



# About the NCSSA

The Nature Conservation Society of South Australia is a voluntary organisation. It has members drawn from all parts of the State and all walks of life. One of the primary objectives of the NCSSA is to "foster the conservation of the State's wildlife and natural habitats".

**Its activities include:** protecting and managing habitats, particularly native vegetation, researching threatened species and habitats, working to ensure adequate park dedication, management and legislation, educating the community and all tiers of government, and cooperating with other conservation groups and land managers.

The Society has taken action on many varied environmental issues since its formation in 1962.

## Surveys to support new reserve dedications

A major objective of the NCSSA has been to ensure that South Australia has a comprehensive and representative reserve system. This is a vital part of the system needed to ensure that the State's native plants and animals are conserved in their natural environment.

The Society has sought the addition of new reserves and opposed the withdrawal of existing reserves when necessary. It has been Society policy to put its case objectively, based on the facts available. Since 1966, in most years, there has been a major biological survey carried out by members and other volunteers to support the case for dedication of a new reserve in a particular area or to promote conservation in an area by a range of landholders.

## Promoting conservation more widely

The Society has played a strong role in the formation and development of environmental legislation such as the original Native Vegetation Management Act in 1985 and the Native Vegetation Act 1991. It is now obvious that conservation reserves alone will not ensure the survival of all of the State's plants and animals, and that as much native habitat as remains is needed to conserve the biological diversity of South Australia. The Society has played a major role in the promotion of biodiversity conservation on a range of land tenures including Heritage Agreements and in integrating biodiversity objectives into the whole range of land management decisions.

## Research about environmental issues

The Society conducts scientific research related to environmental protection and management. Studies done by, or on behalf of the Society, are published as reports and made available to the public through sale and distribution to libraries and government institutions. Grant funding supports this work, awarded on scientific merit from a number of grant sources.

## Education and skill development about ecological matters

The Society is also active in public education through activities such as an extension program of biodiversity understanding and management workshops for rural landholders, biological skill and knowledge development for members, informative general meetings open to the public, and through its newsletter Xanthopus.

## Getting involved with NCSSA activities

An elected Committee handles the Society's affairs. However it is not necessary to be a Committee member to play an active role in pursuing particular issues or topics of research on behalf of the Society. There are many opportunities to volunteer, such as assist on a survey, help manage a project, lead a members activity, or to promote the organisations activities.

The Society has its offices at **260 Franklin Street, Adelaide, 5000**. The NCSSA is financed by subscriptions, sales of its publications, private donations, and State and Federal Government grants. Much of the work is voluntary, while a few part time staff ably support this volunteer work. Donations are always welcome and fully tax deductible.

For more information please contact the office on **(08) 7127 4630**, or by email [ncssa@ncssa.asn.au](mailto:ncssa@ncssa.asn.au).

## NCSSA people

### Management Committee

**President:** Helen Vonow

**Vice-President:** Katie Fels

**Secretary:** Susan Graham

**Assistant Secretary:** Caroline Taylor

**Treasurer:** Richard Winkler

### General Committee

Ben Taylor, Hugh Kneebone, Nerissa Haby, Andrew Crompton and Robert Lawrence

### Staff

**Conservation Ecologists:** Anthelia Bond and Georgina Mollison

**Administrative Manager:** Elizabeth Lonie

**Project Manager:** Tim Milne

**Temperate Woodland Campaigner:** Penny Paton

**Threatened Plant Action Group Coordinator:** Tim Jury

**MLR Woodland Bird Survey Coordinator:** Tina Gillespie

**Mokota Conservation Park survey coordinator:** Meg Robertson

**Database & Website Project Officer:** Lesley Parton

**Other ongoing project staff:** Kerry Gilkes and Peter Mahoney

### Regular volunteers

Sara Boulton: **Activities sub-committee**

Keith Lloyd: **General office support and library**

Christina Robertson: **General support**

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# Conservation Ecologist Report

## Changes to the Native Vegetation Act Bushfire Regulations

NCSSA was invited to provide feedback on recent changes to the bushfire regulations of the Native Vegetation Act (changes were reported in *Xanthopus* Summer 2009). Our comments called for monitoring and evaluation of the impacts of vegetation clearance decisions on biodiversity and fire safety, and the use of sound biodiversity information and ecological principles to inform native vegetation management. We also highlighted the need for bushfire risk (and implications for native vegetation clearance) to be considered in development planning.

## Victorian Bushfire Royal Commission

The Society has been keeping a close eye on the Victorian Bushfire Royal Commission and its potential implications for fire management in South Australia. With the recent release of the final report of the Commission we are anxiously waiting to see how the South Australian Government reacts to the recommendations with particular reference to prescribed burning and native vegetation.

More information about it may be obtained from [www.royalcommission.vic.gov.au](http://www.royalcommission.vic.gov.au) and we will endeavour to keep members up to date with any South Australian developments.

## Draft Fire Management Plan: Reserves of the Onkaparinga Valley

While this Plan provided comprehensive detail for the protection of life and property, we noted in our submission that it has failed to adequately cover some of the over-arching principles necessary for the ecological fire management of public reserves that are dedicated to the conservation and protection of native species, populations, communities and habitats. The Society provided detailed comments on a range of issues related to fire management in the region including: the lack of a distinct process for adequately monitoring and evaluating the ecological success or failure of prescribed burns and a lack of detail in describing how the Plan will deal with the ongoing effects of climate change in South Australia. For more detail a copy of the NCSSA submission can be viewed on our website.

## National Parks ACT Symposium

Annie travelled to Canberra in May to attend this Symposium, and a meeting of the National Parks Australia Council. At the symposium, titled "National Parks, can they take the heat?" she presented a report on the status and management of South Australia's reserve system. An edited copy of our report is included in this edition of *Xanthopus*, pg 6. The trip gave Annie the opportunity to meet with wonderful and talented staff and volunteers from National Parks Associations across the country, and to discuss issues of common interest and strategies to collaborate on issues of national importance.

## Marine Dumping

The Society recently spoke to Channel 9 News regarding the dramatic increase in the dumping of hard rubbish off the coast of South Australia by members of the public in an attempt to create extra artificial reefs. Citizens may think that they are providing themselves with great recreation areas for fishing and diving BUT really they are polluting the ocean and endangering marine wildlife. The Government has announced a crackdown on marine vandalism, but questions have been raised about the strength of the claims after Fisheries officers gave a warning only to a boat intercepted off Yorke Peninsula loaded with wooden pallets, scrap wood and milk crates filled with rocks and joined together by cable ties. You can report any suspicious behaviour or suspected dumping sites through Fishwatch Hotline on 1800 065522.



Cape Gantheaume Conservation Park. Photo: Annie Bond

## Trails, recreation and visitor planning

NCSSA has continued to make submissions and participate in trails and visitor planning reference groups convened by the Department of Environment and Natural Resources. Our comments have focussed on the need to include landscape scale planning that provides for the proper consideration of conservation objectives and issues, decision making informed by thorough environmental risk assessment, and provision for scientifically sound monitoring and evaluation.

