



## SPECIAL BULLETIN

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### CONSERVING AUSTRALIAN LANDSCAPES BEYOND THE NATIONAL RESERVE SYSTEM

## DEVELOPING TERRESTRIAL NATURAL HERITAGE PRIORITIES AND USING THE EPBC ACT EFFECTIVELY

### Executive Summary

As the Australian Government strives to “work with governments, regional and local communities, industries and land managers to achieve an environment that is healthier, better protected, well managed, resilient and can provide essential ecosystem services, particularly in a changing climate”<sup>1</sup>, there are good reasons to think beyond an expansion of the National Reserve System.

A National Reserve System that is comprehensive, adequate and representative of the species and ecosystems that make up Australia’s richness of biodiversity is essential to the continued existence of our ‘megadiverse’ status. Yet, as Sattler & Taylor<sup>2</sup> report, the reserve system falls well short of either Australian targets or that found in many of the other (less developed) ‘megadiverse’ countries.

Progress towards a comprehensive, adequate and representative reserve system providing secure protection must be complemented by expanding “the area of native habitat and vegetation that is managed to reduce critical threats to biodiversity and to enhance the condition, connectivity and resilience of habitats and landscapes”.<sup>3</sup> If Australia’s rich biodiversity is to survive, integrated management must extend beyond the National Reserve System. World, National and Commonwealth Heritage places, and complementary land uses on both public and private land are recognised as important in reversing the declining trend in Australia’s biodiversity and in maximising conservation benefits.<sup>4</sup>

In this paper we present a relatively simple mechanism for selecting large terrestrial areas that are generally of outstanding biodiversity value, and that for reasons of risk, refugial value or other important values, should be properly and comprehensively assessed for their Natural Heritage values. The biodiversity *hotspot* areas that the authors have used to guide them in determining priorities for National Heritage listings include those places identified by: Conservation International;<sup>5</sup> those places identified by a number of internal analyses prepared by the Commonwealth for the Australian Heritage Council;<sup>6</sup> the 15 national biodiversity *hotspots* announced by Minister Kemp in 2003;<sup>7</sup> the 11 biodiversity *hotspots* that were identified by the Australian Museum/Humane Society International (HSI) workshop and Delphi process, conducted by the EPBC (*Environment Protection and Biodiversity Conservation Act, 1999*) Threatened Species Scientific Committee<sup>8</sup> as “warranting management attention”, and other national and international biological diversity assessments that can be found in the references cited.



Paroo River. Photo by Machteld Baljet and Marcel Hoevenaars 2003.

While there are a large number of areas that are deserving of comprehensive assessment for their biodiversity and National Heritage values, priority areas are identified as follows:

- Cape York Peninsula
- Cairns-Wooroonooran National Park-Daintree Lowland Rainforest
- Einasleigh & Desert Uplands
- Brigalow North
- Great Eastern Australia Forests
- Western Tasmania, Midlands & Tarkine
- Gawler, Lofty Ranges & Kangaroo Island
- Great Western Woodlands
- Southwest Western Australia
- Carnarvon Basin
- Hamersley-Pilbara
- North Kimberley
- West MacDonnell Ranges

To these priorities should be added the Mound Springs of South Australia and the Northern Territory, the Paroo River and Cooper Creek catchments, and Barrow Island. (These places are currently being assessed for heritage listing or have been nominated by HSI for heritage listing.) As part of ensuring that our Natural Heritage is as adequately protected as possible, a review of all existing Commonwealth places (especially those on the Register of the National Estate (RNE)) for their potential National and/or Commonwealth Heritage values, and listing of those places that meet one or more of the criteria, should also be completed.

<sup>1</sup> Commonwealth of Australia (2008). *Caring for Our Country: Outcomes 2008-2013*: Ministers’ Foreword, p.1.

<sup>2</sup> Sattler P & Taylor M (2008). *Building nature’s safety net 2008*. WWF Australia, Sydney, p.7.

<sup>3</sup> Commonwealth of Australia (2008). *Caring for Our Country: Outcomes 2008-2013*, p.11.

<sup>4</sup> Commonwealth of Australia (2008). *Caring for Our Country: Outcomes 2008-2013*, p.12.

<sup>5</sup> Mittermeier RA, Robles Gil P, Hoffman M, Pilgrim J, Brooks TM, Mittermeier CG, Lamoreaux J & da Fonseca GAB (2004). *Hotspots Revisited – Earth’s Biologically Richest and Most Endangered Terrestrial Ecoregions*. CEMEX & Conservation International, Mexico City.

<sup>6</sup> Commonwealth of Australia (unpublished). *Significant Concentrations of Biodiversity in Terrestrial Australia*. Department of Environment & Heritage, 2005.

<sup>7</sup> Kemp, The Hon D (2 October 2003). *Kemp declares biodiversity ‘Hotspots’ – A world first*. Media release. Minister for the Environment and Heritage, Canberra.

<sup>8</sup> Beeton B (undated). Report on HSI and Australian Museum Workshop and Delphi conducted for TSSC, 12-13 Dec 2002: Working Draft.



## DEVELOPING TERRESTRIAL NATURAL HERITAGE PRIORITIES AND USING THE EPBC ACT EFFECTIVELY

As the Australian Government strives to “work with governments, regional and local communities, industries and land managers to achieve an environment that is healthier, better protected, well managed, resilient and can provide essential ecosystem services, particularly in a changing climate,”<sup>9</sup> there are good reasons to think beyond an expansion of the National Reserve System.

Australia is uniquely positioned to protect a significant component of global biodiversity. As one of the world’s ‘mega-diverse’ countries, and one of only a handful with a developed economy, we also have a unique responsibility to protect the rich diversity of species and ecosystems occurring in our country. Three of the planet’s 34 global biodiversity hotspots<sup>10</sup> can be found fully or partially within Australia’s borders, while a fourth area is receiving international consideration.<sup>11</sup> Biodiversity hotspots (as described by Mittermeier et al., 2004)<sup>12</sup> are discrete, biogeographic regions that are known to contain at least 1,500 endemic plants and that have lost at least 70% of their original habitat cover.

Additionally, Conservation International has recognised 37 global wilderness areas,<sup>13</sup> with varying degrees and concentrations of high biodiversity, of which 6 occur in Australia and Australian territories.<sup>14</sup>

The Millennium Ecosystem Assessment completed in 2005 reports that loss of biodiversity threatens livelihoods, well-being and health through fundamental changes in the relationships between humans and nature. In considering indicators for the adequacy of Protected Areas, UNEP’s (United Nations Environment Program) World Conservation Monitoring Center (WCMC)<sup>15</sup> notes that measuring area protected is a “far from perfect” indicator of maintenance of biodiversity. Management regimes, the extent of active intervention to maintain biodiversity, and adequacy of resources invested are all highlighted as contributors to conservation outcomes.

As a signatory to the UN Convention on Biological Diversity (CBD) Australia has committed to achieving a significant reduction in loss of biodiversity by the year 2010, and has participated effectively in many international conservation agreements. For example, the Australian Government helped the CBD establish an *Ad Hoc Technical Expert Group on Biodiversity and Climate Change* to provide scientific and technical advice to the UNFCCC. Through this process, it is hoped that Australia will help push for the identification of global priority carbon areas that are rich in biodiversity.<sup>16</sup>

Yet, despite its reasonable achievements in various international forums, and being well aware for decades of the growing threats to the conservation of biological diversity domestically, Australia’s ability to effectively manage and protect its own diminishing biodiversity is lagging disastrously behind what is required. These deficiencies are being exacerbated by the looming effects of global warming. Cork et al., as the authors of the Biodiversity theme report for the 2006 State of the Environment Report,<sup>17</sup> draw attention to the fact that “Despite large investments and some promising responses, biodiversity in Australia continues to decline... This is the third national state of the environment report that raises concerns about the lack of long-term, systematic biodiversity information that would allow firm conclusions to be drawn about the details and mechanisms of this decline...”

Clearly past and current approaches to conserving our rich diversity of plant and animal species, the genetic pools that provide their resilience, and the ecosystems of which they are part, are demonstrably and dangerously inadequate.

This paper outlines the challenges faced and proposes a new approach beyond, but complementary to, the expansion of our National Reserve System.

### Continuing loss of biodiversity

While Australia’s globally poor record of species extinction is in part historical and comes from a time when settlers’ knowledge and understanding of our soils and landscapes derived from a European experience, there is ample evidence that biodiversity loss remains of critical and ongoing concern.

