MPAs where the designated priority was recreation, catchment protection or water production.

This system did not survive the formation in 1985 of the Department of Conservation and Land Management, which absorbed the three agencies formerly responsible for forests, national parks and wildlife. Over the next decade or so the MPAs for Flora Fauna and Landscape were converted to national parks or similar tenures, as were substantial areas of former State Forest which had been assigned various management priorities. Multiple uses still occur in southwest forests, but the stated dominant aim is protection of biodiversity, and this applies irrespective of forest tenure. All other demands (with the exception of bauxite mining in the jarrah forest - see below) are subsidiary. On the ground, the forest is a patchwork quilt of many different tenures, all vested in the Conservation Commission but managed by the Department of Conservation and Environment (DEC). DEC is responsible for environmental protection, management of the conservation land and marine estate and wildlife protection for the whole of Western Australia, as well as for the protection of all Unallocated Crown Lands.

The evolution from unmanaged and largely unwanted forests pre-1920 into what is today a single large and well protected (in a legislative sense) biodiversity reserve took place within a period of about 85 years. The current system of national parks and protected areas embedded within WA forests easily meets the internationally accepted standards for a Comprehensive, Adequate and Representative reserve system.

What is mostly overlooked today is that this situation only became possible because of the work done by foresters to acquire, secure, regenerate and protect the forest estate in the first place. Without their intervention much of the present day State Forests and forested national parks and protected areas of the south west would have been converted to farmland.

2. *The creation of State forests*

The first professional foresters in WA were faced by two over-riding difficulties:

(i) There was no permanent forest estate on which to base a sustainable forest conservation program. Apart from a few minor reserves for specific purposes scattered about the southwest, the bulk of the forest was Vacant Crown Land, that is, land owned by the State government for which no purpose had been allotted, and no future mapped out.

(ii) No scientific forestry had ever been practiced in Western Australia, and the department's foresters had pretty much to start from scratch. In this respect the two most pressing issues were how to regenerate areas which had been cutover for timber over the previous 100 yrs or so; and how to protect the forest from the ravages of high intensity bushfires. But in addition they had none of the supporting systems which today are taken for granted, like maps, roads, staff and funds.

The initial aim was to create a forest estate which was dedicated and secure. By *dedicated* was meant that its purpose was defined, thus allowing management plans to be developed which would achieve that purpose or those purposes. By *secure* was meant that the forest would remain as forest, in a dedicated reserve, in perpetuity. The most critical need was to make it extremely difficult for governments to freehold good forest land and allow it to be cleared for agriculture.

The process by which this was achieved involved three main steps, as follows:

1. ***Definition of State forest***

During the early years of the 20th century large areas of "State Forest" had been declared under the Land Act for woodlands in the eastern goldfields, with the aim of protecting the bushland around dusty mining towns. However, these were not A Class Reserves, and they were later revoked.

The foresters responsible for the drafting of the new Forests Act in 1917 were careful to include in it a new definition of "State forest" which had the same security of tenure as an A Class Reserve.

This meant that once an area had been dedicated as State Forest, this status could not be revoked without an Act of Parliament, i.e., agreement of both Houses of Parliament. Status equivalent to an A Class Reserve would make the new State Forests as secure as it was possible to make them.

2. *Forest survey and classification.*

A massive program of surveying and classifying the forests commenced in 1917. This began before the Forests Act had been passed, so that designation of the first new State Forests could then occur without delay. The work was pioneering in every sense of the word. Firstly it involved the formation of special Classification teams, who were sent out into the forests to physically measure, describe and appraise them. Although mostly completed by the mid-1920s, survey and classification work continued in the more remote parts of the southwest right into the 1950s.

The forest classification work has been well described by two famous WA foresters: Dick Perry, who was involved in the early work south-east of Busselton just after World War 1 (Perry, 1985) and Barney White who was involved in its final phases north of Denmark in the early 1950s (White 1985). Each team was led by a forester and comprised a surveyor (a representative of the Lands Department), one or two Assistant Foresters and survey hands. The areas into which they went were unmapped and mostly trackless, and the teams lived in the bush for months at a time. The work involved running hundreds of "assessment lines", each line being ten chains in length and one chain in width, giving a plot size of ten square chains or one acre (0.4 hectares). The start point and direction of each line was surveyed so that later the topographical information collected could be accurately transferred to the new maps being developed by the department at that time. Information was recorded about forest type, soils, tree heights and diameters (allowing the calculation of timber volume), understorey species, creeks, rock outcrops, swamps and high points.

The classification work extended over millions of hectares. As well as being the first forest inventories in the State, they were also the first broad-acre ecological surveys and the first formal land use studies undertaken in WA. The information generated was used to determine the suitability of the land for future agricultural development (Williamson 2005).

The data collected by the classification teams was collated, mapped and sent to Head Office in Perth. There eventually decisions were made about land use and priorities and the next phase in the process of securing State forest would commence.

3. *The political process.*

The final phase in the creation of State Forests was to some extent the most difficult. The Forests Department had to prepare detailed maps showing the proposed new State forests and prepare a Bill to go before Parliament. Each new State Forest was given a number and its boundaries precisely described. Bills were debated in both Houses of Parliament, and if approved would then go to the State Governor for his consent. The final step was to have the new State Forests "gazetted", that is, their details published as an Order in Council in the Government Gazette, and then subject to a last review by both Houses of Parliament.

It was a miracle that any State forests were created at all, given the community attitudes of the time. The process was fiercely opposed in many quarters and supported by almost no-one. Opponents included agricultural and pastoral interests, the mining industry and local communities in the southwest. Foresters were heavily criticised in the media and described as "land grabbers". The parliamentary process was slow and tortuous, moving in fits and starts depending on which parties were in government. The initial work was not helped by a famous falling out between Lane-Poole and the then-Premier James Mitchell, resulting in Lane-Poole's resignation. And all through the 1920s, Mitchell was pushing his Group Settlement Scheme, aimed at creating a West

Australian dairy industry, which would result in the freeholding and wholesale destruction of hundreds of thousands of hectares of prime forest county (Bolton, 1972).

There were three key people in the creation of the WA forest estate: foresters Lane-Poole and his successor as Conservator Stephen Kessell who were the visionaries and the architects, and Phillip Collier, who as Minister and Premier, had the political skills to push the legislation through.

The passion for their work, and the sense of urgency within the forestry profession, is revealed in this extract from a memo written by Lane-Poole in 1920 to Mr McKay, Clerk to the Minister for Lands: *"The classification work [must] be pushed on between Big Brook* [Pemberton], *the Gardner, the Shannon River and the Nornalup Road, so that the extensive area of land carrying karri may be surveyed as soon as possible. All the country between Big Brook and the Deeside Road is now done, and the plans are being prepared. [Forester] Brockman expects to complete the work before the rains drive him back into the jarrah country. As soon as the weather permits, say October, the classifiers [must] be thrown into the country between Big Brook and Manjimup to the east, and Nannup south to the sea on the west. In the meantime the classifiers, as soon as the rain sets in, say May, to go north and tackle all the country between Manjimup and Bridgetown on the west, and the edge of the big jarrah on the east".*

It took until the 1960s to complete the dedication of a secure forest estate in WA, although the bulk of the reservation had occurred during the late 1920s and 1930s, as the following table shows:

Year	Cumulative area of permanently dedicated State forest (hectares)
1918	0
1919	1,271
1920	17,374
1922	19,934
1924	51,256
1925	60,838
1926	412,004
1927	545,840
1928	775,694
1929	1,222,438
1931	1,227,978
1932	1,229,372
1934	1,235,459
1935	1,241,883
1937	1,242,591
1938	1,312,095
1940	1,313,543
1954	1,361,700
1955	1,419,226
1956	1,452,207
1957	1,478,511
1958	1,517,320
1959	1,578,184
1963	1,617,471
1964	1,618,890

As the new State Forests were gazetted, they were progressively numbered from 1 to 70. The list includes many famous West Australian forests such as SF 1 (the Ludlow Tuart Forest, gazetted in 1919), SF 7 (the Helena River catchment, 1924), SF 51 (Dryandra, 1934) and SF61 (the Julimar, 1956). The heart of the karri forest around Pemberton and along the Warren River was secured in the 1920s.

3. Minor forest reserves

In addition to State forests, there were numerous reserves created under the Forests Act during the early years of the 20th century, often called Timber Reserves, plus a great number of small areas reserved under the Lands Act which had forest on them. The latter were usually designated "Timber for Settlers" or "Stopping Place for Travellers and Stock". Forests Act and Land Act reserves were generally B or C Class reserves, and were often tiny, and surrounded by cleared farmland. In some cases a Timber Reserve was created over an area of forest to ensure that the timber could be recovered before the area was alienated.

Most of these reserves still exist today, and some of the larger or more biologically significant have been converted into nature reserves. On the whole, however they have not been well managed over the years and their contribution to the conservation estate has been marginal.

4. The anomalies

The processes and outcomes described above are generalised and do not take into account three important anomalies.

Anomaly #1: the d'Entrecasteaux national park

At the time of the formation of CALM in 1985 there were only a handful of "pocket-handkerchief" national parks and nature reserves within the forest area of the south west. Moreover, there were no large areas of forest on private property with significant conservation values that might have made them candidates for conversion to national parks. Therefore to create the national park estate which exists today it was necessary to reclassify existing State Forests. This process began with the transfer from State Forest to national park of the Shannon River basin in the late 1980s, and continues as we speak.

The d"Entrecasteaux national park is an exception. This is located along the southern extremity of the karri country on the lower south west coast. This large area comprises a mixture of wetlands, heathlands, woodland, open dunes and "islands" of tall forest. It is an area of great diversity and beauty. For over a century up until the 1970s, the area was Vacant Crown Land, but pastoral leases had been granted to cattlemen from inland farming districts. When it became known that these areas had been pegged for mineral sands mining, a small group of foresters from Manjimup and Pemberton prepared a significant submission to government to have this area designated a national park (Bradshaw, 1975). This private initiative was outstandingly successful, and still represents the single most significant creation of a "new" conservation reserve in south western WA.

Anomaly #2: The "informal reserves"

In addition to national parks and nature reserves, there is an extensive system of "informal reserves" laid out within State Forest. These include buffer strips along waterways and roads and around wetlands and rock outcrops, areas specially designated as fauna corridors or surrounding recreation sites, and even individual trees. These areas are managed as if they were nature reserves. Originally called "Road, River and Stream Reserves" these were an initiative of foresters in the early 1970s as a means of minimising the visual and hydrological impacts of clear felling in the karri forest. This network has since been extended

throughout State Forest, and although they are managed as if they were nature reserves, they have no legislative security, other than the protection of their status through the forest management plan and the fact that they have become a routine aspect of management.

Anomaly #3: Bauxite mining in the jarrah forest

Although State Forests are highly secure in terms of minimising the risk of alienation ("freeholding") they are not protected from mining. This is because the original Forests Act was only agreed to by Parliament if it was subordinate to the Mining Act. Consequently, two alumina producers have been granted huge mining leases over the northern and eastern jarrah forest, allowing them to mine bauxite. Mining involves the complete clearance of the forest ecosystem, including removal of the forest soil to a depth of many metres. Approximately 1000 ha of forest are cleared annually. This has been going on for over 40 years and it is estimated that bauxite reserves will last for another 50 years at the current rate of mining. This will mean that mining will take out a high proportion of the northern jarrah forest which is outside national parks.