We were growing increasingly concerned that the current planning approach and the draft plans already produced would lead to irreversible, negative outcomes for biodiversity. So it is with some relief that we can report a temporary pause in the process has been granted, with the potential to review and reform the planning approach.

**Annie Bond and Georgina Mollison**

**Conservation Ecologists**

**Email: [scientific@ncssa.asn.au](mailto:scientific@ncssa.asn.au)**



# Threatened Plant Action Group



## TPAG Activities:

Come and be involved in some hands-on action to help threatened plants and vegetation communities recover with the Threatened Plant Action Group. Everyone welcome.

Most working bees are in the morning, generally from 9.30am onwards, with training and some tools provided on the day. Please dress sun-smart, wear a hat & sturdy footwear.

Working bees over the next few months on the following dates:

### Millbrook Reservoir Every Tuesday

Come help with the management and restoration of grassy Red gum - Blue gum woodlands that are habitat for threatened plant species, including: White spider orchid *Caladenia rigida*; Clover glycine *Glycine latrobeana*; Behr's cowslip orchid *Diuris behrii* and Pale flax-lily *Dianella longifolia* var. *grandis*.

### Fleurieu Peninsula September 13-16

Join the efforts to protect and restore habitat for the vulnerable Hindmarsh Correa *Correa calycina*, the Hindmarsh greenhood *Pterostylis bryophila*, Butterfly Spyridium *Spyridium coactilifolium*, and Silver daisy-bush *Olearia pannosa* ssp. *pannosa*.

Come and help for a day or more!

### Grange Golf Course Wed. September 22

Help with grass weed control and population monitoring for Sandhill greenhood *Pterostylis arenicola*.

### Thomas Gully, Mt Bold Res. Wed. September 29

Assist with the weeding and monitoring of threatened plant species, including: Australian Carraway *Oreomyrrhis eriopoda*, Showy violet *Viola betonicifolia*, Pale everlasting *Helichrysum rutidolepis*, and One-flower Nancy *Wurmbea uniflora*.



Leafy greenhood working bee. Photo: Tim Jury

### Belair National Park October 9

Pitch in by joining efforts to protect and restore habitat for the Leafy greenhood orchid *Pterostylis cucullata* at Belair National Park. Share in the action by doing a morning's work amongst beautiful Manna Gum woodland in the southern Mount Lofty Ranges.

### Blows property, Ironbank Tuesday October 12

Help out with caging and weeding for Behr's spider-orchid *Caladenia behrii*.

### Pine Point, YP Weekend of October 23- 24

Join in the planting and weeding on these weekend trips to reinstate and restore habitat for Neat wattle *Acacia rheticarpa*.

### Tarlee & Spalding August 12-13; November 12

Help recover threatened threatened Temperate grasslands and the nationally endangered Spalding blown-grass *Lachnagrostis limitanea* at sites north of Adelaide. Activities include, weeding, slashing, planting and site management.

### Dates are subject to change due to weather and seasonal factors

So to volunteer or for further information please contact Tim Jury on 08 7127 4166 or [tpag@ncssa.asn.au](mailto:tpag@ncssa.asn.au)

## XANTHOPUS

The views presented in this newsletter are not necessarily those of the NCSSA

Copy deadline for the SPRING edition is 18th Oct 2010.

Contributions in a variety of formats will be considered, but electronic submissions are preferred.  
Editorial Team for this issue: Andrew Crompton, Sue Graham, Janine Guy, Elizabeth Lonie and Helen Vonow.



# “NO Species Loss” OR specious dross? :

## The quiet war on nature in Belair National Park

Don't believe the propaganda or the spin. Belair National Park is experiencing a biodiversity crisis. Much of the parks iconic and precious flora is in clear danger of being unceremoniously destroyed! Recent 'developments' in Belair NP and moves to open virtually the whole park to the high-impact mountain biking are imposing unprecedented stress on the native species for whom the park is home.

Several community conservation groups and the fairer hand of the Department for Environment and Natural Resources (DENR) though their more dedicated conservation staff, have been hard at work for many years recovering native species and habitats in the park. Despite this the uglier "planning" hand of the same organisation inexplicably cut down some of Belair's truly wondrous woodlands to make way for yet more concrete, bitumen, steel, perma-pine, noise, dust and eyesores.

A close look at the park makes it difficult to comprehend the supposed "need" for new sport and leisure facilities. While existing tennis courts and picnic grounds in some parts of the park go un-used, brand spanking new courts and visitor "facilities" have now been whacked into precious woodland areas that support threatened ecosystems and provide critical habitat for indigenous species such as Pale flax-lily (*Dianella longifolia* var. *grandis*) and Smooth Wallaby-grass (*Austrodanthonia laevis*). Both species are officially listed as 'Rare' under the schedules of the South Australian National Parks and Wildlife Act 1972. Now they are now even rarer.

Pale flax-lily was also recently included in the South Australian Government's own much vaunted Regional Recovery Plan for Adelaide and Mt Lofty Ranges as one of the regions more vulnerable plant species. Ironically, the threats identified in the plan for Pale flax-lily include "habitat clearance and recreational activities" (Wilson & Bignall 2008). Activities now being carried out and encouraged by DENR.



Pale flax-lily habitat, and a protected plant! Photo: Tim Jury

All this obviously begs many questions. Are threatened species listings and plans completely devoid of any real meaning? Should governments identify themselves as a key threat to the Pale flax-lily and any other threatened species they are destroying? Should tax payer's money be spent on preparing recovery and management plans if they do nothing toward improving the status of the species they are written for? Confused? I sure am.

Moreover, it becomes very difficult to fathom what chance any threatened species have for survival if they and the habitats they depend on are being bulldozed within the protected area system!

Interestingly, the National Parks and Wildlife Act prescribes penalties for unlawful 'taking' of a rare plant species. Sure, it is important to have laws and rules but totally meaningless when the statutory authorities charged with implementing the act are transgressing themselves.

Would it not be more sensible and prudent to place some restrictions on development envelopes in the states reserve system? If park infrastructure needs to be replaced, why not establish new facilities on sites occupied by older ones rather than stampede further into the bush and expand human impacts.

### Time for real leadership?

It is never clever to destroy nature. Surely government leadership should be about demonstrating a positive and inspiring example for others to follow, or at the very least to support those working to maintain parks not degrade them. It seems bizarre that the government instrumentality charged with the "care and control" of the states natural heritage is in fact destroying it on public land in reserves.

Unless systemic change occurs in the agencies 'responsible' for our natural areas the curtain will surely fall. The South Australian public will no longer be able to swallow the myth that the government are leaders on conservation if they continue such wanton destruction of our natural heritage.

For it is plain wrong and it needs to stop, now.