In Australia’s first comprehensive national State of the Environment report<sup>18</sup> in 1996 it was recognised that “The loss of biological diversity [is] perhaps our most serious environmental problem. Whether we look at wetlands or marshlands, mangroves or bushland, inland creeks or estuaries, the same story emerges. In many cases the destruction of habitat, the major cause of biodiversity loss, is continuing at an alarming rate.”

The Terrestrial Biodiversity Assessment<sup>19</sup> completed in 2002 documents a declining state of several aspects of Australia’s biodiversity, including the condition of many nationally important wetlands, rapid decline and loss of many mammal species, and reductions in populations of bird species particularly in grassland, woodland and ground nesting guilds. Several ongoing threatening processes are documented, and the assessment report records that many of the key threats to biodiversity identified in the 1996 State of the Environment Report still exist. The imminent environmental disaster facing the Murray-Darling River and the debacle that surrounds its management bear witness to the fate currently awaiting natural systems across Australia.

Drawing on the work of the Prime Minister’s Science, Engineering and Innovation Council,<sup>20</sup> the Terrestrial Biodiversity Assessment stresses “the need for strategic investment in conservation”.

<sup>9</sup> Commonwealth of Australia (2008). *Caring for Our Country: Outcomes 2008-2013: Ministers’ Foreword*, p.1.

<sup>10</sup> In Australia, Southwest Australia is the most recognised mainland hotspot area, while the Cocos Islands and Christmas Island are contained within the Sundaland hotspot, and Lord Howe, Norfolk and Macquarie Islands are contained within the New Zealand hotspot. (See *Hotspots Revisited – Earth’s Biologically Richest and Most Endangered Terrestrial Ecoregions*, Mittermeier et al. (2004), CEMEX & Conservation International.)

<sup>11</sup> In cooperation with Conservation International, the Australian Museum and CSIRO have been investigating the biological data with a view to recognising a long strip of the east coast of Australia, from Cooktown to Bateman’s Bay (see *Progress in defining the status and extent of a global high-biodiversity hotspot in Eastern Australia – Project update, August 2006*, Kristen J Williams, CSIRO & Dan P Faith, Australian Museum).

<sup>12</sup> Mittermeier RA, Robles Gil P, Hoffman M, Pilgrim J, Brooks TM, Mittermeier CG, Lamoreaux J & da Fonseca GAB (2004). *Hotspots Revisited – Earth’s Biologically Richest and Most Endangered Terrestrial Ecoregions*. CEMEX & Conservation International, Mexico City.

<sup>13</sup> Mittermeier RA, Mittermeier CG, Brooks TM, Pilgrim J, Konstant W, da Fonseca GAB & Kormos C (2003). *Wilderness and biodiversity conservation*, Proceedings of the National Academy of Sciences of the USA, Volume 100(18), pp.10309-10313.

<sup>14</sup> Kimberley, Cape York, Australian Deserts, Tasmania, Arnhem Land, Antarctica (Australian Antarctic Territory).

<sup>15</sup> UNEP World Conservation Monitoring Center (2007). *Millennium Development Goals. Indicators 26: Protected Areas Report*. UNEP WCMC, Cambridge UK. [www.unepwcmc.org](http://www.unepwcmc.org).

<sup>16</sup> HSI provided seed money to UNEP’s World Conservation Monitoring Unit (WCMC) for the preparation of a paper tabled at the UNFCCC CoP in Poland in December 2008, entitled *Carbon and Biodiversity – a Demonstration Atlas* promoting the development of a global carbon/biodiversity atlas to help inform the REDD (Reduced Emissions from Deforestation and Forest Degradation) process (see references for citation). The preliminary findings of the report are also utilised in this paper.

<sup>17</sup> Cork S, Sattler P & Alexandra J (2006). ‘Biodiversity’ theme commentary prepared for the 2006 Australian State of the Environment Committee, Department of the Environment and Heritage, Canberra. <http://www.deh.gov.au/soe/2006/commentaries/biodiversity/index.html>.

<sup>18</sup> Commonwealth of Australia (1996). *Australia: State of the Environment*. Independent report to the Minister for the Environment. CSIRO Publishing, Collingwood, Vic. Australia.

<sup>19</sup> National Land & Water Resources Audit (2002). *Australia’s Terrestrial Biodiversity Assessment 2002*. [www.anra.gov.au](http://www.anra.gov.au); Land & Water Australia, Canberra.

<sup>20</sup> Prime Minister’s Science, Environment & Innovation Council (2002). *Sustaining our Natural Systems and Biodiversity*. Working Group report to the 8th meeting of PMSEIC, 31 May 2002.



Australian Wildlife Conservancy's Piccaninny Plains, Cape York. Photo by Michael Kennedy.

## Impacts of climate change

Since the Third Assessment Report from the International Panel on Climate Change<sup>21</sup> in 2001, it has been well recognised that Australia's biodiversity and natural resources are strongly vulnerable to changes in temperature and rainfall associated with human-induced climate change. The Australian Alps, southwest Western Australia, upland tropical rainforests (the Wet Tropics) and coral reefs (the Great Barrier Reef), arid and semi-arid habitats, freshwater wetlands and riverine environments were identified as being particularly vulnerable.

In that same year, following an HSI nomination, "Loss of climatic habitat caused by anthropogenic emissions of greenhouse gases", was listed as a Key Threatening Process under the *Environment Protection & Biodiversity Conservation Act, 1999* (EPBC Act 1999). The Minister however failed to trigger the development of a national Threat Abatement Plan.

In 2002 Howden and others,<sup>22</sup> in an expert workshop report to the national Biological Diversity Advisory Committee, drew attention to evidence suggesting that "the rate of climate change will be faster than the rate at which most species can adapt, either by migration or by changing their physiology or form". These authors then went on to discuss various mechanisms for monitoring and adjusting to the impacts of climate change on species and their habitats.

While this report is focusing on terrestrial biodiversity, recent research by McNeil and his colleagues at the University of New South Wales<sup>23</sup> presents a new urgency in addressing the impacts of climate change on marine biodiversity. Not only are rising sea temperatures leading to coral bleaching on the Great Barrier Reef and other major reefs across the world, but as our seas take up more carbon dioxide, the resulting increase in acidity of the oceans is placing at risk the skeletal structure of many of our coral reefs. At a recent conference in Sydney, McNeil highlighted concerns that by 2030 these impacts on the reef will have become very real.

The National Biodiversity and Climate Change Action Plan<sup>24</sup> points out the major roles that temperature and rainfall play in determining where individual plants and animals can "live, grow and reproduce".

The Action Plan highlights several direct impacts of climate change on biodiversity. These include:

- reduction in the geographic range of many species, especially those whose distribution is already limited by climate;
- changes in the timing of species' lifecycles, such as earlier migration and breeding patterns;
- changes in population dynamics and survival, with temperature and available moisture affecting the physiology of many species;
- changes in the location of species' habitats, such as moves to higher elevations as areas warm;
- increased risk of extinction for already vulnerable species;
- increased risk of expansion of invasive species, because of their greater adaptability and resilience than many native species; and
- changes in the structure and composition of ecosystems and ecological communities, in response to each of the other factors outlined above, and changes in coastal and estuarine habitats due to rising sea levels.

<sup>21</sup> IPCC (2001a). *Climate Change 2001: The Scientific Basis*. The IPCC Third Assessment Report, Working Group I Report, Albritton DL & Meira Filho LG (eds). Cambridge University Press, Cambridge.  
 IPCC (2001b). *Climate Change 2001: Impacts, adaptation, and vulnerability*. The IPCC Third Assessment Report, Working Group II Report, McCarthy JJ, Canziani PF, Leary NA, Dokken DJ & White KS (eds). Cambridge University Press, Cambridge.

<sup>22</sup> Howden M, Hughes L, Dunlop M, Zethoven I, Hilbert D & Chilcott C (2003). *Climate change impacts on biodiversity in Australia*. Outcomes of a workshop sponsored by the Biological Diversity Advisory Committee, 1-2 October 2002. Commonwealth of Australia, Canberra.

<sup>23</sup> McNeil B (2008). Climate change projections for Australia. Paper presented at *Saving a Sunburnt Country* conference. Nature Conservation Council of NSW, Sydney, 12-13 November 2008.