Elsewhere, south west forests have also been cleared and subjected to open cut mining for gold, mineral sands and coal, and forest clearance for minerals production continues today, although mostly these operations affect only small discrete areas of forest.

Bauxite mining has always been opposed by foresters (Institute of Foresters, 1980) on the grounds that it represents permanent modification of the forest ecosystem through removal of the soil and disruption of forest management, in particular bushfire management, over very large areas of very fine forest. The imposition of bauxite mining over State Forest represents the greatest setback that professional foresters experienced in their efforts to conserve and protect native forests.

5. Community support and attitudes to forests

Right through the period in which State Forests were being created, the process had little community interest or support. Even within government there was no support for forest conservation outside the Forests Department, there being no departments of environment or conservation in those days. Quite apart from the decision by government to allow broad-acre open cut mining in the jarrah forest, the pressure to alienate State Forests for new farm development was intense in the years immediately after World War 2 (Wallace, 1968) and only declined after about the mid-1960s. Nevertheless, as late as 1982 I recall fighting off requests for freeholding of State Forests, the applications by settlers being strongly supported by the Department of Agriculture.

The broader West Australian community only finally became interested in forests in the late 1980s, the focus being the timber industry which was unfairly portrayed as destroying the forest and with the full support of the forestry profession. This led to a campaign to have State Forests "set aside in conservation reserves", a concept that ignored the fact that State Forests were already conservation reserves, and were being managed to ensure the forests survived in perpetuity. Nevertheless, the campaign was politically effective, and by 2003 the process of converting State Forests into national parks was reminiscent in its intensity to that which had created the State Forests in the first place.

There are some ironies relating to the community attitude to forests in WA.

The first is that for all of the period from the formation of the Forests Dept in 1919 to its absorption into CALM in 1985, forest management and conservation in WA was the responsibility of a small cadre of professional foresters. To a very large extent the public and the government was happy to leave it to them, and they quietly went about their business, overseeing every aspect of the task from acquiring, dedicating and guarding State Forests to developing policy and overseeing day-to-day operations, research and administration.

This situation came to an abrupt end with the advent of "community concern" about forest conservation in the 1980s. The formation of CALM, the hiving off of a splinter agency (the Forest Products Commission) and then the transformation of CALM into DEC has meant that Western Australia no longer has a professionally-led government agency whose sole interest and passion is forests. DEC has huge responsibilities in environmental protection and land and marine management across the whole state, and forests are only a very minor aspect of these responsibilities. This has left forests in State Forest and national parks alike less well-cared for than was previously the case. There are many examples, the most notable being the closure of forest districts and field research centres, the decline in the number of trained forest officers, the demarcation between planning and operations, and the redirection of field staff from forest work to environmental regulation. Opposition from environmentalists, reductions in funding and the erection of bureaucratic barriers have also made it harder for field staff to achieve bushfire management programs. As a result WA forests are once again experiencing large high intensity wildfires on a scale not seen since 1961. The standard of maintenance of forest roads and recreation sites has also fallen dramatically.

The second great irony is that the community's love of national parks does not translate into adequate funding for their management. Nor does the concern for native forests extend to other people's forests – more than a quarter of the timber used in WA today is imported, mostly from countries without effective forest conservation programs.

The final irony is that the same forests regarded as being threatened by foresters were in fact a product of their work. After 80 years of forestry management the State's forests were seen to be so beautiful and to have such high conservation value that they must immediately become national parks. Classic examples are Boranup, one of the State's most popular forested national parks – it was clearfelled (and regenerated) over 100 years ago - and the new national park created from State Forests near Mundaring Weir which were cut over for half a century to provide firewood for the pumps of the Goldfields Water Supply scheme, and progressively regenerated under the care of three generations of foresters.

6. Future challenges

It is one thing to create a comprehensive, adequate and representative system of forest reserves. It is another thing to look after it. Setting aside the on-going permanent loss of natural forest ecosystems due to bauxite mining, there are four critical challenges for West Australian forest managers in the future:

1. ***Fire.*** Eucalypt forests need regular mild fire to stay healthy, to enable the various demands on the forest to be met in perpetuity, and to render them safe from the ravages of large high intensity wildfires. This fact is not understood, or is denied by many politically influential environmentalists and academics. Misguided attempts to take fire out of the forest, in other words to replace frequent mild patchy fires with landscape-level conflagrations, will have a disastrous impact on forested national parks and could eventually lead to a loss in community support for conservation reserves.

2. ***Climate change.*** If, as some people postulate, our climate becomes warmer, and if drying trends continue, it is possible that pressure will resume to convert high rainfall forests into irrigated farmland. Old growth forest in National parks should be inviolable, but areas within national parks carrying young regrowth or areas incinerated by high intensity wildfire, will be vulnerable.

3. ***Lack of professional staff in the forest.*** Foresters are uniquely trained to care for, regenerate and protect forests and are the only profession devoted specifically to them. Professional foresters were once stationed all over the southwest, each with a patch and a staff of field officers and forest workers (Underwood, 2006). The modern tendency to replace foresters with environmental scientists and to withdraw field staff to regional centres means there are fewer people in the forest who are living and breathing forest protection and conservation on a daily basis.

4. ***Research.*** There has been a major decline in the number of research scientists stationed in and devoted to forest research over the last decade. Increasingly research is being done by academics in cooperative research centres located in the cities. The evolution of forest management in WA is to a large extent a history of progressive implementation of research findings, for example the technologies of prescribed burning, thinning, regeneration, dieback mapping, catchment management, wildlife conservation and feral animal control. Failure to continue with field-based operational research in the forest will lead to stagnation, and eventually to an inability to deal with new challenges.

7. Conclusion

The recent creation of a comprehensive, adequate and representative system of national parks and nature reserves in the tall forest zone of south western WA was only possible because State Forests had been acquired and secured in the first place and then responsibly managed for decades. This is an achievement for which the State's foresters have never received credit.

By the 1960s forest management in WA had also been brought to a high level of development, still unmatched in many countries of the world. The science and practice of forestry had evolved to a point at which foresters felt confident they could meet the policy objectives of the day. This is not to say that they were all-knowing; like any profession, they continued to study, learn, and evolve. What they brought to the job however, was a single-minded passion for forest conservation, forest health and forest protection, coupled to practical experience and skills in the bush. No other profession has arisen to fill the vacuum left by their demise, a situation which is possibly the biggest threat to the long term health and viability of West Australian forests.

Acknowledgements

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WORLD HERITAGE LISTING
(IF I WAS GOING THERE I WOULD NOT START FROM HERE!)

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What is World Heritage? Adopted by the United Nations Educational, Scientific and Cultural Organisation (UNESCO) in 1972, the World Heritage Convention promotes international cooperation to protect natural and cultural heritage which is of such universal value, that its conservation is a concern for all people.

The tiny seaside hamlet of Denham is the commercial and tourism centre of the Shark Bay World Heritage Property. The environmental tick of excellence was gained after World Heritage listing in 1991 for its outstanding values, qualifying as one of only 19 global properties containing such excellence in ecological significance - exceptional examples of the Earth's evolutionary history with its the living stromatolites, superlative natural phenomena such as the world's largest seagrass meadows that host 12.5% of the world's dugong population, and the presence of five out of Australia's 26 endangered mammal species which have their only, or major, populations in Shark Bay, alongside 15 species of rare or threatened plants.

Significant geological and biological processes continue in Shark Bay, such as the evolution of the bay's hydrologic system and the ongoing evolution, succession and creation of exclusive habitats. The bay's hydrological structure, altered by the Faure Sill and a high evaporation rate of the sea, has produced one of world's few areas where marine waters are hypersaline – almost twice that of normal seawater.

The 1,030-sq km Wooramel seagrass bank teems with 10,000 dugongs; the Faure Sill produces the tiny coquina shell; the Zuytdorp cliffs, the peninsulas and prongs are perfect hosts for the area's abundance of marine fauna including dolphins, sharks, rays, green and loggerhead turtles and fish.

Shark Bay provides secure habitats for threatened species - home for 12 threatened reptile species, 35 migratory bird species and is a staging point for humpback whales. The property has other significant Aboriginal and European cultural values; historic sites include Cape Inscription (landing place of Dirk Hartog and other early European explorers and significant Aboriginal midden sites.

With an abundance of superlative examples of our natural environment, local commerce driven by the burgeoning tourism interest in World Heritage properties should be booming. It is not – tourism numbers to Shark Bay have steadily declined over the past five years. The once 700 strong residential population has also steadily diminished.

Such regression is despite the addition of 130 kilometres of sealed road from the North West Coastal Highway, Shark Bay and Monkey Mia branding, construction of an $8 million World Heritage Discovery Centre, State purchase of significant pastoral lands including the culturally and historically significant Dirk Hartog Island, and a dedicated group of over 35 Department of Environment and Conservation employees who have established world class endangered species re-establishment programs (Project Eden), and monitored, managed and protected the World Heritage values.

So where did this all go wrong? And can it be revitalized?

Sixteen years ago the Federal and State Governments took their plans to nominate the Shark Bay property to the local community, made commitments to allocate significant levels of funding and talked up the economic benefits e.g. population growth, a booming tourism industry, increased local commercial and industrial opportunities, sustainable development to support education delivered locally and medical support.

What was delivered amounts to poor quality administration of the property – particularly at the local and Federal levels of government. The often hostile treatment and social ostracism meted out to Environmental staff and their families by the elected local government who have lacked the capacity to manage a multi-faceted "being" in their tiny remote, subsistence based economy, and a community that at best is ambivalent due to negligible early consultation, are all well documented issues which continue today. Add to this the fundamental opposition by the WA pastoral community to WH listing, the isolation and stagnating commerce, and years of wrangling and manipulation of the project to open a World Heritage Interpretive Centre. All have one common denominator - there was no initial compliance with the key element of the UNESCO World Heritage mission - to encourage participation of the local population in the preservation of their cultural and natural heritage.

It took six years after listing in 1991 for the Governments to agree on the composition of the property's advisory Committees – the Community Consultative Committee comprising traditional owners, local, State and national members, and the Scientific Advisory Committee, embracing renowned specialists of the geological, biological, ecological (hydrological and botanical) sciences. This early failure perhaps directed the path we tread today in Shark Bay –an entrenched willingness to accept the myths rather than the facts of being part of a community entrusted with a World Heritage property.

Failure to conduct the legislated annual Shark Bay Ministerial Council meetings, Federal funding reduced to little more than administration costs, long standing Committee vacancies, and two disenfranchised local Governments riven with party politics indicates that the desperately needed community education and stakeholder engagement, good communications and a comprehensive strategy of capacity building in the host community, backed up by sustained and appropriate resourcing, is still a pipe dream.

In recent years there has been substantial preparatory work on a nomination for the Ningaloo-Cape Range area for World Heritage listing. Only the State Government's reluctance to accept scientific advice on broader, systems based boundaries is delaying a repeat of the same mistakes as were present in the Shark Bay listing i.e. lack of community education and stakeholder engagement, good communications and a comprehensive strategy of capacity building in the host community, backed up by sustained and appropriate resourcing.