### Take action

If you feel that the destruction of native vegetation, threatened ecosystems, and threatened species in our reserve system is wrong write to:

The Hon Premier Mike Rann

The Hon Paul Caica, Minister for the Environment

The Hon Michael Wright, Minister for Recreation & Sport

For more information contact: NCSSA on 7127 4633 or [scientific@ncssa.asn.au](mailto:scientific@ncssa.asn.au).



# Prized, pretermitted or plundered? :

## A synopsis of park management in South Australia

### Introduction

The parks and reserves of South Australia link us to ancient landscapes and biodiversity. For people, these areas can have great cultural, spiritual, scientific and aesthetic meaning. And for flora and fauna, the protection and maintenance of these areas is often a matter of life or death.

With recent and future projected population growth and nationwide socio-economic drivers, the risk of managing parks and reserves just for visitor management and economic outcomes looms.

Future generations and beyond deserve the opportunity to experience parks and reserves as they were intended to be... places to learn and experience the importance of biodiversity, the beauty of our natural environment and the need for the protection and maintenance of the flora, fauna and other features unique to each of the parks and reserves in its own right.

To manage and use our parks and reserves the way they should be, review, evaluation, focus and investment should be sensibly and suitably directed to appropriate areas. Measures to ensure the historical values of our parks and reserves are protected will be essential if generations to come are to experience the history and beauty of these precious and irreplaceable natural assets.

This paper aims to touch on a small proportion of the many issues and risks that threaten the future of South Australia's parks and reserves.

### The terrestrial reserve system in South Australia

The terrestrial public reserve system in South Australia covers 21% of the state's area with more than 20 million hectares in parks, reserves and wilderness protection areas. These public protected areas are proclaimed under the National Parks and Wildlife Act 1972 or Wilderness Protection Act 1992. Almost half (47%) of the protected area is accounted for by seven Regional Reserves while Conservation Parks and National Parks represent 27% and 22% of the area respectively (see Figure 1).

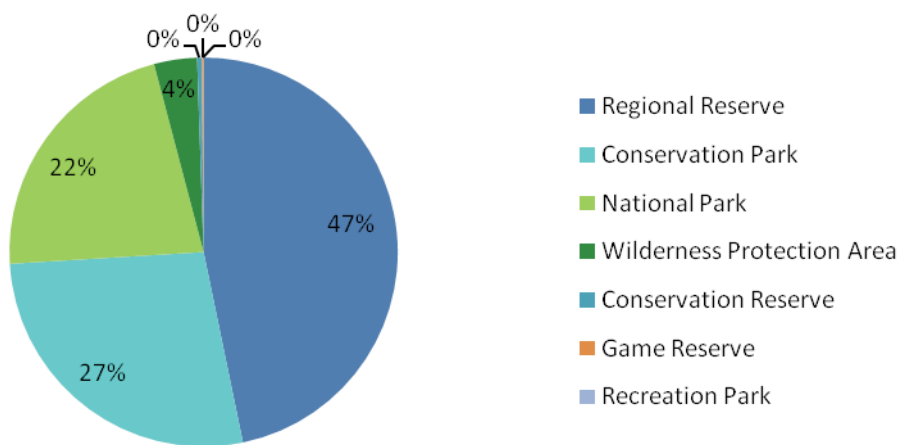


Figure 1. Parks, reserves and wilderness as a percentage of the total reserve system area.

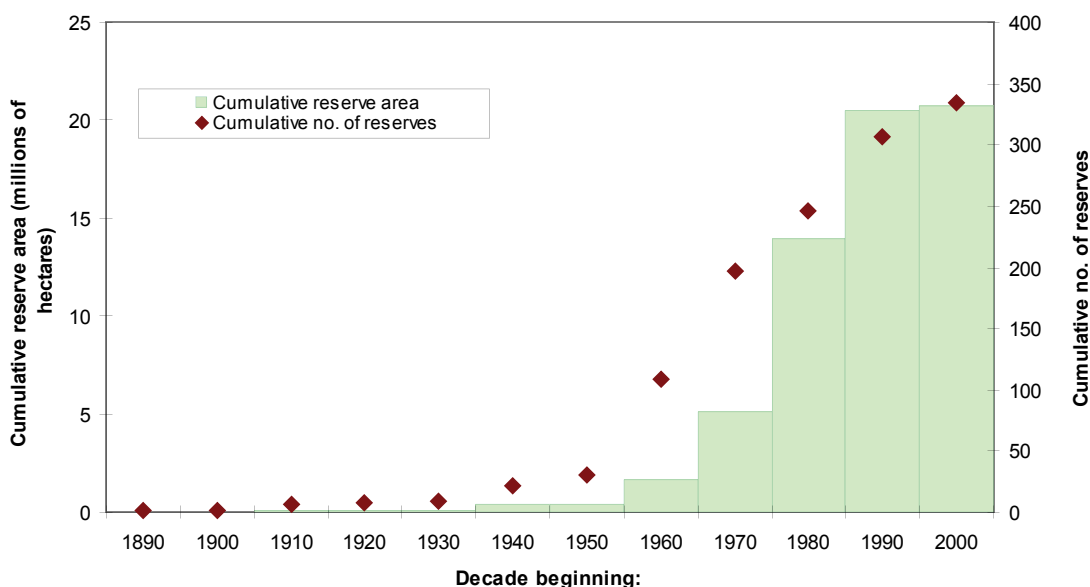


Figure 2. Growth of the South Australian reserve system



Mining in Innamincka Regional Reserve. Photo: Georgina Mollison

The majority of South Australia's parks and reserves were dedicated in the second half of the twentieth century (Figure 2). Of the additions to the reserve system in the 1960's and 1970's, 83% of the area was dedicated as Conservation Parks, while in the 1980's and 1990's the area in new Regional Reserves constituted 63% of reserve system additions.

### Degree of protection

Reserves in South Australia offer varying levels of protection for wildlife and natural habitats, with the level of protection dependent not only on the type of reserve but also on the uses for which the reserve is proclaimed. Wilderness Protection Areas offer the highest level of protection, followed by National Parks and Conservation Parks. Regional Reserves offer the most limited protection as they are proclaimed for multiple-use including mining and grazing.

Any reserve proclaimed under the National parks and Wildlife Act 1972 is only protected from mining if it has "single proclamation" under the Act.