<sup>24</sup> Natural Resource Management Ministerial Council (2004). *National Biodiversity and Climate Change Action Plan 2004-2007*. Australian Government Department of the Environment and Heritage, Canberra.



Added to these direct effects on plant and animal species are the impacts of:

- increased CO<sub>2</sub> levels, providing advantage to some species over others;
- increased frequency, intensity and area affected by fire; and
- changed plant cover for water runoff and availability.

In arid and semi-arid areas, topography, limestone geology and permanent water currently support refugia that are the last strongholds of many endangered or vulnerable species, species that are endemic to local areas and those that are relictual populations from an earlier time. Climate change may result in significant extinctions in these refugia. The importance of retaining these refugia as part of the process of adaptation to climate change is recognised in the *Caring for Our Country: Outcomes 2008-2013* statement.<sup>25</sup>

As Campbell<sup>26</sup> points out in his recent paper on *Managing Australian Landscapes in a Changing Climate*, emphasising connectivity and extending defined habitat areas with buffer zones and corridors, so as to reduce fragmentation and to offer habitat continuity for less mobile species, will become increasingly important in the face of climate change. Campbell goes on to stress that, “*climate change underlines the importance of implementing measures to encourage biodiversity conservation outside the formal reserve system of National Parks and other wildlife reserves. Conservation of biodiversity on private and leasehold lands has always been important, but in a changing climate it becomes even more so.*”

Large areas providing connectivity across complex landscapes are now identified as providing the best opportunity for resilience to enable ecosystems to recover from large-scale disturbance and to adapt to climate change. Such areas are particularly valuable where the land between them is interspersed with smaller relatively intact sites that provide ‘stepping stones’ or ‘stop-over points’ for migrating species.

## Protected area network

As has been recognised for more than a decade, a reserve system that is comprehensive, adequate and representative of the species and ecosystems that make up Australia’s richness of biodiversity is essential to the continued existence of our ‘megadiverse’ status. Yet, as Sattler & Taylor<sup>27</sup> report, the reserve system falls well short of either Australian targets or that found in many of the other (less developed) ‘megadiverse’ countries.

Progress towards a comprehensive, adequate and representative reserve system providing secure protection to important elements of our biodiversity is slow, with many areas identified for protection but not yet gazetted and several bioregions still having less than 2% of their land area in protected areas. In 2000, a study completed for the Australian Conservation Foundation and National Farmers’ Federation<sup>28</sup> concluded that to protect biodiversity nationally required an investment of \$5.2 billion over the next 10 years. This was supported by the 2002 Terrestrial Biodiversity Assessment<sup>29</sup> completed by the National Land and Water Resources Audit, which identified a need to commit an average of \$5 million per sub-region to land-based programs.

More recent NGO analysis and assessment of national biodiversity conservation needs have also given an indication of the costs that might be involved in doing the job properly. In a report<sup>30</sup> entitled *Future Proofing Australia*, prepared for presentation to Prime Minister Howard in early 2004 by HSI and the Tasmanian Conservation Trust (TCT), it was estimated that \$20 billion over a 10 year period was required.

Later in 2004, the National Biodiversity Alliance (NBA)<sup>31</sup> published its *Proposal for a new National Biodiversity Initiative – Securing Australia’s Nationally Important Biodiversity and Ecosystem Services*,

where it was estimated that a figure of \$3.2 billion was required over a six year period.

Also of concern is the fact that as state governments face increased economic pressures, some are amending management plans in order to increase the extent to which core protected areas such as National Parks can now be used for a broader range of commercial activities which are likely to impact adversely on their capacity to provide secure protection for biodiversity.

The recent Rudd Government commitment to ‘Building the National Reserve System’ identifies \$180m to be spent over 5 years (seeking a 25% increase in the area contained within the NRS and 40% increase in Indigenous Protected Areas – with funding of \$50 million for the latter), as one of 6 national priorities for the Government’s *Caring for Our Country* program, will go some way to improving the adequacy of the reserve system. However, at the time of writing, concerns have been expressed by NGOs<sup>32</sup> about a number of aspects of the *Caring for Our Country: Outcomes 2008–2013*.<sup>33</sup> Each of the six priority areas present some concerns, with a particular concern for the final NRS deadline slipping considerably to 2028. In any event, it is clear that the National Reserve System alone cannot provide full and adequate protection for Australia’s biodiversity.

## Conservation v. restoration

Ongoing loss of biodiversity must be addressed consistent with the fact that conserving species and their habitat is far more cost-efficient and more ecologically robust than seeking to restore what has been lost. That it is cheaper and more effective to maintain our natural systems than to allow them to be damaged and subsequently to inherit large repair bills has long been recognised. In 2002, Possingham<sup>34</sup> and his colleagues in a paper *Setting Biodiversity Priorities*, as part of the work of the Prime Minister’s Science, Engineering and Innovation Council, presented a strong business case for securing rather than repairing natural systems.

Setting those national priorities has also become an urgent matter, and why, in part, this heritage strategy is being proposed. Following up on his work in coordinating the 2002 National Land and Water Resources Audit’s *Terrestrial Biodiversity Assessment*, and on HSI’s *Future Proofing Australia* proposal, Paul Sattler presented a paper<sup>35</sup> on behalf of HSI at a Commonwealth Department of the Environment *Spatial Optimisation*

<sup>25</sup> Commonwealth of Australia (2008). *Caring for Our Country: Outcomes 2008-2013*, p.13.

<sup>26</sup> Campbell A (2008). *Managing Australian Landscapes in a Changing Climate: A climate change primer for regional Natural Resource Management bodies*. Report to the Department of Climate Change, Canberra.

<sup>27</sup> Sattler P & Taylor M (2008). *Building nature’s safety net 2008*. WWF Australia, Sydney, p.7.

<sup>28</sup> Australian Conservation Foundation & National Farmers’ Federation (2000). *Repairing the Country: A national scenario for strategic investment*. Australian Conservation Foundation, Fitzroy Vic.

<sup>29</sup> National Land & Water Resources Audit (2002). *Australia’s Terrestrial Biodiversity Assessment 2002*. www.anra.gov.au; Land & Water Australia, Canberra.

<sup>30</sup> Brown S, Kennedy M, Graham A & Beynon N (2004). *Future Proofing Australia*, Humane Society International and the Tasmanian Conservation Trust.

<sup>31</sup> National Biodiversity Alliance (2004). *Proposal for a new National Biodiversity Initiative – Securing Australia’s Nationally Important Biodiversity and Ecosystem Services*, Humane Society International, Australian Bush Heritage Fund, Australian Centre for Environmental Law (ANU), Australian Wildlife Conservancy, Birds Australia, Greening Australia, World Wide Fund for Nature Australia.

<sup>32</sup> WWF, ACF and HSI. *Proposals on Caring for Our Country* (unpublished). ACF Media Release 28 November 2008. ‘New plan lifts Government’s game, but gaps remain.’ WWF Media Release 28 November 2009. ‘Business as usual not an option for Australia’s environment.’

<sup>33</sup> Commonwealth of Australia (2008). *Caring for our Country Business Plan 2009 – 2010*. (National Priority Areas: National Reserve System; Biodiversity and natural icons; Coastal environments and critical aquatic habitats; Sustainable farm practices; Community skills, knowledge and engagement; Natural resource management in northern and remote Australia.)

<sup>34</sup> Possingham H, Ryan S, Baxter J & Morton S (2002). *Setting Biodiversity Priorities*. Paper prepared for Sustaining our Natural Systems and Biodiversity working group, Prime Minister’s Science, Engineering and Innovation Council; DEST, Canberra.

workshop in December 2006. The paper called for the development of national biodiversity priorities and the subsequent biological assessments over a six year rolling program to systematically undertake rapid assessments for each of Australia's bioregions.

Sattler's paper suggested that at an average cost of \$300,000 per bioregion, the overall costs of such a national region-by-region assessment would come in at about \$30 million over a five to six year period.

In the face of ongoing species losses, and the certainty that climate change will exacerbate those losses, there is a need to ensure that systems are managed in ways that maximise their resilience, or capacity to recover from external pressures. That resilience is in significant part dependent on conserving biodiversity.

