Submission 030
Date received: 29/07/2011

House Standing Committee on Climate Change, Environment and the Arts
Inquiry into Australia's biodiversity in a changing climate

SUBMISSION OF THE IUCN WORLD COMMISSION ON PROTECTED AREAS

This submission has been prepared on behalf of the Oceania Members of the IUCN World Commission on Protected Areas (WCPA). The International Union for the Conservation of Nature (IUCN) is one of the world's oldest and largest global environmental networks with more than 1,000 government and NGO Member organizations, and 11,000 volunteer scientists in more than 160 countries. IUCN issues the yearly Red List of Endangered Species and most of the world's protected areas, including Australia's are categorised under IUCN categories.

IUCN WCPA is the world's leading global network of protected area specialists which aims to add a science-based and apolitical voice to policy debates. The Commission is the principal body within IUCN which provides advice on natural and mixed natural-cultural World Heritage ~~Sites~~. Over 300 Australian Experts belong to this network from all sectors.

We shall list our comments under the headings stipulated by the Inquiry, where the Commission has relevant expertise. There may be some repetition due to different members drafting sections.

Overall, we make the point that for over a decade the IUCN World Commission has been promoting 'Connectivity Conservation' as the most appropriate approach to biodiversity conservation in a time of changing climate. We also note that this inclusive strategy is endorsed by virtually every major government strategic paper in recent times (See attachment A).

Connectivity Conservation advocates buffering and linking 'islands' of -protected areas into interconnected large-scale mosaics of lands managed cooperatively by many owners – national, state and local governments, private land trusts, indigenous people, primary producers and corporations. While some of these lands will be formal reserves, many will be complementary lands managed for sustainable agriculture or under conservation covenants or stewardship contracts. We also append two statements prepared after key meetings of the Linking Landscapes Group who with WCPA have championed this approach. (Attachments B&C).

However, the term 'connectivity conservation' is sometimes misinterpreted as only meaning native vegetation connections. Prof Brendan Mackey of ANU clarifies that the term should apply "to larger scale processes and phenomena which influence biological permeability and environmental flows at multiple scales, from catchment to continent, and beyond". (Personal communication 2010).

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SUMMARY POINTS

- *Biodiversity and climate change are profoundly interlinked. The values and many benefits which society derives from the diversity of life forms and ecosystems will be dramatically undermined by climate change as it increases and exacerbates threatening processes.*

- *Climate change will also deepen degradation processes and lessen the carbon storage capacity of natural systems.*

- *However, nature is not just a victim of climate change, but is very much part of the solution to mitigate the threats.*

- *Biodiverse environments - mature forests, woodlands, wetlands, alpine bogs, grasslands, salt marches, mangroves, store large amounts of carbon. The loss of such ecosystems means less carbon is sequestered. In contrast the management, enhancement and restoration of environments can sequester more carbon.*

- *Natural ecosystems, particularly protected areas, are the essential core lands of building resilience into the landscape to help secure the conservation of Australia's biodiversity.*

- *WCPA believes several key steps are essential for conserving Australia's biodiversity in a changing climate.*

- *The National Reserve System of protected areas must be completed and effectively managed to help ensure resilience of natural ecosystems and the conservation of key 'refugia' for our unique plants, wildlife and ecosystems in the dynamic world of climate change.*

- *Refugia outside the current National Reserve System must be rapidly identified and established as protected areas, the most secure form of conservation.*

- *A policy of achieving strategic, large-scale 'connectivity conservation areas' (National Wildlife Corridors) needs to be adopted and urgently implemented to ensure protected areas are interconnected across key parts of the Australian continent with these areas being actively managed through corridor management groups and voluntary conservation programs involving many land owners across all tenures.*

- *The design and management of large-scale connectivity corridors could include physical vegetation connections (landscape connectivity but it especially involves sustaining large scale processes and phenomena which influence biological permeability and environmental flows at multiple scales for the evolution, ecology and conservation of species and ecosystems (habitat connectivity, ecological connectivity and evolutionary process connectivity).*

- *Current biodiversity conservation governance arrangements do not always reference the context of climate change. The current arrangements focus heavily on political boundaries, which may not be appropriate in circumstances where species ranges and ecosystem structures will alter over time. This is the dynamic that climate change introduces to biodiversity conservation. Law and policy, and the institutions that support them need to be revised to facilitate a nationally consistent approach which overcomes the inherent fragmentation of our federal system to ensure a sustainable future for Australia's biodiversity.*

- *To build resilience in ecosystems we need to invest in both generating and maintaining social capital support. Biodiversity is central, but if we are going to better manage our natural systems then people also have to be inspired and motivated. It is imperative to build and sustain community engagement and build the capacity of people to engage over the long periods of time necessary for real change. Administration of 'Caring for our Country' and other programs have to put maintenance of social capital as a priority at both regional and local levels.*