Although 71% of parks and reserves have single proclamation, they amount to only 29% of the total area of the reserve system (Doyle 2010). This demonstrates that larger reserves generally have worse protection than small reserves

### Reserve management plans

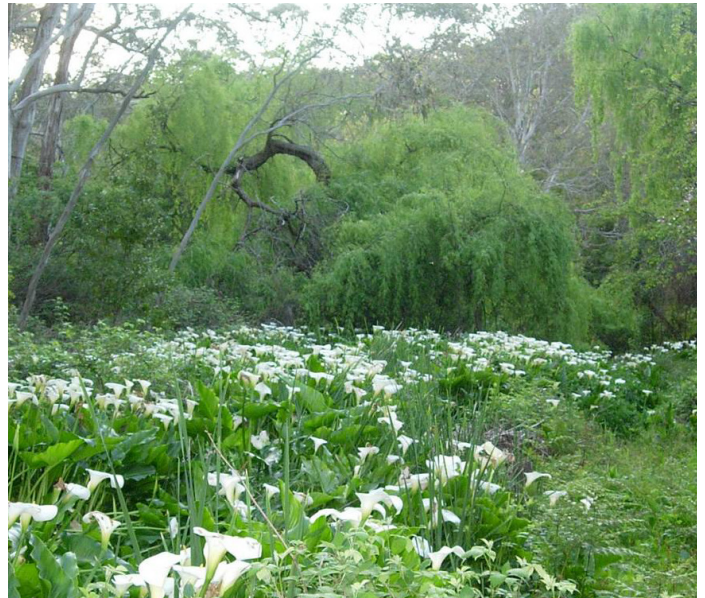
Despite the requirement to develop management plans for parks and reserves proclaimed under the National Parks and Wildlife Act 1972, 44% do not have management plans and 8% have plans that have not been updated within the last 19 years. In the last 4 years management plans were developed or updated for 23% of parks and reserves.

### Resources

A search for information regarding funding and resourcing of South Australia's parks was undertaken. We examined the website for the State Government budget, the Environment and Conservation Portfolio Statement, the State of the Environment Report 2008, the Department for Environment and Heritage 2008-2009 Annual Report and Corporate Plan 2009. No information showing the level of funding for the reserve system or for funding allocations within the reserve system was accessible.

### Threat management

We were unable to conduct a comprehensive review of threat management in the reserve system for this report as information regarding threat management activities in the reserve system is not readily available. The image included below illustrate an example of weed invasion in parks in the Mt Lofty Ranges, and clearly show the urgent need for threat management.



Arum Lily, Willow and Blackberry in Belair NP. Photo: Tim Jury

### Fire management

South Australia has seen a distinct rise in public interest in fire management over the last five years; this is mainly due to the increased frequency of fires that threatened life and property in high profile regions of the State. As a result of some of these fires burning through Department of Environment and Heritage (DEH) managed land, the media and therefore the general public have focused much of their attention on the management and prevention of fire in the State's parks and reserves. In 2009 DEH responded to the increase in public interest in fire management within parks and reserves by releasing 10 region specific fire management plans, with the aim of applying a more strategic direction to fire management in South Australia.

While these plans are based on sound planning processes, they are ultimately let down by a distinct lack of current and accurate ecological monitoring data and a seemingly under-resourced fire monitoring program particularly for monitoring and evaluation following a fire event. DEH states that the regional Fire Management Plans have been developed to ensure consistency with the objectives of the current Park Management Plan, but this may be a flawed logic due to the fact that many parks and reserves do not have a current Management Plan and a significant proportion of South Australian parks and reserves have no Management Plan at all.

With these apparent shortages in monitoring and evaluation information (including a lack of current species data) it would be reasonable to assume that some of the existing fire management regimes, including prescribed burns could be endangering biodiversity within the reserve system.

Another notable omission from the recently adopted Fire Management Plans is any reference to the role that climate change may play in fire management in the future. Evidence compiled by the IPCC (2001; 2007) and Suppiah (2006) based on climate modelling data indicates that changes are expected to occur in air temperature with projected annual temperature increases, prolonged heat waves and sharp temperature transitions. There are also likely to be anomalies in rainfall with regard to timing, quantity, intensity, and seasonal and spatial distribution. These changes in climate in South Australia will undoubtedly have an effect on the frequency and severity of fires throughout the State and this should be reflected in the Fire Management Plans.

With this in mind it is surprising and disappointing that each of the adopted Fire Management Plans will apply for up to 10 years with the understanding that each plan will only be reviewed if there is a major fire event or a change in policy, objectives, management direction or on-ground works.

### Visitor and recreation management

The draft Visitor Strategy of DEH sets a clear target to double the number of visitors to parks and reserves. The rationale for this target is based on the assumption that increasing visitor numbers will engender greater community support for the reserve system. The approach adopted by DEH to increase visitor numbers seems to focus on the development of new facilities (trails and other infrastructure) and the expansion of recreation uses in parks, with little or no regard for the potential impacts on biodiversity.

Our concerns with the current direction of visitor planning in parks include:

- Recreation planning is not integrated with conservation planning for parks, and conservation objectives aren't considered/described in visitor planning documents.
- Evidence-based, rigorous environmental risk assessments have not been undertaken for the trails development that is currently in progress.

- Many of the plans promote the expansion of access for recreation uses such as cycling and horse riding despite evidence that these uses are likely to have negative impacts on the environmental values of the park.
- There are no resources allocated to monitoring and enforcing the compliance of recreational users or monitoring the impacts of recreation.
- Planning is done on a park by park basis, so the cumulative impacts of expanding trails and recreation uses are not considered and there are no opportunities to identify high priority parks and reserves to be protected from these impacts.

Improvements to the environmental risk assessment process are urgently needed to provide for adequate consideration of impacts on environmental values, assessment of cumulative impacts and use of the best available information and expertise. Recreation planning should be done at the landscape scale so that priority areas can be identified for protection and recreation uses can be matched to areas where they will be sustainable.

It is interesting to note that while DEH is investing in the creation of new visitor facilities such as trails, there are large gaps in the basic information available to park visitors describing park facilities and features. Some parks and reserves have information presented in materials that relate to just one reserve, while other parks and reserves are only described in information materials relating to multiple parks in a region or the State. In the Adelaide and Mt Lofty Ranges region information is presented in park specific materials for 61% of parks, and is unavailable for 18% of parks. In the Northern and Yorke region 26% of parks have information materials specific to the park and 44% of parks do not have basic visitor information available. In the Flinders and Outback region 56% of parks have information materials specific to the park and 25% of parks do not have basic visitor information available.

### Climate change

The SA Department for Environment and Heritage (DEH) is contributing to research relating to biodiversity and climate change, and undertakes action to address climate change impacts on biodiversity through recovery programs for threatened species and ecological communities and through the landscape scale conservation program NatureLinks. However, DEH's response to climate change with respect to protected area management is very limited.

Under the South Australian Government's No Species Loss: A Nature Conservation Strategy for South Australia 2007–2017, key targets relating to climate change and the reserve system are:

- T38 The potential for the current protected area system to adapt to the impacts of climate change is assessed, by 2011
- T41 The potential for protected area plans, strategies and programs to take the current and future impacts of climate change on biodiversity into account is reviewed, by 2009



Of the parks and reserves with management plans adopted or drafted in the last four years (n=79) almost 90% have plans that do not mention climate change, about 10% have plans that identify climate change as a threat to biodiversity, 3% have plans that identify the park as a potential climate change refuge or corridor and 1% (1 park) has a plan that identifies climate change impacts on park management.

### Monitoring and evaluation

We were unable to undertake a comprehensive review of monitoring and evaluation in South Australia's parks and reserves to include in this report. In general terms however, we can report that effective monitoring, evaluation and adaptive management are not standard practice in parks and reserves.