As Fischer and his colleague report: "*Landscapes should include structurally characteristic patches of native vegetation, corridors and stepping stones between them, a structurally complex matrix and buffers around sensitive areas.*"<sup>36</sup>

In 2004, the *Australian Heritage Assessment Tool* project, led by the then Department of the Environment and Heritage, recognised not only the importance of terrestrial *hotspots* for biodiversity (including those that are refuges for flora and fauna in arid and semi-arid lands), but also the freshwater *hotspots* found in our rivers and inland wetlands. In a country recognised through the Ramsar Convention and other mechanisms for its species richness and endemism of freshwater species, wild rivers should be included among the places in which biodiversity and other natural values are assessed and managed to conserve them.

## Opportunities offered by National Heritage listing

In defining the Outcomes sought from the first 5 years of the *Caring for Our Country* program, the Australian Government recognises a need to increase "*the area of native habitat and vegetation that is managed to reduce critical threats to biodiversity and to enhance the condition, connectivity and resilience of habitats and landscapes.*"<sup>37</sup> In doing so, the government acknowledges the need for integrated management beyond the National Reserve System. The role of "*World and National Heritage places, and complementary land uses on both public and private land*" are recognised as important in reversing the declining trend in Australia's biodiversity and in maximising conservation benefits.<sup>38</sup>

The Objectives of the EPBC Act 1999 (s.3) include not only the protection of those aspects of the environment that are matters of national environmental significance (including our National Heritage), but also promotion of the conservation of biodiversity and the protection and conservation of heritage. National Heritage listing empowers the Commonwealth to ensure that areas of outstanding natural significance are protected, and provides important mechanisms through which such protection can be achieved.

<sup>35</sup> Sattler, P. *Future Proofing Australia (through the development of National Priorities and Bioregional Conservation Strategies) – Bioregional Conservation Strategies Component*. Paper presented to the Department of the Environment Spatial Optimisation Workshop, Canberra, for Humane Society International, December 2006.

<sup>36</sup> Fischer J, Lindenmayer DB & Manning AD (2006). *Biodiversity, ecosystem function, and resilience: ten guiding principles for commodity production landscapes*. *Frontiers in Ecology and Environment* 4(2), pp.80-86.

<sup>37</sup> Commonwealth of Australia (2008). *Caring for Our Country: Outcomes 2008-2013*, p.11.

<sup>38</sup> Commonwealth of Australia (2008). *Caring for Our Country: Outcomes 2008-2013*, p.12.



Lake Eyre. Photo by Don Fuchs.



Section 18 of the EPBC Act 1999 provides a trigger for Federal Government intervention to ensure that a proposed action does not have, and is not likely to have, a significant impact upon a nationally listed threatened species or ecological community. However this addresses only those species and ecological communities that are at significant risk of extinction.

As the pressures of climate change become more pronounced, there is a need to enhance connectivity between large areas as part of enhancing resilience of native plant and animal species. While National Parks and other protected areas managed primarily for nature conservation will, as Sattler & Taylor<sup>39</sup> observe, “*present the best opportunity for retaining natural ecosystem resilience, reducing threats, and protecting refuges and other critical habitats,*” core protected areas alone cannot achieve the outcomes necessary to prevent mass extinctions.

Several of the criteria defining National Heritage significance are values associated with relatively intact natural areas, whether in protected areas or elsewhere.

The provisions of the EPBC Act 1999 and associated Regulations enable the Minister to adopt a range of strategies to conserve species and their habitats. Bioregional planning, recovery and threat abatement planning including multiple species plans, wildlife conservation plans, critical habitat listings, strategic assessments and negotiation of conservation agreements with landholders can all be used to complement the Minister’s capacity to protect National Heritage.

By focusing on large areas already identified by the Commonwealth and other national and international agencies as ‘biodiversity *hotspots*’ or their

equivalent, and assessing those areas for their potential as National Heritage, **the Federal Government will make a significant contribution to improved identification and understanding of those places that are of outstanding natural significance** and are likely to contain much of the biodiversity for which Australia is internationally renowned.

National (and Commonwealth) Heritage assessment and the listing of large (and small) areas also offers a comparatively quick process for gaining national protection (and hopefully improved management) under the EPBC Act’s heritage provisions. The process also offers an opportunity for the Commonwealth (and the States and Territories) to be far more strategic in their conservation planning.

However, to achieve successful outcomes for this heritage strategy, the Commonwealth must view the EPBC Act’s heritage provisions not merely as a ‘stamp collecting’ exercise, but as a real conservation tool for the protection and management of Australia’s biological diversity. It is what was envisaged by the key NGOs and minor political parties in the Parliament who worked with the Commonwealth to ensure the passage of the EPBC Act’s “heritage amendments”. With the recent announcement of the assessment of 17,000,000 hectares of the Kimberley, there is some sign that the policy outlook might be improving, but the Minister for the Environment needs to make his policies towards a long-term heritage program abundantly and publicly clear. A successful strategy will also necessitate a legal review of, and a significant improvement in, the strength of the heritage provisions of the Act.

Biodiversity-rich places are likely to also be places with outstanding values because of their:<sup>40</sup>

- importance in the course or pattern of Australia’s natural history;
- possession of uncommon, rare or endangered aspects of Australia’s natural history;
- potential to yield information contributing to an understanding of Australia’s natural history;
- importance in demonstrating the principal characteristics of a class of Australia’s natural places, or a class of Australia’s natural environments; and
- importance in exhibiting particular aesthetic characteristics valued by a community group.

Moving from a values assessment to National Heritage listing of large areas identified in this way will then enhance the Commonwealth’s capacity to protect those areas.

The biodiversity *hotspot* areas that the authors have used to guide them in determining priorities for National Heritage listings include those places identified by Conservation International;<sup>41</sup> those places identified by a number of internal analyses prepared by: the Commonwealth for the Australian Heritage Council;<sup>42</sup> the 15 national biodiversity *hotspots* announced by Minister Kemp in 2003;<sup>43</sup> the 11 biodiversity *hotspots* that were identified by the Australian Museum/HSI workshop and a Delphi workshop process, conducted by the EPBC Threatened Species Scientific Committee<sup>44</sup> as warranting management attention, and other national and international biological diversity assessments that can be found in the references cited.



Waratah. Photo by Michael Bland.

<sup>39</sup> Sattler P & Taylor M (2008). *Building nature’s safety net 2008*. WWF Australia, Sydney, p.43.  
<sup>40</sup> Australian Government. About Australia’s heritage: National heritage list criteria. <http://www.environment.gov.au/heritage/about/national/criteria.html>.  
<sup>41</sup> Mittermeier RA, Robles Gil P, Hoffman M, Pilgrim J, Brooks TM, Mittermeier CG, Lamoreaux J & da Fonseca GAB (2004). *Hotspots Revisited – Earth’s Biologically Richest and Most Endangered Terrestrial Ecoregions*. CEMEX & Conservation International, Mexico City.  
<sup>42</sup> Commonwealth of Australia (unpublished). *Significant Concentrations of Biodiversity in Terrestrial Australia*. Department of Environment & Heritage, 2005.  
<sup>43</sup> Kemp, The Hon D (2 October 2003). Kemp declares biodiversity ‘Hotspots’ – A world first. Media release. Minister for the Environment and Heritage, Canberra.  
<sup>44</sup> Beeton B (undated). Report on HSI and Australian Museum Workshop and Delphi conducted for TSSC, 12-13 Dec 2002: Working Draft.



Australian Wildlife Conservancy's Mornington Sanctuary in the Kimberley. Photo by Ecopix.

By prioritising these areas, and systematically undertaking 'big picture' strategic assessments of them, as it has already done for the Australian Alps and as it has also committed to doing for the Kimberley area in north-western Australia,<sup>45</sup> the Australian Government will:

- make sure that the values of each region are properly understood before major management decisions are made;
- avoid piecemeal development approvals that risk gradual destruction of our environment and heritage;
- enhance opportunities for both natural and cultural heritage protection; and
- maximise the conservation benefits to be gained from integrated management across the National Reserve System, World, National Heritage and Commonwealth sites, and complementary land uses and management on adjoining public and private land.

The results of this analysis are presented in the Map and Table at pages 8 to 15.

To these priorities should be added the Mound Springs of South Australia and the Northern Territory, the Paroo River and Cooper Creek catchments, and Barrow Island. (These places are currently being assessed for heritage listing or have been nominated by HSI for heritage listing.) As part of ensuring that our Natural Heritage is as adequately protected as possible, a review of all existing Commonwealth places (especially those on the Register of the National Estate (RNE)) for their potential National and/or Commonwealth Heritage values, and listing of those places that meet one or more of the criteria, should also be completed.