What is the future of World Heritage management in WA? Can the Shark Bay Property experiences be turned around and used to good effect to protect other deserving environments in WA, like Ningaloo, already listed Purnululu (2003), and Fremantle Prison. Have we learned enough over the past 16 years to make Shark Bay a jewel in the crown of World Heritage properties or has the sense of place, for all people, for all time passed?

WORDS FROM A BUSHPOET

Roger Montgomery

POEM
by Syd Hopkinson

Though Australia embraces, a great assortment of races
And the country at a rapid rate, continues to expand
With their culture and their art, the Natives played a vital part
And they retain a lasting love, for their life upon the land.

We're so proud to have possessed, right here in our Golden West
Spectacular sites of interest, and scenery so sublime
Parks & gardens, lakes & beaches, valleys, rivers, mountain features
Produced for us by Nature, in the ceaseless march of time.

And today we celebrate, in our lovely Western State
So many great achievements, performed in early years
For such progress in our past, in an area so vast
Much praise must be awarded, to our gallant pioneers.

As the years have quickly flown, and this fine Nation has grown
The ongoing expansion, was reasonably expected
But as more growth comes to hand, we must try to take a stand
Guarding pristine areas, that should carefully be protected.

Showing worthy dedication, to our Parkland Preservation
Is a campaign ALL Australians, should endeavour to address
Raising pleasant expectations, for our future generations
May this year's Protection Forum be a wonderful success!

HEALTHY PARKS, HEALTHY PEOPLE

Cathy Gazey

DEC's Healthy Parks, Healthy People (HPHP) initiative was formally launched in late 2004 and is part of DEC's charter to protect WA's natural areas while providing sites and activities to help people enjoy their parks and improve their health. HPHP aims to foster an awareness and appreciation within the community of the health benefits gained from visiting protected areas and heighten the sense of value the community place on these areas. In addition, it aims to highlight how people can contribute to the health of our protected areas through a range of environmental and recreation activities.

Other than the provision of life supporting ecosystem services, our protected areas provide the space for a wide range of physical pursuits, opportunities to socialise and augment personal relationships, options for volunteer work and the setting to interact or have contact with the natural world. A growing body of international evidence demonstrates a strong link between healthy natural areas and human health and contact with nature is recognised as potentially important for alleviating the symptoms of many disorders and for disease prevention. Contact with nature can reduce stress and mental fatigue, improve concentration and productivity, boost immunity, promote healing, improve self esteem and self awareness and foster psychological wellbeing by favourably modifying mood, inducing positive thoughts and alleviating the symptoms of anxiety and depression.

In recognition that protected areas are a valuable health promotion resource, the HPHP initiative has formalised partnerships with the Heart Foundation (WA), Diabetes WA, the Cancer Council WA, the Arthritis Foundation, the Asthma Foundation of WA, *beyondblue*: the national depression initiative, the Premier's Physical Activity Taskforce and the Office for Seniors Interests and Volunteering. Work is currently underway to develop a range of programs with partners in order to improve public health and increase awareness of the value of our protected areas.

MANAGING CULTURAL AND ENVIRONMENTAL IMPACTS OF EXPEDITION CRUISING ALONG AUSTRALIA'S REMOTE KIMBERLEY COAST

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ABSTRACT

The Kimberley Coast extends for 3000km between Broome and Wyndham in Western Australia. It is accessible almost exclusively by sea or air and has gained increasing popularity in recent years because of its spectacular scenery, pristine nature, Aboriginal rock art and remoteness, giving visitors the impression of exploring an 'untouched' world. Over recent years, there has been a marked increase in expedition cruise operators offering luxury experiences along the Kimberley Coast and visiting natural, cultural and historic on-shore sites along the way.

Much of the Kimberley Coast is Aboriginal Lands Trust (ALT) land with two areas declared as National Parks/Nature Reserves (Prince Regent Nature Reserve and Mitchell River National Park). Visitation to the area has been largely unmanaged because of its vastness and a lack of resources. The rapid increase in the number of operators and some recent incidences have lead to increasing concerns about visitor safety, environmental impacts (e.g. trail erosion, littering), economic benefits and social and cultural impacts (e.g. souveniring at cultural and historic sites, inappropriate cultural behaviour). One of the key issues for the management of activities in the area was the lack of recognition of the spiritual connection and significance of country to the Aboriginal custodians of the land by stakeholders such as government agencies and operators. This lack of recognition of the spiritual connection to country by the Traditional Owners often combined with a lack of appropriate consultation has in the past resulted in mistrust, uncertainty and fear between the parties involved. In the absence of an effective management structure and with unclear and limited jurisdiction and responsibilities by government agencies, there is a clear need for a joint approach and more effective communication to provide a management framework with a view to making the Kimberley Coastal tourism industry sustainable for the long term.

GOOD TOURISM CREATES GOOD CONSERVATION

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Tasmania is unique having 38 per cent of its landmass reserved as protected areas. A large part of this reserved land has been proclaimed as a result of political conflict. During the early 1980's there was significant discord between the Federal and State Governments over a planned hydro power scheme. The Federal Government used constitutional powers (enacted through the High Court of Australia) to stop the construction of the proposed power scheme and forced the State to place the land into reserves. In 1982, 1.38 million hectares (20 per cent of Tasmania) was inscribed on the World Heritage List and named the Tasmanian Wilderness World Heritage Area (TWWHA).

It needs to be understood that this action was never agreed to by the Tasmanian Government. Therefore, this new World Heritage Area management regime was established in an extremely tense atmosphere. Although, a bonus was that the land is rich in both cultural and natural values and intact biodiversity.

The feeling throughout most of Tasmania, was that the new WHA had suddenly locked up a vast amount of the State. No extractive industries such as forestry, mining or dam building for hydro schemes could occur. The Parks and Wildlife Service (PWS) had to quickly develop policies that would enable the Tasmanian community to gain social and economic benefits from the WHA. The pressure was on!.

The PWS did initiate a number of positive partnerships with several tourism operators. However if the Tasmanian community was going to experience real long term benefits, it became evident that the PWS had to embark on a much larger positive partnership program, Sound principles were established that included the design and delivery of services that could prove to be sustainable, provide an invigorating and unique experience for the visitor and most importantly be profitable for the tourism operators.

I will provide four examples of tourism services in Tasmania that have significantly improved conservation management within Tasmania's reserves.

Overland Track Permit System

The iconic Overland Track is a 58 kilometre walking trail whose reputation had grown to an unhealthy level of popularity. Degradation was occuring at most campsites, the huts were overflowing in the peak summer periods and the toilets were literally bursting at their seams. The PWS instigated a private hut partnership lease with an operator. This has provided a high quality guided experience for those persons who want to walk the track and have all comforts at night. This reduced some of the pressure. However we had to do more. Several years ago we introduced the seasonal permit system (1 November – 30 April) and a new fee for the track. The track is now a one way (North to South) trail with a limit of 64 persons departing Cradle Valley each day. Obviously the PWS had to upgrade the toilets, campsites, huts and track as well as provide track rangers to monitor the use of the track. The fee is $150.00 per walker. Because we have guaranteed a consistent quality experience, walkers are extremely satisfied. Word has spread that you can have a true wilderness experience on the Overland Track now. All the revenue collected (estimated to be $700K this summer) is used to manage the track. Now the track is managed sustainably and has an income source that does fund maintenance.

Gordon River Cruises

Following the proclamation of the TWWHA the PWS had to establish a sustainable Gordon River cruise boat service. For a number of years the Gordon River Boat Cruises were provided solely by market demand, with no limitations or management of any environmental parameters. This resulted in severe erosion of the river banks and was also creating some unsafe practices. The PWS established strict vessel construction guidelines with the aid of the Australian Maritime College. Vessels have to prove to have a wave wake of 5.5cm or less while travelling at 5 knots. We also reduced the distance that each vessel could travel up-river. Again the PWS had to provide significant infrastructure (jetties, landings and interpretation) for the operators. Now the operators are thanking us because the new vessel designs are up to 80 per cent more efficient and manoeuvrable compared to their old designs. They can also take up to 60 per cent more persons for the same length vessel.

It is important to understand that none of the above decisions are easy to suggest and implement. You need robust scientific evidence and sound logic to convince your political masters that the changes will be beneficial to all. Long term gains often require short term pain. For example; to implement these changes the private operators were spending many tens of thousands of dollars beyond what they would traditionally spend.

Macquarie Island WHA Tours

Macquarie Island is situated 1,500km south of Tasmania in the sub-antarctic region of the Southern Ocean. It has a rich variety of wildlife with spectacular colonies of penguins, sea birds and seals. Sub-antarctic tourism has been operating for a number of years. It is a specialised experience that has a high fee (up to $20k) for tour participants. The PWS have been providing guiding services for these passengers for many years. We have established rigorous guidelines that are aimed towards sustainable practices. Such as, no overnights on-shore, only visiting certain locations and having a PWS guide at all times. This service also involves an extraordinary level of biosecruity management. We have a limit for the number of tourist visits each season. Attached to this service is a robust monitoring program managed by the PWS. The PWS do charge a reasonable landing fee for each visitor. These fees are used for management programs on the island.

Public /Private Partnership

A large residential/resort development is being planned for Northeast Tasmania. Ninety stratum title units, a resort with 200 rooms and an internationally accredited 18 hole golf course is being constructed. This is being built on private land (an old sheep farm) that is surrounded by the Mt William National Park and a conservation reserve on the coastline. Having had initial discussions several years ago, it became apparent that the guests would want to use the adjoining reserves for a variet6y of activities. The PWS have continually been involved in planning discussions from the conceptual stages. To meet the needs of the PWS and have conservation management, the developers have agreed to pay the wages and on-costs of a PWS liaison officer for two years. This will equate to approximately $250K. The liaison officer will 'be in a PWS uniform and will work beside the developer's managers, planners and engineers to make sure sustainable practices will be adopted by the guests using the adjoining reserves.

This may be a model that can be adopted for similar large developments in Tasmania. Being involved from the very beginning has enabled the PWS to provide valued input into the entire resort's planning and management. In the past the PWS have too often become involved at the very end of the construction of such developments on private property. This has often resulted in conflict between tourism and conservation.

VALUES OF PARKS

By Neil McCarthy Chair, Parks Forum & John Senior, Manager Strategic Partnerships Parks Victoria

INTRODUCTION

Parks are loved by just about everybody, the very fact that they are readily valued is itself a measure of the intrinsic, innate and inherent relationships we as humans have (and need) with nature. Yet we often forget or overlook the extensive benefits we can and do derive from parks.

Ever since Aristotle described a societal malaise:

"For that which is common to the greatest number has the least care bestowed upon it. Every one thinks chiefly of his own, hardly at all of the common interest, and only when he is himself concerned as an individual."

The "tragedy of the commons" has plagued man kind since Aristotle and man kind has struggled to resolve the balance between public good and private benefit. The **Tragedy of the commons** is the relationship between free access to, and unrestricted demand for, a finite resource. The Commons originally provided basic rights "to graze my cows" and it was initially easy and simple to define the value that the individual derived from "the Commons". However, addressing competing demands is fine where the "value" the public and individual hold is understood.