Although adaptive management (including monitoring and evaluation) is clearly an approach that the Department for Environment and Heritage aspires to adopt in managing the reserve system, in practice it is the exception rather than the rule. Resource and capacity limitations are two major barriers that prevent effective monitoring, evaluation and adaptive management.

Key issues we have recently encountered with respect to monitoring include:

- Rather than basing decisions on available evidence and a precautionary approach, proposed monitoring of recreation activities is used as a rationale to justify the introduction of these activities to parks and reserves.
- When monitoring does not detect an impact, this result is likely to be interpreted definitively as 'there is no impact' even though it may simply reflect the inability of the monitoring program to detect an impact.

### Conclusion

The information presented in this report shows that management of South Australia's substantial reserve system receives less attention and fewer resources than is warranted. The degree of protection for biodiversity within parks and reserves is variable and far from comprehensive. Most parks and reserves do not have a current management plan, climate change is not adequately addressed in reserve management plans or fire management plans and fire management plans are not informed by comprehensive biodiversity information or monitoring and review. Visitor management planning has all but ignored biodiversity information, conservation objectives and opportunities to support and encourage sustainable forms of recreation. Across all areas of park and reserve management there are inadequate resources and capacity for effective monitoring and evaluation.

There is a compelling case to increase investment in the management of our parks and reserves. Significant gains can be made by improving all aspects of management including planning, implementation and monitoring and evaluation. This work is vital and urgently needed to ensure the long term protection of biodiversity in our reserve system.

### References

- Department of Environment, Water, Heritage and the Arts (2008) Collaborative Australian Protected Area Database (CAPAD) 2008 South Australia summary. [accessed online 18th March 2010] <http://www.environment.gov.au/parks/nrs/science/capad/2008/index.html>
- Doyle B (2010) '15 x 15 - Fifteen by Fifteen' A preliminary report on the SA reserve system, our wild places, and the mining industry. The Wilderness Society, South Australia
- Dudley, N. (Editor) (2008). Guidelines for Applying Protected Area Management Categories. IUCN, Gland, Switzerland
- Environment Protection Authority (2008) The State of Our Environment, South Australia, Government of South Australia
- Government of South Australia (2010) State Budgets web page <http://www.statebudget.sa.gov.au/> [online accessed March 2010]
- Government of South Australia (2009) The Environment and Conservation Portfolio Statement. [http://www.treasury.sa.gov.au/df/home\\_page.jsp](http://www.treasury.sa.gov.au/df/home_page.jsp) [online accessed March 2010]
- Government of South Australia (2009) Department for Environment and Heritage Corporate Plan 2009 <http://www.environment.sa.gov.au/deh/about/reports.html>
- Government of South Australia (2009) 2008-09 Department for Environment and Heritage Annual Report <http://www.environment.sa.gov.au/deh/about/reports.html>
- Government of South Australia (2007) *No Species Loss: A Nature Conservation Strategy for South Australia 2007-2017*
- International Panel on Climate Change: Third Assessment Report, (2001) and Fourth Assessment Report, (2007).
- Schneider SH, Semenov S, Patwardhan A, Burton I, Magadza CHD, Oppenheimer M, Pittock AB, Rahman A, Smith JB, Suarez A and Yamin F (2007) Assessing key vulnerabilities and the risk from climate change. *Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*, ML Parry, OF Canziani, JP Palutikof, PJ van der Linden and CE Hanson Eds., Cambridge University Press, Cambridge, UK, 779-810.
- Suppiah R, Preston B, Whetton PH, McInnes KL, Jones RN, Macadam I, Bathols J and Kirono D (2006) Climate change under enhanced greenhouse conditions in South Australia. An updated report on: *Assessment of climate change, impacts and risk management strategies relevant to South Australia*.
- Turner M (2003) Review of the Classification System used for South Australia's Protected Areas. *Xanthopus* 21(6) pp1-4

**Georgina Mollison, Annie Bond and Tim Milne**

This article is an edited version of the article of the same name published in:

*National Parks can they take the heat?*  
Proceedings of the NPA ACT Symposium, Canberra  
7-8 May 2010

# Banking the Bush: new approaches to conserving habitat outside of National Parks

In 1970 when I joined the NCSSA as a fresh University of Adelaide graduate, the major lobbying issue was achieving a modernised National Parks and Wildlife Service with a Director of NP&W and a formalised system of reserves under a new NP&W Act. The 1972 Act was the result and it still persists with the help of numerous amendments.

National Parks were largely considered synonymous with nature conservation and there was a continual battle to prevent resumption of parks for grazing and agriculture. As Honorary Secretary and President of the NCS through the 1970s and 80s, much Committee time was spent trying to rescue key areas of native bushland and forest, and lobbying for land clearance controls which were eventually successful in the form of the *Native Vegetation Act, 1991*. I well remember the long night of lobbying as the controversial Native Vegetation Bill went through Parliament, at one stage organising a meeting between representatives from both sides of the House to find wording that enabled scattered trees to be defined as single trees under the Act. When a compromise was finally agreed, it was after midnight and the parliamentary draftsman had gone home, so we hand typed an amendment on a member's computer and it finally went through. The Native Vegetation Act represented a move from park-based conservation to an understanding that biodiversity conservation required a regional and ecological approach.

Ironically, 40 years later, we are now lobbying for some form of Biodiversity Conservation Act to replace or supplement the NP&W Act that is no longer adequate to cope with the demands of landscape level conservation, endangered species, climate change impacts and a diminishing ability of the Department of Environment and Natural Resources (DENR) to fund land purchase and management.

In my current role as President of Nature Foundation SA (NFSA) (and a proud 40 year member of NCSSA!) it has been possible to develop alternative strategies to bring land under conservation management away from the NP&W Act but in partnership with DENR and the Commonwealth and reinforcing the State and Commonwealth nature conservation strategies.

NFSA is a nature conservation charity with a strong focus on nature conservation action, working in partnerships with other conservation groups as well as government, business and the community. It avoids conflict and lobbying in the interests of maximising fundraising and working with a wide range of partners.

A number of market-based strategies have been developed by the Foundation to supplement existing means of ensuring remnant habitat remains in conservation management over the long term. Many remnants are too

small to warrant inclusion in the national park system let alone management by DENR staff. They are valuable, however, and may play a role in maintaining habitat corridors across regions. With the State Government no longer providing sufficient funding for major biodiversity programs, the future of funding for land purchase now lies in partnerships between Government, business and the community.

About 10 years ago I became aware of a revolving fund concept being operated by the Victorian Trust for Nature in which land of conservation significance was purchased, a conservation covenant attached to the title, and then resold again with the funds being directed to the next purchase. The basic capital 'revolved' instead of being embedded in one or two properties, and the new owners became the 'rangers' to look after their covenanted land. It seemed to be a win-win situation with limited costs to the state beyond establishing the initial capital 'bank'.