The relationship between the areas proposed for National Heritage assessment here and the areas assessed by the Commonwealth to contain "high concentrations of biodiversity" and the 'biodiversity hotspot' areas identified by technical experts participating in the 2002 Delphi process workshop, are shown on the accompanying map on pages 8 and 9. It also includes current World Heritage Areas and protected areas of high biodiversity which are more than 15,000 hectares in area. Space and clarity prevents adding other national and international analyses. The map is followed by a table on page 10 with further information on proposed assessment areas.

<sup>45</sup> Garrett, The Hon P & Kobelke, The Hon J (5 Feb 2008). *Big picture study for Australia's Kimberley*. Joint media release.

## Recommendations: A new approach to achieving large-scale landscape conservation

1. Start with identified biodiversity *hotspots*, whether defined globally or nationally, because of the abundance of species and ecological communities present and the endemism of the area (the richness of unique species found there, and/or the threats to their current survival).
2. Identify large areas that capture key biodiversity *hotspots* (e.g. Kimberley, Cape York, SW WA etc).
3. Complete comprehensive assessments of the areas in which *hotspot* values occur – build on National Parks and other conservation areas meeting IUCN category I-IV criteria. Add to those Indigenous Protected Areas, existing World, National and Commonwealth Heritage areas that are of significant natural value, and encompass both "Heritage Rivers" and ecological refugia.
4. Designate large areas for National Heritage study with a view to listings over broad landscapes that have the potential to encompass and sustain the complexity needed to ensure resilience of the natural systems present. The priority terrestrial areas for such assessment are identified on page 1 and in the table beginning at page 10.
5. Begin a concurrent assessment process for islands and marine areas.
6. Use the provisions of the EPBC Act to provide both positive incentives and constraints on activities degrading national values. The EPBC Act also requires significant amendments to strengthen its conservation and protective capabilities.<sup>46</sup>

Much of the information required to implement this approach is already available. Its implementation could, and should, begin almost immediately through joint Commonwealth-State projects, similar to that currently being undertaken in the North Kimberley region.

<sup>46</sup> Humane Society International (2008). *Submission to the Senate Inquiry into the Operation of the Environment Protection and Biodiversity Conservation Act 1999*.



# SIGNIFICANT CONCENTRATIONS OF BIODIVERSITY IN TERRESTRIAL AUSTRALIA

- 15 Higher priority Hotspot area
- 32 Priority Hotspot area

### Legend

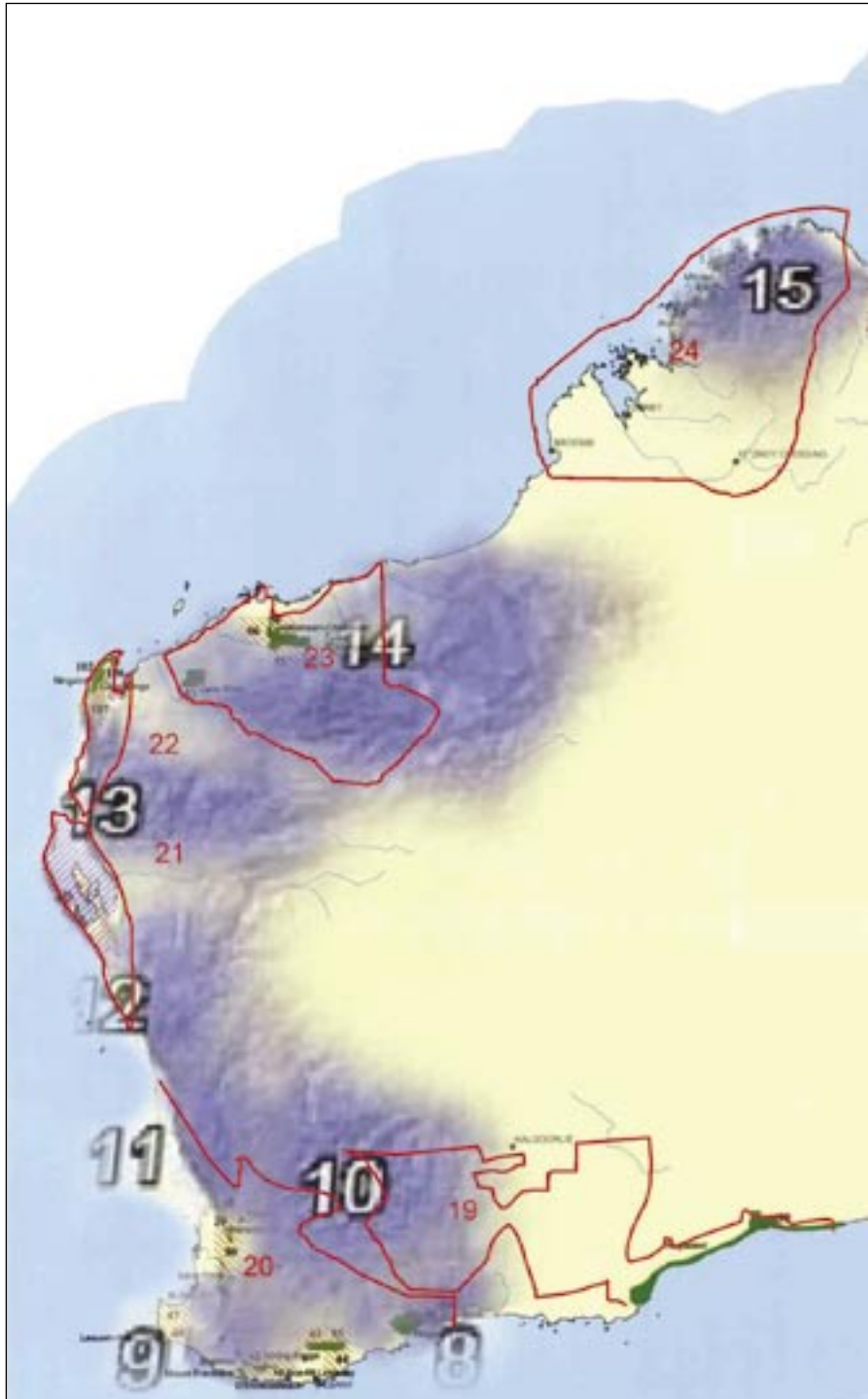
- Places Above Threshold — includes large reserve
- World Heritage
- Reserves with High Biodiversity (>15000ha)
- Main Towns
- Major Rivers
- Ocean
- Mainland
- States and Coastline



Source: AUSLIG 1:100,000 map grid of Australia. All other data have been derived from the Australian Heritage Assessment Tool Project.

Caveat: While every effort has been made to ensure accuracy and completeness, no guarantee is given, nor responsibility taken by the Commonwealth for errors or omissions and the Commonwealth does not accept responsibility in respect of any information or advice given in relation to, or as a consequence of, anything contained herein.

Produced by: The Department of the Environment and Heritage © Commonwealth of Australia 2005