For Parks these values have seemed clear and simple, but in the face of challenges such as climate change, urbanization and economic prosperity, it is time to re-examine what "values" do societies and individuals hold regarding parks – it is time to redefine "the commons", its values and its role in a modern cultural diverse society.

Parks come in all shapes and sizes: national parks, marine parks, state parks, forests, conservation and recreation reserves, metropolitan regional parks, botanical parks, ornamental gardens and a whole variety of urban parks, not to overlook the parklands that typically are part of golf courses, zoos and historic properties. In New Zealand and Australia today there are in excess of 60,000 parks.

Substantial evidence by respected researchers in Australia, New Zealand and internationally has demonstrated a range of values that can be derived from parks and they include:

- Treasuring our Identity
- Respecting Traditional Ownership
- Inspiring our hearts and souls
- Connecting Communities
- Mental well being
- Physical health
- NatureWorks
- Biodiversity
- Ecosystem Services
- Financial Outcomes

There is also emerging recognition that the values of parks can mitigate against many global and current national and global issues.

It is not just coincidence that the many common issues listed earlier have led to similar recent thinking about the value of parks in many industrialised countries.

- Only a few years ago the UK government established a branch within its CABE agency to focus on how high quality parks and public spaces can create economic, social and environmental value.

- In the US the National Parks Service recently introduced its campaign -"*improve your life: be fit, have fun, get healthy in your National Parks*" whilst the urban park professional body – the National Recreation and Park Association - has its own campaign "*Step Up to Health...Healthy Communities Start in Parks!*"

- The Canadian Parks Council (the co-ordinating body for national, provincial and territorial park agencies) has just produced a policy publication "Healthy by Nature" to improve awareness as part of that federal government's Healthy Living strategy.

This paper briefly outlines the range of Park values that are emerging.

OUTDOOR MUSEUMS AND GALLERIES – treasuring our identity
Places of cultural significance enrich lives through providing community and cultural identity, experience and inspiration – they are irreplaceable. In Australia they define our identity be it Port Arthur Historic Site, the Royal Exhibition Building and Carlton Gardens in Melbourne, North Heads (Sydney) or the Man from Snowy River. Historic or cultural landscapes can be equally important or evocative in their own right. The park provides the setting, contributes to or is part of the historic context, and/or otherwise acts as a buffer from surrounding development and land use. Such parks are inevitably tourist attractions.

More recent immigrants view and use parks in different ways according to their own particular heritage. Many come from developing countries, often from a rural existence where the earth and land was important to their subsistence and culture. Only recently have park managers been pro-active in understanding these perceptions and in seeking to better assist their integration into local communities.

SHOWCASES OF INDIGENOUS CULTURE – respecting traditional ownership
Most of us can relate to a feeling of awe or inspiration at a fantastic view, a beautiful bird or tall mountain forest. At times these 'places' are considered to have a sense of spirituality. That is of course how our indigenous peoples think about this country and this landscape – as the very heart of their culture. 'Caring for country' is the fabric of indigenous social, spiritual, economic and physical wellbeing and the basis of their lore.

In Australia there is acceptance of the indigenous roles and rights – these include acknowledgement of prior ownership, the importance of continuing to practice their culture, harvesting and hunting, and sharing the benefits of the use of traditional resources. Many indigenous sites are invariably in a park for protection reasons, not only are they preserved but then provide an educational base about the land's traditional owners.

SPIRITS AND EMOTIONS - inspiring our hearts and souls
Parks are emotive – just try to close or change one and see the reaction – the normally silent majority will be there protesting! Imagine a world without parks.

We have favourite outdoor places that we love to visit and that sense of place attachment has a deep and meaningful rationale for us. It may be a place of exhilaration, escape or simply one that brings back memories. We may visit alone or as a group according to our needs of the moment. Parks can evoke inspiration, awe, enjoyment and fun.

BONDING PLACES - connecting families and communities
It is internationally accepted that sustainable communities exist where the three capitals, economic, environmental and social, co-exist and are in balance.

Whether experienced as a visitor or volunteer, park activities contribute to social capital through such outcomes as social connectedness, family and friendship bonding, and a common sense of wellbeing. Properly considered in conjunction with other relevant agencies, park opportunities can be planned to address relevant local social circumstances relating to such things as ageing population, young families, ethnicity and poor juvenile behaviour, as well as the public health aspects discussed elsewhere.

Located in parks, outdoor adult and junior sporting clubs and programs are not just the providers of opportunities for physical exercise but, maybe more importantly, facilitate teambuilding, socialisation, friendships, community connectedness and civic pride. Similarly, the variety of park volunteer and 'Friends' groups are really building social capacity and collective community consciousness leading to civic responsibility and pride.

Inner city community gardens can play an important role in the wellbeing of many people who would otherwise be denied the chance to till the soil and enjoy the health and nutritional benefits of fresh 'home-grown' produce. This is particularly relevant for immigrants and refugees from developing countries.

FEEL BLUE, TOUCH GREEN - assisting mental well being
We are all aware that nature, the presence of living things, makes us feel good. We get a thrill out of sighting wildlife and we are delighted by a wonderful scenic view. We use expressions like "don't forget to stop and smell the roses". We recognise the need to get a 'breath of fresh air' - meaning to escape the daily rat race of urban living; more recently the concept of 'weekend escapes' has become popular and most of these are to the countryside! We even get pleasure from just knowing that something natural – a wilderness area - is there, even when we may never experience it. Even just passing by a park can provide a rewarding view or 'softness' of surrounding. All such feelings are essential to wellbeing; those things are all good for us mentally as well as for our cardiovascular fitness.

When parks were first planned in the nineteenth century, there was a strong belief in the potential health advantages that would result from open space. It was believed that exposure to nature fostered psychological wellbeing and reduced the stresses associated with urban living, as well as promoting physical health. In today's society and lifestyle those factors have never been more relevant.

GREEN GYMS - aiding our physical health

When parks were first designed around the beginning of the nineteenth century, it was hoped that parks would reduce disease, crime, and social unrest as well as providing "green lungs" for the city and areas for recreation and revival.

These assumptions were used as justification for providing parks and other natural areas in cities, and preserving wilderness areas outside of cities for public use. Somewhere during the twentieth century, as our western society pace of lifestyle increased, that rationale slowly became forgotten. However, those early assumptions have been verified by recent research and experience, and current park management is progressively adjusting to its role in contributing to such outcomes.

Our sedentary lifestyle has led to increasing obesity. People who are obese suffer increased risk of high blood pressure, high blood cholesterol, congestive heart failure, stroke, gallstones, osteoarthritis some types of cancer (breast and prostate), female reproductive health, and bladder control problems in addition they are at greater risk of psychological disorders like depression, eating disorders, poor body image and low self-esteem.

Parks provide the main outdoor venues for recreation and physical activity - formal and organised like sporting matches, as well as casual and informal like walking or bike riding. Then there are those parks that offer underground or water based experiences like caving, swimming, diving and canoeing.

Parks are also a focal place for childhood development through playground facilities, learning to ride a bike, fly a kite, and simply space to run around. The introduction of dog walking routes and off-lead areas in parks encourages individual exercise and supports the value of contact with an animal resulting in individual enjoyment and wellbeing.

NatureWorks – our outdoor class room

Parks are the only unique places where an individual can come in contact with real nature, indigenous culture, our heritage and ecological and geological processes. By conserving these environmental qualities, parks provide the outdoor classrooms for school and university education and research to assist our understanding and to reinforce the importance of protection – a further value of their very existence.

Subliminally and overtly parks also provide opportunities for awareness raising, learning and understanding. These may occur through brochures and signage; or simply casual observation. School groups use parks for environmental education, including rock-pool rambles on the coast. Research has shown that contact with nature improves cognitive functioning, so what better place to learn!

PLANTS, WILDLIFE AND LANDSCAPES – offering natural diversity
The natural values that parks provide have both **intrinsic** importance – that is, importance in themselves apart from the presence or needs of people – and **instrumental** importance, meaning that they are of direct or indirect benefit to people.

Parks in all forms help protect our natural resources – water, soils, rocks, landscapes, caves, the irreplaceable biodiversity of the unique indigenous flora and fauna (terrestrial and aquatic), as well as introduced species in ornamental and historic plantings.

Australasia's protected areas – like National parks and reserves – are of immense intrinsic, cultural and aesthetic importance. Of course all parks, with their various levels of legislative protection, play a key role but they cannot achieve that alone. In a world of rapid development and population growth and consequent natural resource demand, an integrated approach is needed across both public and private landholdings to address the impact of landscape and environmental fragmentation that occurs. Residential gardens, roadside vegetation, farmland, riparian vegetation, rivers and lakes all play a role along with parks.

The importance of marine parks and reserves, rivers, lakes and wetlands should not be overlooked. These 'wet parks' provide their respective watery biodiversity in parallel ways to their terrestrial counterparts. Some have integral international significance RAMSAR.
Many of Australasia's significant geological features are in parks – fossils (including those of dinosaurs), karsts (rock landscape formations) and cave features like speleothems (that include stalactites and stalagmites) which intrigue visitors as well as providing a basis for historic, educational and scientific interests. These sites are often the habitat of unique flora and fauna such as bats and invertebrates.

NATURE'S HIDDEN GIFTS PROVIDER – ecosystem services
Parks have a little understood or appreciated, yet vital role in providing ecosystem services – biophysical functions: previously unrecognized natural processes and products that nature provides for free. However, if we allow natural assets to decline, so will the benefits as these services cannot be provided artificially. Conversely, if we look after and maintain those natural assets, we will benefit from greater returns. There is a growing realization that these kinds of services actually underpin sustainable development and economic growth – this is now leading to the emergence of trading regimes as with carbon credits.

Parks help support human life by supplying products and processes, which include the production and protection of air, soil and water; genetic variety; and climate regulation, all essential in maintaining human life and the quality of our lives.

With the current concern about climate change, the crucial role of the vegetation (protected by parks) in storing carbon, offsetting the 'heat island' effect that hard surfaces create in reflecting the sun's heat back into the atmosphere, sequestering carbon monoxide and releasing oxygen, releasing moisture, helping to maintain rainfall and their roots prevent ground water from rising, is still to be understood and valued.

Parks are a major source of water, that provides the vital supply for human consumption, irrigation (and the nation's economy) and our natural environment. The Wetlands in parks perform the natural functions of nutrient recycling and environmental detoxification to improve water quality as well as flood mitigation through their retardation affect. The genetic variety that native plants in

parks protect has also proved to be of critical importance in developing new and improved medicines and cures for human diseases.

ECONOMIC GENERATOR – direct financial outcomes

Whilst parks themselves are usually free to access, there are many ways in which they provide an economic benefit. National, regional and local economies benefit through the tourism 'spend' (revenue generation, jobs, small business income including accommodation, food, souvenirs and related collateral) for which parks are often the catalyst. Tourism promotion especially relies heavily on park images as the 'attractor' for promoting their region Eco-tourism and nature-based tourism are very highly regarded in the overall tourism market.

Urban parks are of huge economic value to their respective communities and are often the feature of both local promotions to encourage tourism and lifestyle investment initiatives. In urban areas, residential property values for locations with a park proximity and views are invariably higher a situation that is demand driven.