- *Public policy must reflect the reality that defending the nation's natural capital is a vital on going requirement, which needs proper environmental accounting, solid secure funding and the maintenance of the vital social capital of willing hands across the nation. Therefore a national system of environmental accounts and a National Endowment Fund should be set up in perpetuity.*

- *Public policy must also reflect a need for investment in capacity building for conservation management including the potential for practical and theoretical skills development for people working on indigenous protected areas, connectivity corridors, protected areas and other conservation lands managed by all sectors. Building on existing formal undergraduate and post graduate training programs, the concept of an expanded and diversified University facilitated protected areas and conservation lands training institute or equivalent may be a useful mechanism for delivering practical and formal training on-site, on-line and face to face at University.*

1.0 TERRESTRIAL, MARINE AND FRESHWATER BIODIVERSITY IN AUSTRALIA AND ITS TERRITORIES

Australia has a special global responsibility for biodiversity conservation being one of only 17 megadiverse regions on Earth. These areas together harbour over two-thirds of life on Earth. Australia and the USA are the only two developed nations which are described as megadiverse. (NBCCAP Summary, David Lindenmayer)[1].

There would seem little purpose in repeating the many excellent publications in recent times especially the 2009 ***Australia's Biodiversity and Climate Change: A strategic assessment of the vulnerability of Australia's biodiversity to climate change***, Report to the Natural Resource Management Ministerial Council , CSIRO publishing. Their findings can be summed up in the statement "Australia's unique biotic heritage is at a cross roads".

WCPA would like to make only two key points:

- Our special status as a biodiverse, but developed nation gives us a compelling global responsibility. If we, as a functional, comparatively affluent, democracy, not plagued by poverty, war, or major dissent, cannot act to hold our immense evolutionary heritage of unique ecosystems, plants and animals, then there is little hope for the many less fortunate nations.

- Second as stated by Prof. Will Steffen and many others, climate change is only an 'exacerbater' of problems. If we could eliminate the threat of climate change tomorrow our biodiversity would still be under dire threat. The implication of this is we have to avoid 'siloing' climate change policy from biodiversity policy and look for the overlap and the 'win win'. For example eliminating camels from the arid zone is good for biodiversity and good for vegetation recovery which in turn sequesters carbon and increases the adaptive capacity of arid zone species. Landscape scale management of threats is a crucial element in achieving these overlapping goals.

[1] National Biodiversity and Climate Change Action Plan 2004-2007, Department of Environment and Heritage Canberra; David Lindenmayer (2007), "On borrowed time, Australia's Environmental Crisis and what we must do about it", CSIRO Publishing.

2.0 CONNECTIVITY BETWEEN ECOSYSTEMS AND ACROSS LANDSCAPES THAT MAY CONTRIBUTE TO BIODIVERSITY CONSERVATION

The IUCN World Commission on Protected Areas has been a long term advocate of strategic and enhanced connectivity conservation at a large-scale as a principal means of both addressing biodiversity loss through reducing fragmentation and enhancing opportunities for species movement and evolutionary adaptation in a climate change environment. The conservation of natural flora also helps to mitigate climate change effects.

We were centrally involved in the planning of the November 2009 Linking Landscapes Conference at Kingscliff, NSW. This conference summed up its messages in the Kingscliff Communiqué. The core message of the Communiqué remains valid.

> *"In the face of climate change deepening the already serious issues of land, water and species decline, we acknowledge the strengths of many government and community efforts, but scientific fact tells us we are not stemming the losses.*
>
> *Therefore we call for urgent action to dramatically upscale conservation and restoration of Australia's natural environment, and in doing so both secure the immense carbon found in natural systems and contribute to the resilience and adaptation capacity of species and systems.*
>
> *Building on the vital core protected areas and national parks we call for large scale connectivity initiatives across all land tenures which will include and honour the cultures, knowledge and experience of all Australians.*
>
> *We call for all sectors to inspire, encourage and promote integration of conservation and sustainable land management to secure the future of our economy, community wellbeing and our unique rich variety of ecosystems, plants and animals.* [2]

In December 2010 many of the same groups and individuals met to progress a shared vision of large scale connectivity initiatives for beneficial biodiversity, natural resource and climate change outcomes. The result is the Aiken Hill Communiqué which sets out supported key messages to government (Attachment D).