In 2003 Nature Foundation SA concluded a tripartite agreement between the Commonwealth and State Governments to establish Bushbank SA as a joint operation between the Department for Environment and Heritage (now DENR) and NFSA based on a \$1.4m fund to secure land of conservation significance under a Nature Foundation Heritage Agreement based on a revolving fund system. It operates as a NFSA sub-business reporting to the Council of NFSA, as well as DENR and the Commonwealth. A business plan established priorities to be followed in purchasing land of conservation significance that had to meet the normal criteria for Heritage Agreements. It is a market based operation so that decisions to purchase have to take account of land values and resale opportunities so that the fund does not run down over time. All costs of running the scheme, including a vehicle, staff officer, land valuations and legal costs, come from funds generated from trading, and all profits are fed back into the fund for further purchases. Before a property can be put back on the market, fencing repairs are completed, pest plant and animal programs are instigated and a Nature Foundation Heritage Agreement, including a required plan of management, is placed on the title.

Performance of the scheme has been very encouraging providing another tool to bring land under conservation management. Our new owners are very keen to acquire a bush block and to manage the habitat for conservation as required by the plan of management. If the land is resold, the covenant and plan remain on the title with the same obligations as before. The Foundation maintains contact with the owners to offer assistance with management and to check that correct management is occurring.

To date, some 12,368 ha have been secured by Bushbank SA in different parts of the State. This includes the last remaining large mallee remnant in private ownership



on Yorke Peninsula, a pristine coastal property on Eyre Peninsula, a major intact area of stringybark forest in the Mt Lofty Ranges adjacent to Mark Oliphant Conservation Park and a very large mallee precinct adjoining Brookfield Conservation Park near Blanchetown. The Blanchetown project is based on development of an innovative community title for allotments of around 900ha each, with the total area under one Heritage Agreement with no internal fences allowed, to enable free movement of wildlife, and controls on ownership of dogs and cats.

As a parallel program to Bushbank SA, the Foundation decided in recent years to take on actual ownership of properties which have high conservation significance under the CAR criteria of the National Reserves System. Prior to this, a number of properties had been acquired from fundraising contributions but were handed over to either the SA National Parks & Wildlife Service or Bush Heritage Australia for management. This included Boolcoommatta Station near Olary to BHA, and Wilpena Station and a section of the Gawler Ranges to NP&WS. A number of additions to existing national parks were funded by the Foundation over the years.

The current Land Acquisition Fund is made up of generous donations from members and supporters as well as contributions from business interests. Under *Caring for Our Country* grants, the Foundation recently purchased the 4012 sq km Witchelina Station near Lyndhurst which forms a key part of the Government's strategic north-south cross-continental habitat corridor (the Trans-Australia Eco-Link) linking Port Augusta with the Northern Territory. It will be managed by the Foundation as a conservation reserve outside of the reserve system but closely tied to the State strategic plan for biodiversity conservation. The Foundation would love to work with the NCSSA to survey this largely unexplored wilderness. The accompanying photograph

taken recently shows a typical view of the extensive rangelands and uplands across wide areas of Witchelina. Note the strong regeneration of the native flora following extensive rains over the last few months which, by good fortune, followed immediately after destocking of the property.

The NFSA has recently completed negotiations to purchase land near Burra that provides habitat for the highly endangered Pygmy Blue Tongue lizard, which was rediscovered near Burra after being considered extinct for many years. The Fund, in partnership with David and Penny Paton and Jack May of the USA, has also recently acquired the Cygnet Park Sanctuary (KI) on which a remarkable regeneration program is in action supported by the KI NRM Board. Another acquisition includes land to be added to the Bangham Conservation Park as part of a wider program of Buloke planting near Frances in the South East to support the conservation of the Red Tailed Black Cockatoo.

Each year the Foundation supports about \$150,000 of wildlife research to complement its land purchase activities and strives to work cooperatively with other conservation organisations and the wider community. It has also recently formed an aquatic form of Bushbank called Water for Nature to focus donations to acquire water for wetland conservation on the River Murray. Already two waterings based on donations to purchase 7ML of water have occurred at Hogwash Bend near Waikerie as part of the Regent Parrot Recovery program. We thank the Riverland West LAP group for making this project possible.

As a nature conservation charity, the NFSA serves a very important role in South Australia to complement the work of the DENR, NCSSA, Conservation Council of SA and other conservation organisations. It is happy to work with business, corporate interests and government to bring greater resources to nature conservation but depends on caring citizens of SA to provide core support through three appeals each year. Because it does not get involved in public lobbying or disputes, it is sometimes misunderstood, but make no mistake, the Foundation is passionate about nature conservation and is keen to play a leading role in making a difference on the ground and in building support from the wider community. Banking the Bush is just one way to go about this vital task.

**David Moyle AM**

**President  
Nature Foundation SA Inc.**



Witchelina looking towards Termination Hill August 2010. Photo: NFSA



# Valuing our national parks

## Introduction

Over the years the term 'national park' has taken on a specific meaning which goes well beyond the original terminology. It has come to be associated with the very best examples of Australia's terrestrial biodiversity, of remnant ecosystems and of endangered or listed species which need special protection. National parks cover less than 4.5% of Australia's land mass and make up nearly 40% of our National Reserve System (NRS). They are the backbone of our efforts to preserve a national comprehensive representation of our native vegetation, fauna and ecosystems, the last best hope we have of protecting adequate examples of all of Australia's remaining biodiversity and ecosystems.

The reality is that our national parks are not 'national' in any real sense of the word. They are in fact an *ad hoc* collection of State, Territory and Federal public land with quite different arrangements for their management and protection. Other than the excellent example of the Australian Alpine National Parks collaboration, they are run completely independently of each other. Their protection rests on an assortment of different legislative provisions, different management arrangements and quite different approaches to critical issues such as fire management, feral pest control and managing recreation demands.

But they share common threats and common challenges. Apart from the increasing threat of operating in a rapidly warming climate, national parks across Australia face a frightening array of completely avoidable problems. Budget cuts and staff losses are reducing their effectiveness.

At the same time pressure is on them to provide an 'economic' return or at least to offset their costs. NSW is amending its legislation to open the wilderness areas to luxury accommodation, off-track mountain biking, and helicopter-serviced standing camps. Political intervention is ensuring that large events such as motor racing and national competitions are held deep within the parks. Proposals to increase tourist facilities such as roads, cafes, ski areas and hotels in national parks are multiplying. It is these threats which should be the most manageable yet they are proving the most intractable.



## The economic imperative

The common argument for pushing these threats to national parks is that these activities make sound economic sense. They create jobs, they increase taxes and levies to pay for health and education. We are solemnly assured that we cannot afford to leave national parks undeveloped because we have to keep growing our economy or we will be plunged into economic failure.

The paradigm which demands this sacrifice of our natural values is the perpetual, unlimited economic growth model. No other models have been developed in the past two hundred years to challenge this model; we have no alternative systems for decision making and only weak values or beliefs which could challenge it.