The popularity of park landscape and marine images are marketed in many familiar merchandising forms: coffee-table publications, calendars, periodic magazines (like National Geographic), photographic and painted wall hangings, 'Discovery' channel type television documentary programs and even instrumental CD's based on the sounds of nature. Park settings are used as wedding photographic backdrops and movie sets.

Nature is of great therapeutic value in preventative and remedial health treatment interventions. There are both avoided costs if individuals access the physical and mental health benefits as (a preventative component) and potential economic savings to be made through resultant speed of recovery, lower prescription drug dependency and reduced nursing or carer time (in the case of remedial treatment).

INSURING THE FUTURE

Parks can no longer simply be seen as nice to have - a sort of 'icing on the cake' extra to other societal imperatives. The values described in this paper are only a brief foray into what might be the real value of parks. Imagine if these values didn't exist, imagine a world without parks. The key challenge, now, is knowing and understanding the true values the society has regarding parks.

Park managers need to be seen as highly relevant in delivering on the values society want– a real cultural change from the traditional mindsets. The park managers' role is much more important than it is given credit for. Those in park management or charged with associated decision-making have a significant responsibility to make parks relevant to a highly evolving and developing society – locally, nationally and internationally.

THE WARLU WAY
A pathway to cultural sustainability

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The Warlu Way relates to a snake meandering its way across an ancient landscape in Aboriginal culture.

Today it is represented by a drive trail that connects the Pilbara iconic destinations of Ningaloo and its whalesharks, to Broome and its famous beach.

Western Australia's North West stretches over 900,000 square kilometers and is one of the world's last true wilderness areas. It's rich in Indigenous culture and boasts the highest density of rock art anywhere in the world.

The region has a magic about it – you can discover how people existed as one with the land; how man survived thanks to an intimate knowledge of the sea, tidal areas and bushlands, as well as intricate trading systems.

Engulfed by a 2.5 billion-year-old landscape, the rugged region is a premier natural and cultural destination. About 1300km north of Perth, the area offers world class marine, terrestrial and aboriginal experiences.

Whichever way you wish to travel, this ancient pristine landscape will leave you feeling both inspired and humbled.

The Warlu Way represents a drive trail that traverses Western Australia's Pilbara region, some 1800km of world-renowned cultural, natural and landscape values. These include Karijini National Park, with its geological features and gorge experiences; Millstream-Chichester National Park, a billabong oasis; and the Murujuga National Park (Burrup Peninsula) – the world's largest, most diverse and oldest collection of petroglyphs (rock art). The trail starts and ends in Ningaloo, with its whalesharks and Broome with its famous beach, both already recognised for their natural and cultural identity.

Aboriginal culture and connection to country is a strong constant across the vast Pilbara landscape. It is this very connection to country that provides economic and cultural sustainability for Aboriginal people of the Pilbara.

Protected areas in the Pilbara are managed by park councils (traditional owners and the Department of Environment and Conservation), who govern park management activities.

Interaction, understanding and a shared direction by working together has evolved as a natural process, developed to reflect the traditional ways of conducting meetings and reaching positive outcomes together.

The Warlu Way aims to connect people to place and culture by providing Indigenous employment and business opportunities.

Opportunities include production of Aboriginal art (painting, sculpture, stories and music), language centres, aboriginal rangers, galleries, guided tours, accommodation and cafes.

These opportunities, combined with extensive capital development, including the Murujuga Cultural Centre, Millstream redevelopment (accommodation, walk trails, interpretive material); Karijini Eco Retreat and major road infrastructure, will help provide increased length of stay and employment opportunities in the region.

Warlu Way will link the major towns of Tom Price, Karratha and Port Hedland in Western Australia's North West, incorporating iconic sites from Exmouth in the south to Broome in the north.

Social and cultural issues are key drivers for tourism development and for the vast majority of Aboriginal people, engagement with the industry means much more than earning an economic livelihood, it can mean maintenance of cultural and social values; jobs for youth; and pride in showing the rest of the world a living culture.

Funding from the Australian Tourism Development Program will help develop and implement Warlu Way, including directional and interpretive signage, branding and marketing, and tourism opportunities for Indigenous communities and existing operators.

Warlu Way is being managed by the Department of Environment and Conservation (DEC), Tourism Western Australia, Australia's Northwest Tourism, in partnership with Traditional Owners.

Working together will see Warlu Way recognised national and international as a must do!

INNOVATIVE ARRANGEMENTS FOR CO-MANAGEMENT OF PARKS IN SOUTH AUSTRALIA

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The South Australian protected area system includes over 330 parks and reserves established under the *National Parks and Wildlife Act 1972*, the *Wilderness Protection Act 1992* and the *Crown Lands Act 1929*. These reserves encompass almost 21 million hectares, or more than 21% of the state. Many of these areas are significant to Aboriginal people.

In July 2004, the *National Parks and Wildlife Act 1972* was amended to create an innovative new framework for the co-operative management of parks with Aboriginal people.

This paper outlines South Australia's current approach to co-management of parks, including the benefits and policy and management considerations.

Co-management framework

Following the amendments to the *National Parks and Wildlife Act* in 2004, co-operative management arrangements over National Parks and Conservation Parks in South Australia can be established through statutory co-management agreements between the Minister and the relevant Aboriginal group.

The Act makes provision for National Parks and Conservation Parks to be constituted over both Aboriginal owned and Crown (ie Government owned) lands. Previously, parks could only be established over Crown lands.

An Aboriginal owned park may arise as a result of the handback of an existing Crown owned park and vesting it in the traditional Aboriginal owners or as a result of a request from the registered Aboriginal proprietor of land. In the latter instance, the land must also be proclaimed as a new park under the *National Parks and Wildlife Act*.

A co-management agreement may result in the creation of a co-management board in which the park is placed under the management control of the board. Previously, all parks were under the control of the Minister and under the management of the Director of National Parks and Wildlife. A co-management board assumes the powers of the Director, who ceases to have management responsibility for the park. Co-management boards also assume some functions previously reserved for the Minister (eg approval of leases and licences).

Alternatively, a co-management agreement may result in the creation of an advisory structure (eg advisory committee to the Director of National Parks and Wildlife) which provides advice, but does not have control or management responsibility for the park.

The changes to the Act have created a three-tiered framework for the co-operative management of Aboriginal owned or Government held National Parks and Conservation Parks:

- *Aboriginal owned parks* – Aboriginal owned National Parks and Conservation Parks are under the control of, and managed by, co-management boards. A co-management board for an Aboriginal owned park has a majority of members from the relevant Aboriginal group and is chaired by a person nominated by the Aboriginal owners.

- *Crown owned parks managed by a co-management board* - Co-management boards may be established for Crown owned National Parks and Conservation Parks. Membership of a co-management board for a Crown held park is determined by agreement between the Minister and the traditional owners. A co-management board has management control of the park.

- *Crown owned parks with a co-management advisory structure* - A statutory advisory structure may be established for a Crown owned National Park or Conservation Park to provide management advice, but does not have management control. The functions and membership structure of an advisory committee are determined by agreement between the Minister and the relevant Aboriginal group.

Application of the framework

Three co-management agreements, covering approximately 10% of the formal reserve system, are now in place in South Australia under the new arrangements. These are outlined below.

Mamungari (formerly Unnamed) Conservation Park

The Mamungari Conservation Park is an Aboriginal owned park managed by a board. The park was originally proclaimed in 1970 and forms a 21 million hectare part of the remote Great Victoria Desert and Nullarbor regions of South Australia. The area is of significant biological and conservation value and of great cultural significance to its traditional owners, many of whom live at Oak Valley to the east of the park and Tjuntjuntjarra to the west.

The Premier of South Australia, Mike Rann, handed the park back to the traditional Aboriginal owners at a formal ceremony on the Maralinga Tjarutja lands in August 2004.

The area maintains its status as a Conservation Park under the *National Parks and Wildlife Act* and the pre-existing 'no mining' regime and public access rights have been preserved. An eight-member traditional owner majority board manages the park in accordance with a co-management agreement between the State Government and the traditional owners.

A significant ongoing budget allocation has been provided by the South Australian Government to enable the board to manage the park, including the board administration costs, employment of rangers, and preparation and implementation of a new management plan, released as a draft for public comment in June 2007. New regulations have been made specifically for the park.

Vulkathunha-Gammon Ranges National Park

The Vulkathunha-Gammon Ranges National Park, located in the visually spectacular northern Flinders Ranges, is a Crown owned park managed by a board. Covering 128,228 hectares, the park incorporates a range of arid ecosystems and habitats, supports a number of native species of conservation significance and is a popular recreational destination.

The park is part of the traditional country of the Adnyamathanha people for whom it is of special cultural significance. It contains a wide range of important cultural features and evidence of their past occupation.

In 2005, an Indigenous Land Use Agreement (ILUA) and a co-management agreement over the park were signed and management of the park became the responsibility of the Vulkathunha-Gammon Ranges National Park Co-management Board. The Board comprises eight members, with four representatives from the Adnyamathanha Traditional Lands Association, three from the Department for Environment and Heritage and one other nominated by the Minister. The management plan for the park was adopted in August 2006.

Ngaut Ngaut Conservation Park

The Ngaut Ngaut Conservation Park is a Crown owned park with a statutory advisory committee. The park is adjacent to the River Murray near Nildottie, about 100 kilometres north-east of Adelaide. It was proclaimed in 1976 and covers approximately 49 hectares.

The park forms part of the ancestral home of the Nganguraku people. It is an important occupational and archaeological site with a rich Aboriginal heritage, including rock art, scar trees, middens, firestones and other artefacts. The Park was the site of Australia's first archaeological excavation ('Devon Downs') in 1927.

For more than a decade, the traditional Aboriginal owners have conducted cultural heritage tours and been actively involved in the protection and management the park.

In 2005, a co-management agreement was signed between the Minister and the Mannum Aboriginal Community Association Incorporated, and a six-member advisory committee was established to advise the Director of National Parks and Wildlife on management of the park. The advisory committee is providing input into a management plan currently being prepared for the park. A lease is also in place to facilitate and formalise tourism and other activities undertaken by the Aboriginal custodians.

These three co-operative management arrangements, although being in place for only a relatively short time, are operating very successfully. This can be attributed to the high level of commitment by the traditional Aboriginal owners and Departmental staff involved in their management, and adequate resources being provided to support the management arrangements. It may also reflect the strong relationships between the Department and the Aboriginal owners that were established over an extended period prior to the co-management agreements being established.

Benefits of co-management

The relationship to land ('country') is central to Aboriginal culture, identity, spiritual beliefs and well being. Access to country is critical to maintaining this relationship and can provide additional social, health and economic benefits to Aboriginal people. Traditional knowledge and land management practices can also inform and improve contemporary approaches to science and park management and enhance park visitor experiences.

Much of the protected area system in South Australia is of considerable significance to Aboriginal people and has the potential to play an important role in resolving native title claims and advancing the reconciliation process. As the major single landholder in the state, the Department for Environment and Heritage has the opportunity to significantly progress the reconciliation agenda, contribute to indigenous self-determination and help to address Aboriginal disadvantage through the co-operative management of parks. The co-management provisions in the *National Parks and Wildlife Act* provide an appropriate mechanism for this to occur.