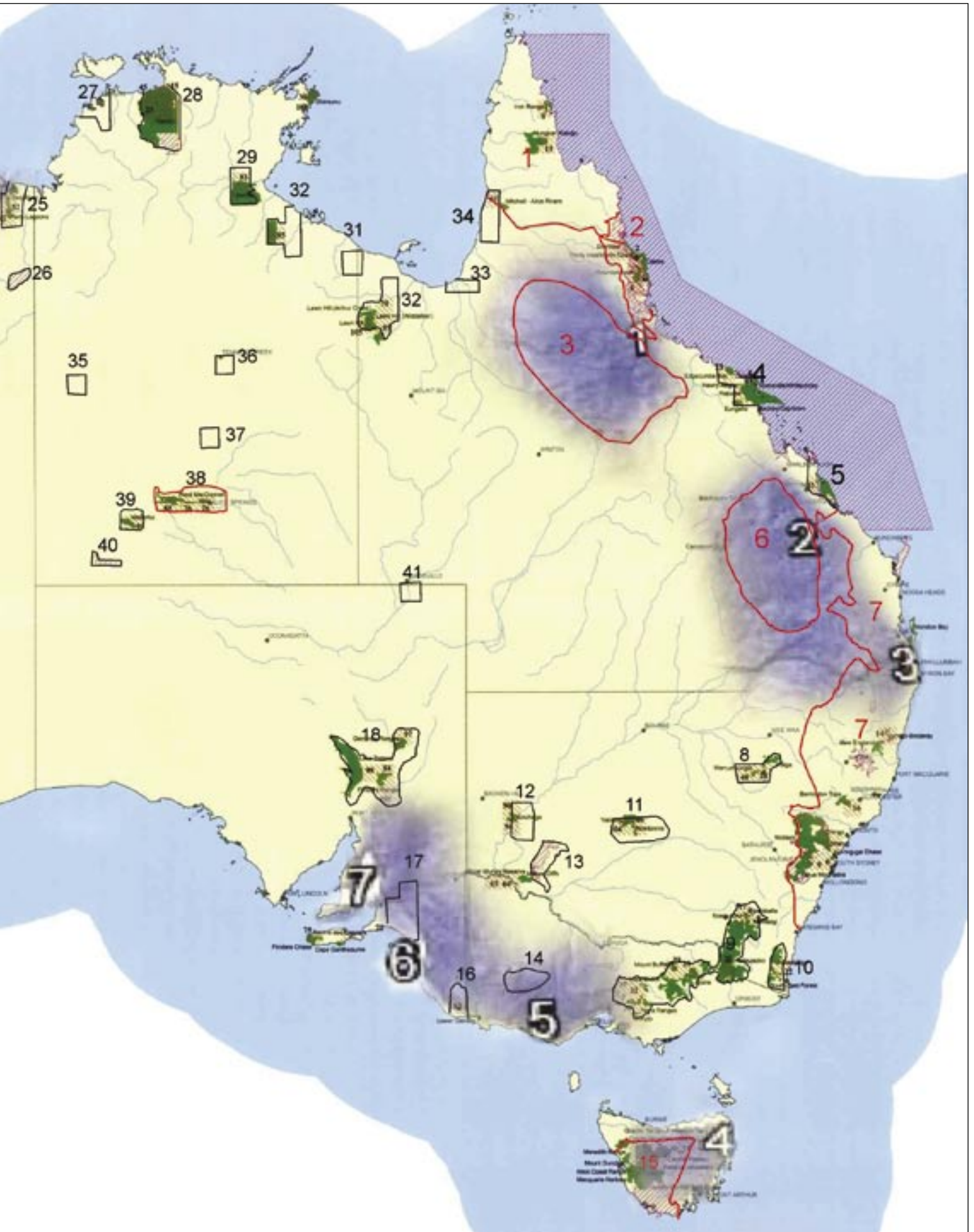


1. Einasleigh and Desert Uplands
2. Brigalow North and South
3. Border Ranges North and South
4. Midlands of Tasmania
5. Victorian Volcanic Plain
6. South Australia's South-East/ Victoria's South-West
7. Mt Lofty/ Kangaroo Island
8. Fitzgerald River Ravensthorpe
9. Busselton Augusta
10. Central and Eastern Avon Wheatbelt
11. Mount Lesueur-Eneabba
12. Geraldton to Shark Bay sand plains
13. Carnarvon Basin
14. Hamersley-Pilbara
15. North Kimberley



Great Western Woodlands. Photo by Sandy Berry.







## ■ TABLE OF TERRESTRIAL PLACES RICH IN BIOLOGICAL DIVERSITY WHICH

The places included in this table are places known to contain high levels of endemism and species richness (biodiversity *hotspots*), or to possess other natural values likely to make them worthy of inclusion in the National Heritage list because of their ability to meet one or more of Australia's National Heritage criteria. A definition of *hotspots* can also include areas where key threatening processes are still at work.

The list has been compiled using information from Conservation International;<sup>1</sup> those places identified by a number internal analyses prepared by the Commonwealth for the Australian Heritage Council;<sup>2</sup> the 15 national biodiversity *hotspots* announced by Minister Kemp in 2003;<sup>3</sup> the 11 biodiversity *hotspots* that were identified by the Australian Museum/HSI workshop and Delphi process conducted by the EPBC Threatened Species

Area No.	Name of the <i>Hotspot</i> area	Areas identified as natural heritage <i>hotspots</i> by Aust. Heritage Assessment Tool Project (Project Area No.)	Biodiversity <i>Hotspot</i> Identified by 2002 Delphi process (Area No.)
1	<b>Cape York Peninsula<sup>a</sup></b>	Iron Range (1), McIlwraith Range (2), Mitchell-Staaton Rivers (66)	Eastern Cape York — “Warranting management attention”
2	<b>Cairns-Wooroonooran (and private lands surrounding) — Daintree Lowland Rainforest<sup>a</sup></b>	Wooroonooran NP (3)	
3	<b>Einasleigh &amp; Desert Uplands<sup>a</sup></b>	Montgomery Range (4), Mid-reaches of Burdekin River (5), Bannockburn Homestead (6)	Einasleigh & Desert Uplands (1)
4	Clarke Eungella Ranges	Clarke Eungella Ranges (7)	
5	Fitzroy River-Shoalwater Bay	Fitzroy River (8)	
6	<b>Brigalow North<sup>a</sup></b>	Expedition Range, west side (9), Carnarvon NP (10), Kroombit Tops (11), Isla Gorge-Dawson Range (12)	Encompasses parts of Brigalow North (2)
7	<b>Great Eastern Australia Forests<sup>a</sup></b>	Conondale-D’Aguilar Ranges (13), Gold Coast Hinterland (14), Border Ranges-Nightcap (15), Dorrigo Plateau (17), Barrington Tops-Karuah-Williams Rivers headwaters (20), Central Coast (21), Kuringai-Cumberland Plain (22)	Border Ranges North & South (3) South East Highlands/Sydney Sandstone — “Warranting management attention”
8	Warrumbungles & Pilliga	Warrumbungles (18) & Pilliga	
9	Australian Alps	Namadgi (23), Alpine Rivers (24), Alps (25)	“Warranting management attention”
10	South East Forests	SE Forests NP (26)	
11	Yathong-Nombinnie	Yathong-Nombinnie NP (30)	
12	Kinchega-Menindee-Tandou	Menindee-Tandou Lake system (29)	
13	Willandra Lakes		

<sup>1</sup> Mittermeier RA, Robles Gil P, Hoffman M, Pilgrim J, Brooks TM, Mittermeier CG, Lamoreaux J & da Fonseca GAB (2004). *Hotspots Revisited – Earth’s Biologically Richest and Most Endangered Terrestrial Ecoregions*. CEMEX & Conservation International, Mexico City.

<sup>2</sup> Commonwealth of Australia (unpublished). *Natural Heritage Hotspots – A Picture of Distinctive Australian Landscapes: Technical Summary Number 2*. AHAT Project Team. Produced from the Australian Heritage Assessment Tool Project for the Australian Heritage Council, 2004. Department of the Environment & Heritage, Canberra; Commonwealth of Australia (unpublished). *Significant Concentrations of Biodiversity in Terrestrial Australia*. Department of Environment & Heritage, 2005 and others (see further references on back page).

## WARRANT FURTHER ASSESSMENT AS NATIONAL HERITAGE PLACES

Scientific Committee<sup>4</sup> as “warranting management attention”, and other AHC and national and international biological diversity assessments that can be found in the references cited. Although a diversity of reference material has been used in compiling this table and the accompanying map and paper, for simplicity only those resulting from Australian Government processes are included in the table.

It should be noted that while there are some river catchments and arid and semi-arid refugia included in this list, both ‘wild rivers’ and ecological refugia, as well as offshore islands and marine habitats should also be considered in a systematic way to identify those that are worthy of inclusion on the National Heritage list. Existing World, National and Commonwealth Heritage Areas are included for the sake of completeness of the Natural Heritage picture.