There are many current examples of where sound science-based decision making in national parks is being overridden by the tourism, mining and construction industries.

- The Queensland Government has announced new tourist developments in their national parks without a clear indication of where, what and how.
- The Tasmanian Government has proposed a \$30 million tourism development along the Three Capes Walk in the southern wilderness areas.
- The NSW Government is approving coal mining under the rivers and wetlands of the Sydney Basin.
- The Victorian Government is pushing through the destruction of remnant native grasslands in order to let developers build more low-density housing on the outskirts of Melbourne. In each case the rationale given was that these developments would create jobs and wealth for the State and for private interests.

Australia's wealth is based to a large extent on stripping out our natural resources. A key section of our society still subscribes to the old motto: "Use it or lose it."

Every development proposal comes with an assessment of how many jobs it will create, how much income it will generate. The lure of private partnerships, profits and growth overrides any calculation of what it will actually cost the taxpayer to provide the roads, sewerage and other services. We don't build into the economic equation the cost of repairing the damage, servicing the waste and deconstructing the development when it ceases to be financially viable.

National parks are no longer seen as public assets which need to have their management costs met from the public purse. Instead we have surreptitiously moved to a model where national parks are expected to return money to the public purse. They have to be hired out and exploited like all our other natural resources.

It appears that the inexact, arcane science of economics is taking a heavy toll on national parks. With very little real appreciation of the natural world, the economic argument for 'unlocking' the resources and values 'tied up' in national parks is seen as an essential element



of national and State economic growth. Our society is placing an economic value on events, activities and development but has failed to even begin to place a value on our national parks. Ross Gittins, the economic editor of the Sydney Morning Herald, puts it very nicely: *"And because economics can handle only those factors capable of being quantified – invariably quantified in dollars – it deals exclusively in monetary incentives. Economists are so blinded by their model that most seem quite unconscious of the many powerful non-monetary incentives that come into play."* (SMH 5 April 2010)



Economic theories, laid down at the beginning of the age of industrialisation and refined last century in very different circumstances, remain the current paradigm. We **must** have more jobs, more schools, more hospitals and then we need more jobs to pay for the additional schools and hospitals.

It isn't that this system works. **No-one knows whether it works or not.** We don't understand it enough to be able to do more than predict what will happen next and each new set of forecasts always starts by amending the last set to take into account what actually happened. However, it is a complex, powerful system, fuelled by masses of data and it is our agreed paradigm so it has a key role in our collective decision making.

### The political realities

But the economic argument is often just a mask for another underlying factor operating against sound park management: the art of the political deal which often overrides even the economic imperative.

The Kosciuszko National Park (KNP) horse issue is an excellent example of political dealing and wheeling. An effective control program for feral horses is desperately needed in the Snowy Mountains but we also know that what was put in place last year (trapping and selling captured horses) is ineffective. Environmental damage continues to grow: stream banks trampled, bogs damaged and alpine ecosystems placed at risk. The science says an aerial shooting program would make a far greater impact but it is not introduced.

In fact the management of the feral horse problem in the Snowies is influenced by the Shooters Party which holds a balance of power in the NSW Upper House. The

Shooters Party is aligned with the Game Council who wants to introduce game hunting into national parks; they are aligned with the Bush Users Group (BUGS) who want to continue to ride and camp horses in the wilderness areas of the national park; and BUGS are able to turn out quite an impressive media display of horses, people and whip cracking in Queanbeyan's main street.

Just as there is no economic justification for the dodgy horse management plan park managers are forced to implement, there is little economic justification for a lot of other decisions made for pure political reasons.

- The NSW Government is paying billions of dollars to build and run a desalination plant so it can claim it has 'waterproofed' Sydney but will not act to protect its natural water systems from damage from underground mining.
- The Tasmanian Government cannot hope to recoup infrastructure costs for a luxury Three Capes Walk with the limited clientele it aims for but having it there as a development opportunity means it can claim to have a tourism plan in place.
- The Queensland Government proposals appear to have only vague, unspecified economic benefits identified but again, the Queensland Government can take the political high ground and claim it is building the tourism market.
- The Victorian Government proposal contradicts its own long-term plans to reduce greenhouse gases and the cost of transport, schools and hospitals by creating greater urban density. However, it is looking for short-term political gain by keeping house prices and the construction industry in growth mode. This is all political wheeling and dealing, not sound economic sense; and it is especially poor environmental management.

Then again, there is yet another factor operating against sound management of our environment. Since the breakdown of the Copenhagen climate conference we can see more readily what else is undermining our will, our capacity to address these issues: our values system.

### The Values System

Even with the imperative of climate change growing more real every month, the impetus to address our destructive carbon habits is being lost. Our will to address the danger is slipping away even as we discover how real the threat is. Given a choice between climate sceptics and the science of global climate change, people are choosing to look away. We shouldn't be surprised. We've seen this reaction before when scientists and environmentalists have raised awkward evidence of a need to change how we view our world.

In fact, when we campaign for science-based, environmentally sound decisions we often generate a fierce level of opposition that goes beyond what you would normally expect. Most of it is ill-informed; much of it is angry and often full of name-calling and invective. But it is clearly generated by values-based, passionately held belief systems. Professional lobbyists are very good



at mis-using some of these beliefs and values to further the interests of their clients and to deliver the constant stream of anti-environment decisions we are seeing.

Our beliefs are **not** logical as the economic systems claim to be; they are **not** practical as the political systems claim to be; but they are a key driver of both these paradigms.

Our values drive our lives much more than economic and political paradigm. They fuel our passions, our prejudices and our responses to the big issues which confront us.

For example, what prompted Alastair Browne of Cromer Heights to write this to the Sydney Morning Herald: *"What is the point of even thinking about high-speed rail for Australia when we have so many small minded minority groups always ready to kill such a project because of a swamp, an unused forest or lesser spotted mosquito?"* (SMH 11 March 2010). A significant part of our community responds to the current ecological challenges with a value system which sees the environment movement as a nuisance and a hindrance to human progress. To them our natural world is a consumable, a backdrop to human activities, an added interest to our legitimate lifestyle interests such as mountain biking in wilderness.

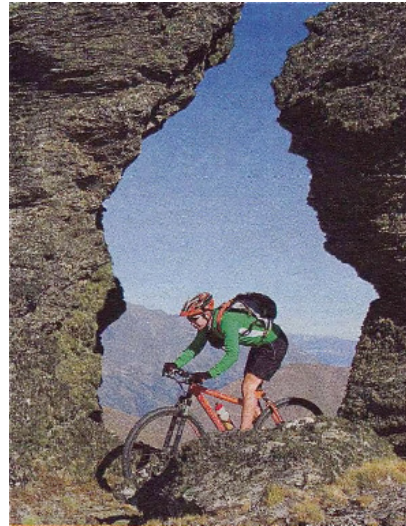
We can't quite take that crucial step to accept as a society, that protecting environmental values should be an integral part of our values. We appear incapable of accepting the 'sacrifice' involved in leaving some of our planet, some of our country, intact and undisturbed. As a society we cannot make that critical switch to thinking of the environment as an integral part of our human values system.