Aboriginal freehold land encompasses around 20.3 million hectares, or almost 21% of South Australia. Most of this is located in the west and north of the state. Due to its size, remoteness and relatively undeveloped condition, much of the Aboriginal freehold land has the potential to make a significant contribution to the conservation of biological diversity in South Australia.

The value of Aboriginal lands for biodiversity conservation has been recognised through the establishment of Indigenous Protected Areas (IPAs) by the Australian Government. In South Australia, there are currently five IPAs covering approximately 2.9 million hectares. However, while IPAs provide a mechanism for supporting indigenous landowners to manage their land for the protection of natural and cultural features, they offer no long-term security of conservation tenure beyond the period of the current funding agreements between the Government and the Aboriginal owners. The new co-management arrangements under the *National Parks and Wildlife Act* provide a secure mechanism for statutory long-term protection and recognition of the important conservation values of Aboriginal lands through the establishment and co-management of Aboriginal owned parks.

There are currently 22 Native Title claims covering around two-thirds of South Australia, and more than three-quarters of the protected area system. There is considerable interest amongst indigenous communities in progressing their native title aspirations through co-operative management of parks. The arrangements under the *National Parks and Wildlife Act* are being increasingly recognised as an important tool for resolving native title claims through negotiated settlement (ie ILUAs) rather than expensive litigation. Co-management agreements are currently being negotiated over additional parks as part of the State's native title resolution process.

Issues and challenges

Experience in South Australia has identified a number of matters that should be considered in the development of policy and the determination of strategies and priorities for cooperative management of parks.

The capacity to contribute to effective park management at both the strategic policy and operational levels is variable across Aboriginal communities. Similarly, the capacity within the Department to progress co-management arrangements through the negotiation of co-management agreements, servicing and support to boards and working with Aboriginal communities to co-manage parks is limited and variable across the organisation. The tiered approach provided for in the *National Parks and Wildlife Act* enables capacity building over time as co-management of a park can occur at different levels and be progressed through the advisory committee, board and handback phases as appropriate to the particular circumstances.

The degree of management complexity of a park must also be taken into account. For example, the management skill and effort that must be applied to a remote reserve with low visitor numbers and limited management issues is considerably different to a park subject to high visitation and complex management issues. Complexity of management must be matched with capacity.

Relationships are a critical factor. The greatest successes to date have occurred where relationships between the Department and the traditional owners have been established over a long period. Again, the tiered approach to co-management available under the Act can provide the opportunity for relationship building over time as co-management is progressed through the appropriate phases.

Resourcing is a significant issue. Identifying traditional owners and negotiating co-operative management agreements can incur significant costs. Invariably, new indigenous employment opportunities are expected to be created to provide economic benefits and improved quality of life. Boards of management can also create significant costs associated with sitting fees, travel and accommodation, as can the increased administrative and management input required to meet the aspirations and expectations of the co-management partners.

Native title considerations will impact on how, when and where co-management arrangements should be progressed. For example, interpretation of the recent Ward decision of the High Court suggests that native title may be extinguished, suppressed or continue to exist on and within parks in South Australia, depending on the date and manner in which the particular parcel of land was vested in the Crown. This can affect how the Government should deal with traditional owners, proposed changes to proclamations (eg re-dedication of reserves as a different reserve type), and the ILUA process. Native title may therefore create opportunities, impediments and obligations for co-management arrangements. The co-management models now available under the *National Parks and Wildlife Act* provide a valuable tool for dealing with native title-related issues and an alternative to the very costly native title litigation processes.

The aspirations of Aboriginal communities regarding co-management vary around the state, as do broader community attitudes and expectations. These provide a range of opportunities, but need to be balanced against other considerations, opportunities and constraints and care is required so as not to create unrealistic expectations and the issues these can create.

Co-management of parks is seen by some as a panacea for resolving native title claims over areas involving parks through ILUAs. However, whilst co-management can be an important component for resolving native title claims through negotiated settlement, co-management arrangements are unlikely to be sustainable in the longer term unless all of the other potential issues have been addressed.

Finally, our policies, strategies and priorities must reflect and accommodate broader Government and departmental requirements and be responsive to other stakeholder and community views and attitudes. It will be necessary to ensure that co-management arrangements are successful, sustainable and adaptable to changes of and within government and are seen by the community and other stakeholders to be both equitable and workable. A single failure of a co-management arrangement may be sufficient to set back the broader process considerably.

Summary and conclusions

The innovative co-operative management framework established in South Australia under the *National Parks and Wildlife Act* provides opportunity to progress the reconciliation agenda, contribute to indigenous self-determination and help to address Aboriginal disadvantage. Co-management also provides a range of potential benefits for conservation and improved park management.

Three successful co-operative management agreements, covering approximately 10% of the formal reserve system, are now in place. However, there are a number of issues that must be addressed to ensure that co-management arrangements are sustainable in the long-term.

The Department for Environment and Heritage is working closely with Aboriginal people to identify further opportunities and consider how the framework can be applied to other areas around the state.

PARKS AND PROTECTED AREAS FORUM
Fremantle, Western Australia – September 2007
'A sense of place, for all people, for all time'

FROM AN ABORIGINAL PERSPECTIVE ON COUNTRY & JOINT MANAGEMENT PROPOSALS

Karen Jacobs

The Indigenous Protected Area Program

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Abstract to Power Point Presentation

The Indigenous Protected Areas program is part of the National Reserve System Program which aims to establish a network of protected areas which includes a representative sample of all types of ecosystems across the country. Through this program, Indigenous landowners are being supported to manage their lands for the protection of natural and cultural features in accordance with internationally recognised standards and guidelines for the benefit of all Australians.

The Indigenous Protected Areas Program is one of the ways in which Indigenous Australians are being supported to meet their cultural responsibility to care for their country and to pass on their knowledge about the land and its resources to future generations.

ABORIGINAL INVOLVEMENT

Patrick Fricker
Parks Victoria

PARKS AND PROTECTED AREAS FORUM
Fremantle, Western Australia – September 2007
'A sense of place, for all people, for all time'

PROTECTED AREAS AS FLAGSHIPS FOR BIODIVERSITY CONSERVATION: A STRATEGIC OVERVIEW

Tom Hatton
Director, Water for a Healthy Country Flagship, CSIRO

CONCURRENT SESSION - SPEAKER PROFILES

Dr Russ Babcock is Senior Principal Research Scientist at CSIRO Marine and Atmospheric Research. He leads a team of scientists studying key ecosystem processes on the Western Australian coast, including major projects in marine protected areas at Ningaloo, Jurien Bay and the Perth area. His career started at James Cook University where he studied marine biology and was a member of the team that discovered mass spawning of corals on the Great Barrier Reef. Since then he has worked in many parts of Australian and the Pacific, studying issues ranging from spawning in the crown-of-thorns starfish to the behaviour of snapper. Current research interests focus on human impacts on temperate kelp forest ecosystems and coral reefs, with a focus on Marine Protected Areas and their use as a tool for understanding ecosystem functions. Russ was awarded the Australian Museum's Pol-Eureka Prize for Environmental Research, in recognition of his contributions to marine ecology. Prior to being appointed to the CSIRO, he was an Associate Professor at the University of Auckland in New Zealand, as well as holding positions at the Australian Institute of Marine Science and James Cook University in Townsville.

Lynnath Beckley is an Associate Professor of Marine Science at Murdoch University. Her research interests include biological oceanography, marine conservation, human use of marine resources (especially recreational and subsistence use) and coastal management.

Paul Bowers has worked for the previous Western Australian Government Department of Conservation and Land Management in their Indigenous Heritage and Cultural interpretation mia mia village and walk trail at Yanchep National Park and for the fromer Department of Environmental Protection (DEP) now DEC with their controlled waste branch. Paul is currently employed by the Australian Government as an Indigenous Land Management Facilitator, where he works closely with the Indigenous community and other stakeholders to try and help conserve the land in its natural state and highlight the importance of taking responsibility for addressing land degradation issues and help implement natural resource management planning processes. Paul also assists individual land holders to implement NRM programs and provide advice to help manage threatening processes that plague natural habitats and threaten our native flora and fauna.

Robin Chapple was a Port Hedland Town Councillor for seven years, retiring in 1993. He was elected to State Parliament in 2001 for the Greens (WA), in the Legislative Council seat of Mining and Pastoral. Portfolios included energy and renewables, local government, aboriginal issues, mining issues- uranium and oil, emergency services, democracy & electoral affairs, employment & industrial relations, heavy industry, national parks and pastoral issues. Robin established Chapple Research in 1993 out of the need to provide to an impartial environmental/social impact consultancy to communities, local authorities and local industry, providing guidance and expertise on the effects of projects or developments that might induce environmental, social or financial impact on existing communities or infrastructure. Robin is currently one of the Co-convenors of the *Friends of Australian Rock Art Inc* (FARA). FARA's principal aim is to raise public awareness in Australia and internationally of the significance of Australian Aboriginal and Torres Strait Islander heritage as manifest in the scientific and prehistoric values of indigenous rock art and in other material of cultural significance.

Maria Cosmos has also commenced a Traineeship with the Department of Environment and Conservation in April of this year. Maria works closely with the Senior Ranger for the Dampier Archipelago. Her role includes active involvement with the Murujuga Park Council and management of the National Heritage Place including the proposed Murujuga National Park, while also being provided with extensive training. Maria also has family ties to area (Yaburara Mardudhunera) and aims to provide a strong connection for her people and country, particularly linking younger people's views and ideas.

Jenny Dewing farms a small beef and agroforestry property in Bridgetown, in the southwest of WA. She moved from the city to Bridgetown 30 years ago with her husband and a baby, attracted primarily by the magnificent forests and landscapes of the Blackwood Valley. From a science teaching background, Jenny moved into adult education and worked in landcare and later in the Department of Conservation's Land for Wildlife Program. She is also a long term and active member of two conservation groups in Bridgetown. She now spends her time between voluntary conservation work, managing her farm and caring for a large bush block in Bridgetown.

Dr Nic Dunlop has been a practising ecologist in Western Australia for over 25 years, working as a researcher, consultant, teacher, regulator, company environmental officer and latterly as a policy and project officer with an NGO, the Conservation Council of WA. Nic's passion is marine ornithology and he has conducted several long-term seabird population studies, one its 3rd decade. The scientific interest in seabirds colonies has naturally expanded to the terrestrial ecology of their breeding islands.

Atticus Fleming is the inaugural Chief Executive of Australian Wildlife Conservancy. AWC now owns and manages 16 properties around Australia, covering more than 1,770,000 hectares (4.4 million acres) and protecting

more than 250 threatened species in the wild. Prior to joining AWC in 2002, Atticus served as a policy advisor on the personal staff of Australia's longest serving Federal Minister for the Environment, Senator the Hon Robert Hill. As advisor to the Federal Environment Minister, Atticus played a major role in the development of Australia's first national biodiversity law, described by some environment groups as "the biggest legislative win for the environment in 25 years". He also advised on a range of other matters including endangered species, world heritage, fisheries management, wildlife trade and climate change. Prior to working for Senator Hill, Atticus was a constitutional lawyer with the Attorney-General's Department in Canberra and a corporate lawyer with Mallesons Stephen Jaques in Sydney.