Includes nationally listed heritage area(s) (World, National & Commonwealth heritage places)	Current bioregional conservation status — % reserved (ERIN, 2008)	Other comments
	15-30	Subject of Commonwealth/State assessment processes. National Heritage nomination submitted by HSI 2006. East coast area is part of Eastern Australian <i>Hotspots</i> identified by Australian Museum/Conservation International (CI)/CSIRO, 2006. <sup>5</sup> Wet Tropics a CI biodiversity <i>hotspot</i> . Iron Range and McIlwraith Range identified as a priority by Australian Heritage Council (AHC) July 2004. The Commonwealth heritage program is currently undertaking background consultations and analysis of Cape York. Recognised as a global wilderness area by CI. Potential World Heritage nomination.
Parts are in Wet Tropics WHA and National Heritage listed	30-100	Tropical rainforests — part already World Heritage. East coast area is part of a proposed Eastern Australian <i>Hotspot</i> identified by Australian Museum/CI/CSIRO investigation. CI biodiversity <i>hotspot</i> . Woornoooran NP and surrounds identified as a priority by AHC, July 2004. Daintree lowland rainforest subject of ARUP/HSI/DRF National Heritage nomination. Potential World Heritage extension.
	<b>0.01-5</b>	
Includes Shoalwater Bay MTA, Commonwealth Heritage	<b>0.01-5</b>	Part of Eastern Australian <i>Hotspots</i> identified by Australian Museum/CI/CSIRO, 2006. Area should include Townsville Defence Training Area, nominated by HSI for Commonwealth Heritage listing in 2008.
	10-15	Part of Eastern Australian <i>Hotspots</i> identified by Australian Museum/CI/CSIRO, 2006.
	<b>0.01-5</b>	East coast area is part of Eastern Australian <i>Hotspots</i> identified by Australian Museum/CI/CSIRO, 2006.
Includes Gondwana Rainforest WHA, and National Heritage listed	10-15	Major part of Eastern Australian <i>Hotspots</i> identified by Australian Museum/CI/CSIRO, 2006. Much of this area also identified as a priority by AHC, July 2004. Cooloola/Great Sandy Region being assessed by AHC. Potential World Heritage extension to Fraser Island. The Greater Blue Mountains Area is being assessed by AHC for additional National Heritage values.
Includes Greater Blue Mtns WHA, and National Heritage listed	15-30	
	15-100	
Warrumbungle NP National Heritage listed	<b>0.01-5</b>	Include Pilliga in assessment for National Heritage.
Australian Alps National Parks & Reserves recently listed National Heritage area	15-100	Expand assessment beyond recent Alpine National Parks listing, to include Lake Eildon-Yarra Ranges area. Potential World Heritage nomination.
	30-100	
	15-30	
	15-30	
Willandra Lakes WHA, and National Heritage listed	15-30	

<sup>3</sup> Kemp, The Hon D (2 October 2003). *Kemp declares biodiversity ‘hotspots’ – A world first*. Media Release, Minister for the Environment and Heritage, Canberra.

<sup>4</sup> Beeton B (undated). Report on HSI and Australian Museum Workshop and Delphi conducted for TSSC, 12-13 Dec 2002: Working Draft.

<sup>5</sup> Australian Museum (2006). *Progress in defining the status and extent of a global high-biodiversity hotspot in Eastern Australia*. Working Paper prepared Dan Faith, Australian Museum and others, 21 August 2006.



Area No.	Name of the <i>Hotspot</i> area	Areas identified as natural heritage hotspots by Aust. Heritage Assessment Tool Project (Project Area No.)	Biodiversity <i>Hotspot</i> Identified by 2002 Delphi process (Area No.)
14	Grampians	Grampians (35)	Victorian Volcanic Plain (5)
15	Western Tasmania, <b>Midlands &amp; Tarkine<sup>a</sup></b>	Gt Lake-Gt Western Tiers (27), Gordon-Franklin Rivers	Midlands of Tasmania (4), North Coast of Tasmania — “Warranting management attention”
16	Green Triangle-SE SA and SW Vic	Naracoorte-Gambier Karst (34)	SE SA and SW Vic (6)
17	<b>Gawler-Lofty Ranges-Kangaroo Island<sup>a</sup></b>	Gawler-Lofty Ranges (32), Kangaroo Is (33)	Mt Lofty-Kangaroo Is (7)
18	Flinders Ranges-Gammon Ranges-Lake Eyre	Flinders Ranges-Brachnia Gorge-Wilpena Pound (28)	
19	<b>Great Western Woodlands<sup>a</sup></b>	Extends westward to include Lake Koorkoordine (41)	
20	<b>Southwest Western Australia<sup>a</sup></b>	Fitzgerald River NP (43), Stirling Ranges-Frankland River (44), Leeuwin-Naturaliste Ridge (40)  Moore River-Swan River (38), Yalgorup-Lane Poole (39)	Fitzgerald River-Ravensthorpe (8), important biodiversity-rich area between Fitzgerald-Ravensthorpe (8) and Busselton-Augusta (9), Busselton-Augusta (9), Mt Lesueur/Enneabba (11) (Note: <i>Hotspot</i> area 10 — Central and Eastern Avon wheatbelt not included due to extensive clearing and resulting salination). Stirling Range/Walpole Denmark — “Warranting management attention”
21	Geraldton-Shark Bay sandplains		Geraldton-Shark Bay sandplains (12) Kalbarri — “Warranting management attention”
22	<b>Carnarvon Basin<sup>a</sup></b>	Cape Range (48)	Carnarvon Basin (13)
23	<b>Hammersley-Pilbara<sup>a</sup></b>	Ophthalmia-Hammersley Ranges (46), Cane River-Parry Range (47), Millstream & Chichister NPs (49), Port Hedland (50)	Hamerlsey-Pilbara (14)
24	<b>North Kimberley<sup>a</sup></b>	Fitzroy Crossing (51), Yampi DTA (52), Prince Regent River (53), Drysdale River (54)	North Kimberley (15)
25	Ord River-Perry Lagoon	Ord River (55)	
26	Purnululu NP		
27	Daly River-Litchfield NP	Daly River (56)	
28	South-East Alligator River & Kakadu	South-East Alligator River / Kakadu (57)	East Alligator River — “Warranting management attention”
29	Roper River	Roper River (61)	
30	Macarthur River	Macarthur River (62)	
31	Settlement Creek	Settlement Creek (63)	

Includes nationally listed heritage area(s) (World, National & Commonwealth heritage places)	Current bioregional conservation status — % reserved (ERIN, 2008)	Other comments
Grampians NP, National Heritage listed	<b>0.01-15</b>	
Includes Tas Wilderness WHA, National Heritage listed	15-100	Include Tarkine Wilderness Area and grasslands of the Midlands in assessment for National Heritage. Great Western Tiers identified as a priority by AHC, July 2004. Public nomination rejected in 2008 (may be re-nominated). Tarkine currently being assessed by AHC. Recognised as a global wilderness area by Conservation International. Potential World Heritage nomination.
	<b>5-10</b>	
	15-30	Area identified as a priority by AHC, July 2004.
	5-15	Lake Eyre nominated by HSI for National Heritage listing.
	10-15	Boundaries for assessment area as identified in HSI National Heritage nomination submitted 2007, but extended at NW extremity to include Lake Koorkoordine. The AHC is currently undertaking research in the region. Potential World Heritage nomination.
Stirling Range NP, National Heritage listed	15-30	Encompasses Fitzgerald River NP, but also extends into biodiversity-rich Ravensthorpe link to Great Western Woodlands. Eastern to western end of GondwanaLink area. National Heritage nomination submitted by HSI 2006. Mt Lesueur-Enneabba area identified as a priority by AHC, July 2004 and nominated by HSI for National Heritage listing December 2006 (includes Nambung National Park). All are important parts of CI's SW Australian global biodiversity <i>Hotspot</i> , and were identified as a priority by the AHC, July 2004. Porongurup Ranges being assessed by AHC. Potential World Heritage listing.
Bushmead Rifle Range, Commonwealth Heritage Area; Bindoon DTA, Commonwealth Heritage Area	10-30	
	10-15	
Includes but extends southward of Shark Bay WHA; Lancelin DTA, Commonwealth Heritage Area. National Heritage listed	15-30	
	10-15	Includes, but extends beyond Ningaloo Reef- Cape Range area nominated by HSI for National Heritage in 2006, as well as Lake McLeod area. Potential World Heritage nomination.
	<b>5-10</b>	
Yampi DTA, Commonwealth Heritage Area	<b>0.01-30</b>	Extends beyond the area identified in 2004 Delphi process, to encompass whole of the Commonwealth's current heritage assessment area (largest area yet to be assessed for National Heritage listing). Part of this area identified as a priority by AHC, July 2004. Prince Regent NR and Drysdale River NP nominated by HSI for National Heritage listing, including several Kimberley islands for their important dingo populations. Recognised as a global wilderness area by Conservation International. Potential World Heritage nomination.
	15-30	
Purnululu NP, WHA	5-10	
	0.01-30	
Kakadu WHA	15-100	
	10-15	
	10-15	
	10-15	