In the two hundred years of European settlement we have developed two conflicting value sets about our natural environment and both of them are used to argue against environmental responsibility. The first is that, as Australians we think we really love nature, that we are an outdoorsy sort of people. We want to ride our horses across the ranges, to drive our four wheel vehicles into the wild places no-one else has been to; we want to walk our dogs in the national parks, to shoot and hunt and helicopter into wilderness areas. We might not actually ever do all these things, but we want to think we can, one day, when we have a bit more time, when we can afford it.

The campaign to prevent management of feral horses in Kosciuszko National Park is an excellent illustration of this set of values. Wild horses have been marketed in Australia as symbols of independence, freedom from constraint and of good old Aussie larrikinism. Feral horses are used to market meat suppliers and football teams. Tourist brochures are full of images of horses running free across grassy plains. Feral horses are presented as noble animals with almost human intelligence and sensitivity. We are encouraged to identify with the Man from Snowy River, plunging down the ravine on the back of a wild bush pony, a hero to the stockmen watching from the top of the ridge. We can poison pigs, shoot kangaroos, hunt feral deer with bows and arrows but we can't shoot feral horses, they are almost human.

Language and symbols operate here to great effect. These images market a sense of freedom, of thwarting the

enemy, the other tribe – the hated greenies who want to "lock up the parks." Special words are invented to describe people who oppose this unfettered access to national parks like 'greenies' and 'tree-huggers'. Like 'feminist' and 'humanist' these words are meant to marginalise environmentalists and their values. Supporters of feral horses in KNP feel as if they belong to an important tribe which is standing up for the real Australian values.



**Speed is my friend.  
I make it to the bottom  
without a prang.**

Another factor supporting this despoliation of our national parks is that it taps into one of our oldest beliefs: that we are essentially Europeans on an alien continent which must be tamed, subdued, mastered. We were put here by God to establish a civilisation – which hadn't existed before European arrival – and to improve the landscape and make it more recognisable, more productive. We do not see nature as fragile. There are no consequences of altering our water table or our

local climate systems by chopping down trees. There are no consequences if we extinguish species as long as they are not the large landscape species which are tourist attractions like the snow gums on the Main Range or the tropical fish on the Great Barrier Reef.

### Consequences

In fact we cannot accept, at the broad level of social consensus, that we do anything wrong in all of this. And if we did something stupid, it doesn't matter because we could put it back. We want both mastery of our world and permanent forgiveness, permanent absolution from responsibility. We don't want to know that we are doing permanent, irreversible damage. And we certainly don't want to hear the greenies telling us precisely what damage we are doing.

We simply do not understand that people are altering Australia's environment and that we can't reverse the damage we are doing. We read about extinctions and possible loss of cute animals but most of us don't really care about it. Look at Mr Alastair Browne of Cromer Heights. He ridicules the whole idea of holding up human progress merely for swamps, forests and insects. No care, no understanding, no responsibility.

Climate change debate has brought this sharply into focus. The more scientists collate and compare evidence that we are in fact close to the tipping point of climate change, the louder and the more virulent climate sceptics become. This is not a denial of science; it is a profound denial of responsibility.



### Some solutions

So, as supporters of national parks we are operating in a world where the dominant economic paradigm is against us and the underlying values of our society conflict with what we support.

**What can we do to make a difference?** The answer is to get practical, specific and targeted. Firstly, we need accredited national data which establishes the non-commercial value of our protected areas in the long-term time frame in which environments operate. We need data which enables us to measure the actual cost of our human activities across this longer time frame. We need to be able to say specifically: damaging this bit of river, this bit of mountain, extinguishing this species, will cost us as a society.

We need data which enables our park managers to do their work effectively and which puts our parks in the national and international context.

- What impact does this activity have on an endangered species?
- How is this species or ecosystem connecting across the landscape?
- Is this species visiting my park because there is a drought elsewhere?
- Are these feral pests coming in from this area because of activity in the park across the border?
- And finally we need data that records for posterity what we have here now and which tracks what we are losing and why.

Secondly, we need to develop a national approach to managing our protected areas, one which enables the challenges and problems facing us to be addressed under a single regulatory framework and without regard to lines on a map. We do not have to give up our fixation with the federated system to do this. We can establish an independent national body to monitor ecosystem operations across the landscape; to collect and analyse data at both a local and national scale; and to report annually on the state of the environment, including funding and management resources.

Right now we have the opportunity to push for national parks and all protected areas to be included in the Environmental Protection and Biodiversity Conservation Act (EPBC Act) as a new **matter of national environmental significance**. In other words, the EPBC Act would be triggered by any development proposal for any national park. This would have two major impacts: It would eliminate the need to find listed species or ecosystems in a protected area in order to trigger the Federal Act. It would promote the development of a joint approach to managing the national protected area system which does not rely on COAG or other clunky administrative arrangements. It would apply a common paradigm to park management and so bolster a co-operative management approach to a whole-of-continent network of protected areas.

The barriers to achieving this are substantial: State and Territory jealousies; intense pressure from mining and tourism industry bodies; media statements bordering

on hysteria from recreation groups. They will all mount a fierce campaign to demonstrate that this will attack the very roots of our economic system and the heart of our national psyche. They have a lot of money, a lot of influence.

All we have is the evidence of what is happening and an intense passion and commitment of our own. We know what the science says; we know we don't really have an option of giving up and going home. The vast majority of our fellow citizens do not rely on science to make up their minds. They do not want to have to bother with detailed assessments or really bad news about extinctions. They feel a bit guilty about poor environmental management and they want a simple solution which makes the problem go away, at least for them. They need images, they need to feel safe and comfortable, they want to feel in control of their lives and comfortable with their society. We need to alter the way we see ourselves as a nation; we need a targeted campaign which changes the way we think about our future.

So, thirdly, we have to alter our national values system to include a new consciousness across all levels of society. National parks have to become embedded in the Australian psyche as symbols of freedom, of nationalism and of our deepest sense of worth. Criticising national parks has to become as bad as criticising the national flag. The thought of allowing a luxury lodge deep in a national park has to become as abhorrent as building a mountain bike track on Flemington Racecourse. Racing cars through the national park has to become as distasteful as having a porn shop in the shopping mall.

We need data and analysis which counters the prevailing economic paradigm. We need statutory reform of national park management to remove much of the political wheeling and dealing. And we need to achieve a fundamental shift in how Australians relate to national parks and their environment. They don't have to like it but they do need to love it.

**Christine Goonrey**

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Prior to retirement she spent more than fifteen years working on social justice, housing and family policy in the Federal government and prior to that was a secondary school teacher. For many years she has enjoyed bushwalking and outdoor activities with her family and since retirement has spent her time working to protect Australia's unique biodiversity through her volunteer work. Her particular passion is finding native orchids in their natural settings in the ACT and surrounding regions.