Paul Gamblin is Senior Policy Advisor, Oceans and Coasts with WWF-Australia. He works on coastal and marine planning, and fisheries management. Paul is currently advocating for participative, science-based planning and conservation for the magnificent Kimberley coast and offshore environment which is facing considerable pressure from industry. Paul was the spokesperson for the Save Ningaloo Campaign, a partnership of conservation groups which stopped the construction of a large marina resort at the reef in favour of a regional blueprint which is guiding lower-impact tourism development. The campaign also worked to expand the network of fully protected areas of the Ningaloo Marine Park from 10% to 34% and to extend its boundaries.
Paul has been a grassroots coastal campaigner for some years seeking to secure sustainable, public coastal foreshores in the metropolitan area and is currently a community representative on the Coastal Planning and Coordination Council of the Western Australian Planning Commission.

Cathy Gazey is DEC's Healthy Parks, Healthy People Coordinator and was born and educated in Western Australia. Cathy has wide ranging interests but the focal point of these is essentially the natural environment. She has degrees in science and public health and is currently in the final stages of completing a Masters in Natural Resource Management. The decision to become formally educated in both the health and environmental fields was in response to the realisation that a healthy environment is highly influential in the determinants of health. Cathy has a passion for outdoor activity and the challenges that long treks in wild areas entail.

Evan Hall is the National Manager Strategic Partnerships for the Tourism and Transport Forum (TTF). Evan was instrumental in the development of the recently launched 'National Tourism Partnership Action Plan' which was released at the recent 'Climate Change Summit' initiated by TTF. In 2004 the TTF released 'A Natural Partnership: Making National Parks a Tourism Priority' a seminal report exploring how the full potential of Australia's protected areas as tourism attractions can be realised, while prioritising the protection of their conservation values. TTF is the peak industry group representing tourism and transport nationally. It comprises the chief executives of the 200 most prestigious investors, operators, regulators and developers of infrastructure and services in the tourism and transport industries.

Dr Karen Higginbottom is Leader of the Sustainable Resources Research Program of the Sustainable Tourism CRC, and a Senior Research Fellow in the School of Environment at Griffith University. She is also Principal of *Wildlife Tourism International*, which provides specialist consultancy services in wildlife tourism. She is a former lecturer, and now Adjunct Senior Lecturer, at Griffith University. Karen has led a number of STCRC research projects over the last eight years. Her research and consultancy work focuses on: wildlife tourism, wildlife management, managing and monitoring the impacts of nature-based tourism in protected areas, and integrating environmental, social, economic and business perspectives on nature-based tourism planning and management. Karen has written more than 60 publications on wildlife/ nature tourism and wildlife ecology /management, and is editor and primary author of the leading reference book on wildlife tourism: *Wildlife Tourism: Planning, Impacts and Management.*

Karen Jacobs is the owner of Kwillana Dreaming Aboriginal Company and has a small business focus and a strong background in education and training, particularly the marketing and promotion of new apprenticeships and employment strategies for Aboriginal people. She as first-hand experience in developing sustainable tourism opportunities and a strong interest and experience in environmental and conservation joint management projects. Karen holds a number of positions, including being a Director on the Board of Tourism Australia, Director and Secretary of Noongar Property Holdings Pty Ltd, an Aboriginal-owned property investment group that assists Indigenous commercial initiatives in the Perth and South West regions of Australia, Board Member of the Rottnest Island Authority (RIA) and Chairperson of the RIA Environmental Advisory Committee and Chairperson of the RIA Cultural and Heritage Advisory Committee. She was awarded Shire of Swan Achievement Award in 1994 and the National Aboriginal & Islander Day of Celebration (NAIDOC) Award for Outstanding Contribution to the Noongar Community in 2002.

Philip Jennings is Professor of Physics and Energy Studies at Murdoch University and has been involved in renewable energy research and education for more than 25 years. He has led Murdoch University's efforts in developing a range of educational programs in renewable energy that address the needs of schools, universities, TAFE and the general community. In addition to renewable energy education he has research interests in photovoltaics, especially amorphous silicon solar cells, and attempts to improve their efficiency and stability. Philip is also active in the voluntary conservation movement and has held various positions with the Conservation Council of

Western Australia and its affiliated groups. He is currently President of the Conservation Council, President of the Wetlands Conservation Society, President of the Cockburn Wetlands Education Centre and Secretary of the Pollution Action Network. He represents the Council on several Government Committees concerned with environmental matters. He also is the Chair of the Beeliar Regional Park Community Advisory Committee.

Sue Jones CSC is the Chair of the Shark Bay World Heritage Community Consultative Committee. She served 30 years in the Royal Australian Navy (RAN) before moving to WA to undertake a regional development role for the WA Government. As a child she grew up on the land, and holidayed in areas that have more recently been World Heritage listed eg Fraser Island and the Great Barrier Reef. She realised her keen interest and connection to the environment when she moved to WA as the Commander of the Harold E Holt Naval Communications Station on North West Cape. Exploring the region and taking on an active role in the Shark Bay World Heritage Property management, consultation on the Ningaloo-Cape Range World Heritage nomination and chairing a Community Reference Group in the Kimberley has whet her appetite for further involvement in World Heritage community consultation when she retires to Queensland in 2008. She was awarded a Conspicuous Service Cross for her outstanding service in the RAN.

Glen Kelly is a Nyungar with traditional ties to the Lower South West of the State. Glen has a background as an Environmental Scientist who has worked for a number of years in the field of protected area, natural and cultural resource management and policy as it relates both to Indigenous involvement in these fields and how they interact with the native title rights of Traditional Owners. An inaugural member of the Conservation Commission of WA, Glen currently fills the position of Chief Executive Officer of the South West Aboriginal Land and Sea Council, the native title representative body for the south west and the metropolitan area.

Dr Robert Lambeck is CEO of Greening Australia (WA) an environmental NGO with a mission to protect and restore the health, diversity and productivity of Australia's unique landscapes. To achieve this mission, Robert has focused Greening Australia on developing and implementing regional and landscape-scale initiatives aimed at transforming the over-exploited yet biologically rich landscapes of Western Australia. Prior to joining Greening Australia, Robert was a Landscape Ecologist with the Commonwealth Scientific and Industrial Research Organisation (CSIRO) specialising in landscape design for protecting biodiversity in fragmented agricultural landscapes, and examining the impacts of habitat fragmentation on bird populations.

Kosette Lambert is currently the Acting Manager, Volunteer Support Unit, at the Department for Environment and Heritage (DEH) in South Australia. The Unit has responsibility for coordinating the implementation of the Department's volunteer engagement strategy, and provides policy advice and support to Department staff engaging and managing volunteers. Prior to joining DEH, Kosette was a Senior Policy Officer at the Office for Volunteers (also state government), where she was involved in the development and implementation of *Advancing the Community Together*, a partnership between the State Government and the Volunteer Sector, to advance volunteering in SA. Kosette has also worked for the SA Police, in the Strategic Management Branch, and as a Research Officer at the University of Adelaide.

Greg Leaman has extensive knowledge and experience in parks, wildlife and cultural resource management gained over 30 years in conservation and land management agencies in Tasmania, Western Australia, New South Wales and South Australia. Appointed to the position of Director of National Parks and Wildlife South Australia in 2001, he is responsible for the Natural and Cultural Heritage Directorate which provides policy leadership, strategic direction and support for the department's public land management, coast and marine conservation, heritage conservation and animal welfare programs. This includes the development and management of the terrestrial and marine parks systems and associated visitor services; Crown land administration and management; and coastal protection. He is also responsible for the department's Aboriginal partnerships and volunteer support programs. Greg is the Chair of the Vulkathunha-Gammon Ranges National Park Co-management Board and a member of the South Australian National Parks and Wildlife Council and the Wilderness Advisory Committee. He is also on the Board of Directors of Parks Forum Limited and a member of the IUCN World Commission on Protected Areas.

Dino Magris is General Manager of Australian Touring for Australian Pacific Touring (APT). Dino has lead the development of ecologically and culturally appropriate safari type facilities and services in Australia, including the Kimberley Wilderness Adventures Camps (KWA) in the World Heritage listed Purnululu National Park adjacent to the Bungle Bungles. APT is an 80 year old Australian company which operates worldwide with a focus on quality experiences and cultural tourism. In 2003 APT formed the 'APT Charitable and Conservation Foundation'.

Neil McCarthy is representing the Parks Forum. The purpose of the Parks Forum is to enhance and increase the significant range of environmental, social and economic benefits to the community that parks provide. Initially serving the parks industry in Australia and New Zealand, the Forum also provides a focus for building an international parks industry network. The Parks Forum aims to support parks agencies across the whole range of park types, from neighbourhood parks to the large urban metropolitan parks and protected areas. The focus is on

organisations and their effectives in contributing to society. These two factors make the Parks Forum unique.

William (Bill) McLennan Mitchell JP. In 1974, Bill's family purchased Muggon Station in the Murchison area of Western Australia and Bill took up the position of Manager. He purchased the property from his family company and ran it until 1998 when he sold it to CALM to be added to the conservation estate. Bill and his wife Jenny live on the property contracting services to CALM. Bill's government experience started with his election to Murchison Shire Council in 1976 and was Shire President from 1983 to 1991. Since 1976, Bill has been a regular delegate to Ward Conferences and in latter years Ward/Zone Delegate to CSCA/WALGA. In 2002, Bill was elected President of CSCA and Deputy President of the Western Australian Local Government Association (WALGA). Bill's special area of interest both within and outside of Local Government, is natural resource management with a heavy emphasis on the rangelands of WA. Bill has represented the Pastoralist and Graziers Association on the WA Soil and Land Conservation Council since 1991 and is the current Chairman of the Rangelands NRM Co-ordinating Group. Bill was appointed President of WALGA in August 2004 and Vice President of the Australian Local Government Association in November 2004.

David Milroy has been involved in theatre in for a number of years as a musician, director and writer. He has written and directed a number of plays including *King Hit*, *Runumuk, Swine River* and *Windmill Baby*. David was the first coordinator of Dumbartung Aboriginal Artist Advisory and was Artistic Director of Yirra Yaakin Noongar Theatre for seven years. David received a Myer Award in 2002 for his contribution to the development of indigenous theatre. In 2000 David was a guest Director of the American Playwrights Conference in Connecticut and has attended the Australian National Playwrights Conference on a number of occasions as a writer and Director. David won the 2004 Patrick White Award and the 2005 Equity Guild Award for his play *Windmill Baby*. In 2005 David received a fellowship from the Theatre Board of the Australia Council and in 2006 had his play Windmill Baby read at the Comedie Francais in Paris. David is currently living in Perth and is actively involved in Native Title with the Palyku people of the Pilbara.