Area No.	Name of the <i>Hotspot</i> area	Areas identified as natural heritage hotspots by Aust. Heritage Assessment Tool Project (Project Area No.)	Biodiversity <i>Hotspot</i> Identified by 2002 Delphi process (Area No.)
32	Lawn Hill	Lawn Hill (64)	
33	Norman River mouth	Norman River mouth (65)	
34	Mitchell-Staaten Rivers	Mitchell-Staaten Rivers (66)	
35	Tanami (Horden Hills)	Tanami (Horden Hills) (69)	
36	Nobles Nob	Nobles Nob (70)	
37	Wilora	Wilora (72)	
38	<b>West MacDonnell Ranges<sup>a</sup></b>	West MacDonnell Ranges (72)	Central Australian Mountain Ranges — “Warranting management attention”
39	Watarrka	Watarrka (74)	
40	Uluru		
41	Birdsville	Birdsville (Eyre/Diamantina Cks) (75)	
	<b>Mound springs<sup>a</sup> (SA &amp; Qld)</b>		
	<b>Paroo River &amp; Cooper Creek catchments<sup>a</sup></b>		
	<b>Barrow Island<sup>a</sup></b>		

<sup>a</sup> Large areas to be assessed as a priority for National Heritage values.

## HERITAGE RIVERS, REFUGIA, ISLANDS AND MARINE

This review has focused on mainland terrestrial heritage potential, and has not undertaken a detailed review of rivers, refugia, islands and marine places. These are however critical areas for which the Commonwealth Government must **trigger its own internal reviews**, allowing the Australian Heritage Council to advise the Minister on strategic directions to be taken.

In relation to important natural areas that the Commonwealth already has direct responsibility for, it should develop a clear and public timetable for reviewing all its terrestrial, marine and island properties, including those currently on the Register of the National Estate (RNE), for their suitability as either Commonwealth (CHL) or National Heritage (NHL) listings. This should be accomplished by 2010, while similarly facilitating the speedy transfer of eligible CHL places to the NHL.

It is worth noting here that **rivers, refugia, islands and marine areas** already nominated by HSI should immediately be assessed by the Commonwealth for the NHL.

The comprehensive protection of **Australian rivers** remains one of Australia’s most urgent policy considerations. In the 2002 CSIRO “*Sustaining our Natural Systems and Biodiversity*” report to the Prime Minister’s Science, Engineering and Innovation Council, a recommendation was made to “*define a set of Australia’s least altered rivers as “Heritage Rivers” and consider listing them under the Environment*

*Protection and Biodiversity Conservation Act.*” Six years later, there has still not been one river listing under any of the EPBC Act’s schedules, and certainly not its heritage provisions. Indeed, the Minister rejected an HSI nomination to list the **Paroo River** on the NHL, though HSI has since re-nominated the Paroo and added **Cooper Creek**.

HSI has identified approximately 80 rivers recognised by state and territory authorities as important for conservation reasons, with many protected through appropriate State legislation. The Commonwealth’s own internal **freshwater hotspots** analysis<sup>1</sup> has also identified dozens of rivers of high biodiversity value. National Heritage protection for many of these rivers is essential, and it is our understanding that the Commonwealth is presently undertaking background research.

The Commonwealth has also announced its intention in *Caring for Our Country: Outcomes 2008–2013*, to: “*Identify key climatic refugia in bioregions, and identify priorities for landscape scale biodiversity conservation, and prioritise the purchase of land to include these areas in the National Reserve System.*” Such identified areas should also be assessed for National Heritage listings.

In relation to **islands**, there is clearly scope to review the addition of all or parts of **Cocos Keeling, Christmas and Norfolk Islands** to the NHL (and possible World Heritage consideration) with the former two places

Includes nationally listed heritage area(s) (World, National & Commonwealth heritage places)	Current bioregional conservation status — % reserved (ERIN, 2008)	Other comments
Aust. Fossil Mammal sites (Riversleigh), WHA	<b>0.01-15</b>	
	<b>0.01-5</b>	
	<b>0.01-5</b>	
	<b>0.01-5</b>	
Uluru- Kata Tjuta WHA	<b>0.01-5</b>	
	<b>0.01-5</b>	
	10-15	Area identified as a priority by AHC, July 2004. Currently being assessed by the AHC. Potential World Heritage nomination.
	<b>0.01-5</b>	
	30-100	
	<b>5-10</b>	
		Scattered locations across SA and Qld – Not shown on map but assessed as a priority by AHC, July 2004. AHC is currently assessing Dalhousie and Elizabeth mound springs. Many currently listed under EPBC schedule of threatened ecological communities.
		Not shown on map but Paroo River assessed as priority by AHC, July 2004, and subject of National Heritage nomination submitted by HSI 2006. Commonwealth is currently doing some background research into “rivers”. HSI has also nominated Cooper Creek for heritage listing.
		Not shown on map but assessed as priority by AHC, July 2004, and subject of re-nomination submitted by HSI (including surrounding waters).

Regions with less than 10% in reserves are depicted in **bold type**.

being contained in Conservation International’s (CI) *Sundaland* global biodiversity *hotspot*, and the latter (along with Lord Howe and Macquarie Islands) being contained in CI’s *New Zealand* global biodiversity *hotspot*.

HSI has also nominated a number of islands in the **Kimberley**<sup>2</sup> (**Augustus, Bigge, Unwins, Wollaston and Middle Osborn Islands**) for their highly important **dingo populations**, which will be assessed as a part of the current Kimberley heritage assessment process under the provisions of the EPBC Act. Another crucial island that has always been a priority for recognition and conservation action is **Barrow Island**. HSI has re-nominated this place for the NHL, after an initial rejection by the Minister, despite the fact that the inaugural Australian Heritage Council (AHC) had publicly announced its 14 natural area priorities for heritage assessment in 2004, which included Barrow Island. HSI’s re-nomination also includes the **Montebello/Barrow Islands Marine Conservation Reserves**.

In relation to **marine areas**, the Commonwealth is currently assessing **Ningaloo Reef** for the NHL, and is committed to a proposed World Heritage nomination for the area. The NHL assessment is taking place following an HSI nomination. Other marine areas nominated by HSI include the vast expanse of the **Coral Sea** (nominated jointly with the Pew Environment Group and several other NGOs), and the **Australian Antarctic Territory (AAT)** and its Exclusive Economic Zone (**Antarctic Whale Sanctuary**). As the Australian Government continues to claim large areas of **seabed** in Antarctic waters and off the Australian coast under UNCLOS (UN Convention on the Law of the Sea), it should also consider these places for protection under Commonwealth law.

The Commonwealth must, as a matter of normal course, review **all marine reserves** dedicated as a result of marine bioregional assessment processes, for potential CHL or NHL listings. This should immediately be the case for the **South-East Commonwealth Marine Reserve Network**.

While parts of **Christmas, Norfolk and North Keeling Islands** and six marine reserves are currently listed in the CHL (including the **Tasmanian Seamounts**, nominated by HSI), the NHL still contains no river, refugia, island or marine listings (if you exclude World Heritage listed places).

HSI has continued to promote and nominate “**heritage species**” (**dingo and grey nurse shark critical habitats**) but the Commonwealth will not assess such proposals. HSI’s nominations covering multiple habitats for grey nurse shark were rejected outright. The Commonwealth should consider developing a specific “**heritage species**” category, much in the same vein as is being proposed by HSI for the World Heritage Convention.<sup>3</sup>

<sup>1</sup> Commonwealth of Australia (unpublished). *Natural Heritage Hotspots – A Picture of Distinctive Australian Landscapes: Technical Summary Number 2*. Produced from the Australian Heritage Assessment Tool Project for the Australian Heritage Council. Department of the Environment & Heritage, Canberra 2004.

<sup>2</sup> Since the original nomination, an ongoing Kimberley Islands Biological Survey by WA DEC has shown that there are no dingoes on Bigge Island (the record was erroneous) and that the population on Middle Osborn Island has died out. Andrew Burbidge, pers comm.

<sup>3</sup> Humane Society International (2008). *Gorillas under stress*. HSI Technical Bulletin, Issue 13, p.5.



Australian Wildlife Conservancy's Piccaninny Plains, Cape York.  
Photo by Michael Kennedy.

Prepared by Dr Judy Lambert AM (Community Solutions) and Michael Kennedy.

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