Peter Mooney was born and educated in Tasmania. He started with the Tasmanian Parks and Wildlife Service as a trainee, attaining tertiary qualifications in environmental management. Since 1981 Peter has worked as a Ranger and Park Manager in many of Tasmania's reserves. He has completed a number of overseas postings working for NGOs, the most recent being with the Charles Darwin Research Institute, Galapagos Islands, Ecuador. Since 2004 Peter has been the General Manager, Tasmania Parks and Wildlife Service (PWS). The PWS is responsible for 40% of Tasmania's landmass. This is the largest portion of reserved land of any state/province in the world. Peter has a strong commitment to building the capabilities of conservation agencies to manage reserves with local communities and tourism operators. In the Tasmanian Wilderness World Heritage Area the PWS has been leading a range of new programs involving the tourism industry, that have delivered robust authentic products at a sustainable level.

Sue Moore is Associate Professor of Environmental Policy in the School of Environmental Science at Murdoch University. Her research currently focuses on: visitor use of protected areas (expectations, satisfaction, environmental impacts and management); policy analysis with an emphasis on biodiversity conservation; and governance associated with tourism (e.g. partnerships) and natural resource management. She is the author of more than100 publications on natural area tourism, environmental policy and natural resource management in journals, books and reports including the journals of *Environmental Management*, *BioScience*, *Environmental Impact Assessment Review, Journal of Sustainable Tourism, Journal of Policy Studies* and *Journal of Environmental Policy and Planning*. Sue has and continues to work closely with government and non-government organisations. She is currently a governor with the World Wide Fund for Nature and is a member of their Australian Scientific Advisory Committee. Other appointments include chairing the WA Department of Environment and Conservation Tourism and Recreation Research Reference Group (2002-2007) and membership of the WA Natural Resource Management Council (2002-2003), plus membership (both past and present) of a number of committees providing advice to the Australian Government.

Aileen Murrell joined the Chamber of Minerals and Energy Western Australia (CME) in February 2007 in the capacity of Executive Officer, Environment. Aileen's key responsibilities within CME include the identification and management of environmental issues impacting on the resources sector and liaising with internal and external stakeholders on these issues. Aileen has over 20 years experience in policy development in the public and private sectors in Western Australia. Prior to joining CME, Aileen worked as a Policy Officer and Chief of Staff to the Leader of the National Party between 2002 and 2006 and was a senior policy advisor to the Minister for Primary Industry and Fisheries in the Coalition Government between 1993 and 2001. Aileen has also worked as an Agri-business Analyst with BankWest, worked for both representative farmer organisations in Western Australia and both the Department of Agriculture and Food WA and the Department of Fisheries.

Patricia Negus was educated in England obtaining an honours degree in biology and diploma of education. She worked as a biology teacher for several years in Trinidad, Zambia and at Narrogin Senior Agricultural High School. She became a full time artist in 1976 exhibiting widely in WA, winning many awards. She has a particular love of nature and an eye for detail. She and her husband Tim, moved to Margaret River in 1993. Patricia continued her

artistic career but soon met Jane Scott, botanist and walker, who was looking for someone to illustrate her walking book. This was our first book 'Walking the Capes'. The third member of our team Ray Forma, a science teacher from Perth became our publisher. And so our business, Cape to Cape Publishing was born. We are three friends who have a passion for the south west of Australia. We are self published and use PK Print in Hamilton Hill WA to print our books. To date we have published eight books, several series of cards and a shell poster. We are proud of the fact that all our books are written, illustrated, published and printed in Western Australia.

David Newsome is a senior lecturer in the School of Environmental Science at Murdoch University, Perth, Western Australia. David holds degrees in botany, soil science and geomorphology. His principal research interests are geotourism, human-wildlife interactions and the biophysical impacts of recreation and tourism. David's research and teaching, and the activities of his research group, focus on the sustainable use of landscapes and the assessment and management of recreational activity in protected areas. David is the lead author of the recently published books *Natural Area Tourism: ecology, impacts and management* and *Wildlife Tourism* and co-editor of *Geotourism* a book which lays the foundation for the emergence of geotourism as a distinct discipline within the area of natural area tourism.

Daniel Oades has been in the role of Turtle and Dugong Project Officer based at One Arm Point on the Dampier Peninisula since mid June 2006 working within the Land and Sea Management Unit of the Kimberley Land Council. Before taking up this position he studied Marine Science at Murdoch University graduating in 2001. As well as undertaking various short stints in community development and marine conservation volunteer and paid positions. From 2003 - 2006 he worked for the Department of Environment and Conservation (DEC) WA as a Marine Ranger in the Exmouth District on the Ningaloo Reef Marine Park and Cape Range National Park. His role covered a diverse range of coastal and marine management activities as well as working with the Thalanyji and Baiyungu traditional owners of the area, helping to set up their Aboriginal Park Council for the Joint Management of Ningaloo and Cape Range. In his role as Turtle and Dugong project officer he has been able to work with his own mob (Bardi) and form the Bardi Jawi Ranger Program. Daniel also serves as a member on the Indigenous Advisory Committee on the EPBC Act and as an assessment panel member on the Coastwest community grants program.

Ken Sandy is currently employed as a Trainee with the Department of Environment and Conservation as part of the Mentored Aboriginal Training and Employment Scheme (MATES). Ken commenced his traineeship in 2004 and now nears the completion of Certificate IV in Conservation Land Management. Over the past three years Ken has been based at the Millstream-Chichester National Park and has been actively involved in the Millstream Park Council. Ken has a strong connection to his country with his grandparents being born at the Millstream homestead where Ken now works, interacting with visitors and sharing his culture. The Yindjibarndi (Ken's people) are very proud of his achievements and through his work and involvement have expressed their views on how the area will be managed via a new draft management plan for the area.

Jim Sharp was appointed Director of National Parks in Western Australia in 1996 following two years acting in the position. The position has been responsible for the Parks and Visitor Services Output of the new Department of Environment and Conservation (formerly the Department of Conservation and Land Management). Early career interest was in social research particularly relating to the natural environment. Prior to becoming a Director Jim managed a group responsible for the development of park policy in Western Australia relating to visitors, volunteers, external funding, tourism leases and licences, research in visitation and Indigenous involvement. Jim has a strong interest in the sustainable use of protected areas for recreation and tourism. Jim is a member of the World Commission on Protected Areas Working Group on Tourism in Protected Areas and formerly a board member of the Sustainable Tourism Cooperative Research Centre. He is also a board member of the Bibbulmun Track Foundation, which provided a unique partnership model for the development of a unique cross regional attraction focused on the natural environment.

Beth Schultz is a Queenslander who arrived in Western Australia in 1970. In 1975, in response to the commencement of WA's native forest woodchip industry, she became a founding member of the Campaign to Save Native Forests (WA) and co-convener of the South-West Forests Defence Foundation, the first forest conservation groups in this State. Since then she has been involved in the campaign for the better use and management of WA's native forests, including the successful campaigns to have the Shannon River Basin gazetted as a national park and old growth forest protected. Beth became associated with the Conservation Council of WA in the late 1970s and was a delegate for some years before being elected to the Executive. She served as President from 1992 to 1995 and is now Vice-president. She is the Council's spokesperson on forests, forestry, woodchipping, and fire in the natural environment.

Dr Amanda Smith is the Social Science Coordinator for the Social Research Unit, Park Policy & Research Branch at the Department of Environment and Conservation, Perth, Western Australia. She has a background in Environmental Science and moved into the area of tourism when following an interest in exploring human-nature interactions. Amanda is a recreation ecologist with

expertise in environmental and social impacts of tourism and recreation in protected areas; natural area tourism; marine tourism; wildlife tourism; campsite impact monitoring; and minimising visitor impacts through resource and visitor management techniques. Amanda's research interests include a diverse range of sustainable tourism research including: recreation ecology; visitor management; sustainable tourism and natural area management; the environmental and social impacts of tourism and recreation in protected areas; campsite impact monitoring; natural area tourism; wildlife tourism; and Indigenous tourism and impacts to culture/spirituality.

Roger Underwood worked as a firefighter, a district and regional forester and as a research manager for the WA Forests Department for 25 years and then for nine years as General Manager of the Department of Conservation and Land Management. He left government service in 1994 to develop a forestry and land management consultancy practice and to establish a private arboretum in the Avon valley. He is a Fellow of the Institute of Foresters of Australia and Chairman of The Bushfire Front Inc. He has published five books and numerous articles on forestry, foresters and forest history, including his autobiography *Tree Climber* (2003) and the companion volume *Old Growth Foresters* (2006)."

Dr Stephen van Leeuwen is a research scientist with the Department of Environment and Conservation. Prior to January 2007, Stephen had been based in the Pilbara for 17 years. His primary research activities in the Pilbara were biogeographical surveys, including: 'A botanical survey of Sky Islands of the Hamersley Range'; 'A biological survey of the Barlee Range Nature Reserve'; and 'A biological survey of the south-western Little Sandy Desert'. Stephen is also lead botanist and has responsibilities for community engagement as part of the $13.5M Pilbara Biological Survey. In addition to surveys, Stephen also conducted research into the ecology of mulga woodlands particularly in response to changes in fire regime and was curator of the Pilbara Regional Herbarium. Stephen also provides considerable advice in relation to the environmental impact assessment of resource developments throughout north-western Australia. Stephen, when not sorting the more than 30000 plant vouchers collected during the Pilbara Biological Survey, is located at the Woodvale Research Centre where he has taken on the role of leader of the Biogeography Program within DEC's Science Division.

Ian Walker is currently the Pilbara Regional Manager with the Department of Environment and Conservation. The region covers some 59 million hectares and employs 100 staff. Over the last two years Ian has led a process to increase indigenous employment and involvement in protected area management. This has involved fostering 13 indigenous trainees across the region, increasing indigenous staffing to over 25% and managing park councils in all of the key parks across the region. Prior to this Ian, worked for Parks Victoria and delivered a range of initiatives including implementing Victoria's Marine National Parks, undertaking kangaroo and koala management programs and leading the rehabilitation programs following the significant Alpine fires.

Paul Wittwer operates the Ningaloo Reef Retreat in Cape Range National Park in Western Australia, a business we'll find a little more about in the presentation. In between snorkelling and sea kayaking trips he consults on built development in natural areas and sits on the board of Ecotourism Australia.

Richard Woldendorp was born in Holland in 1927 and immigrated to Australia in 1951. He studied design in Holland and later painting. In 1955 he bought his first camera and in 1961 won 1st & 3rd in a National portrait competition. Later in 1962 he became a professional photographer in Perth, WA. He went on to produce 18 books and his work has been exhibited widely in Australia, USA and Europe. His photography is in the collections of most Australian state national galleries. He has won many awards and in 2004 was recognised as a "State Living Treasure". It is his landscape photography, particularly his aerial landscapes, for which he is best known.

Mike Wood has been adventuring for over twenty-five years. He lived in Nepal for six years working as a guide for both rafting and trekking groups. During the early eighties he undertook several first descents of Himalayan rivers by kayak. Through the nineties he became more involved in mountaineering and trekking and in '93 was a member of the successful 40th Anniversary Australian Everest Expedition led by Tashi Tenzing, grandson of Tenzing Norgay. Mike is currently the owner and Managing Director of Mountain Designs WA. Mike has two slide presentations. One utilises the story of the 'Everest Expedition' and draws parallels between life and death, work and play and balancing the competing needs of everyday life. The other is called 'Sea Kayaking in the Antarctic' and recounts the adventure, memories and spectacular scenery of paddling a kayak in one of world's most inhospitable environments.

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