This 'whole of landscape' approach envisages large scale areas where core protected areas are buffered and linked by sustainable use and conservation management on many lands (or seas) and tenures. This approach is internationally endorsed by all major international conservation bodies and incorporated into the Convention on Biological Diversity's Programme of Works on Protected Areas[3] and recently adopted CBD 2020 Strategic Targets[4]. It promotes biodiversity by addressing fragmentation and building resilience while securing natural carbon sinks and providing many other positive benefits.

It is an inclusive approach to conservation which aims to mobilise governments, NGOs, philanthropic trusts, indigenous people, rural land holders and many other land managers to work cooperatively at varying scale. It can apply to marine as well as terrestrial landscapes.

The following key points are extracted from the Aiken Hill Communiqué.

[2] Kingscliff Communiqué http://www.linkinglandscapes.net.au/images/stories/communique_2009%20final.pdf
[3] For example CBD COP 7 Decision VII/28 Protected areas (Articles 8 (a) to (e).
[4] Convention on Biological Diversity Strategic Target 11: By 2020, at least 17 per cent of terrestrial and inland water, and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscape and seascapes.

2.1 'Green Corridors' to major national direction

- Large-scale integrated conservation is the major strategic direction for national terrestrial biodiversity conservation policy and practice and a major contributor to both climate change mitigation and adaptation. Caring for our Country should be reoriented to pursue this direction in future.

- A substantial community of government agencies, NGOs, NRM groups, indigenous people, private land trusts, farmers and the tourism industry stand ready to support this direction in public policy. It is not controversial; on the contrary the vast majority of people appreciate this inclusive approach.

- This approach is consistent with the Australian government's biodiversity and climate change adaptation documents, the Green Corridors Plan and, more significantly for the long term, with the goals of the recently released Australian National Biodiversity Strategy 2010-2030.

- Any landscape initiatives should acknowledge the commitment of Indigenous traditional owners and managers to manage their lands and waters for the health of the environment and for the many cultural, social and economic benefits healthy landscapes provide.

- Any strategic plan should also fully acknowledge the high level of current investment and generation of partnership approaches by existing landscape initiatives such as The Great Eastern Ranges Initiative[5], Habitat 141[6], Gondwana Link[7], NatureLinks in South Australia and the new Trans Australia Eco Link initiative in SA and NT[8].

2.2 Connectivity Conservation is Climate Change Policy

- Connectivity Conservation Initiatives should be planned for both biodiversity and climate benefits.

- Prioritising projects which deliver carbon and biodiversity benefits under schemes like the Carbon Farming Initiative are potentially important tools for helping all land managers deliver reductions in emissions arising from addressing degrading activities and improving sequestration from the ecological recovery of natural systems.

- Revenue from any carbon price should be set aside to foster protection and restoration of natural carbon stocks by reducing emissions associated with degrading activities and improving sequestration through long term protection.

- To achieve the ecological, social and economic goals of Connectivity Conservation, Natural Resource Management (NRM) and the National Reserve System (NRS) programs and their many partner organisations need to be recognised as equally important as complementary programmes. The Australian National Reserve System (NRS) provides the key sanctuaries of Australian biodiversity and is the cornerstone of any integrated approach to biodiversity across large landscapes.

[5] http://www.greateasternranges.org.au/
[6] http://www.parkweb.vic.gov.au/habitat141/habitat141flyer.pdf
[7] http://www.gondwanalink.org/
[8] www.naturelinks.sa.gov.au.

3.0 HOW CLIMATE CHANGE IMPACTS ON BIODIVERSITY MAY FLOW ON TO AFFECT HUMAN COMMUNITIES AND THE ECONOMY

3.1 Impacts on economic activity

- It is a sad commentary on our modern disconnect with nature that most urban dwellers do not perceive the intimate links between ecosystem and species health and human health and wellbeing. However, impacts on biodiversity associated with changing rainfall patterns and seasonal temperatures, increased storm events, and other changes in meteorological and atmospheric patterns associated with climate change, are likely to lead to significant impacts on human communities and economic activity.

- Beautiful landscapes and wildlife are central to much of the 'product 'of tourism in Australia. A fire/ flood/ cyclone ravaged landscape loses its appeal, the loss of wildlife removes the magic from many experiences and the proliferation of weeds and feral animals which are favoured by climate change also damage the fundamental 'assets' of brand Australia. The tourism industry of Australia is therefore very vulnerable to these impacts and in many cases this would detrimentally affect regional economies and employment possibilities for indigenous communities.

- To take one example: if salt water penetrates the World Heritage wetlands of Kakadu National Park, millions of trees will die and the habitat of many species will be destroyed. However, this would not just be an ecological disaster, but an economic and cultural disaster for the indigenous people for whom these species are both spiritually and economically important and for the tourism industry, which would lose a major asset.

- Another example, increased storm action and changes in sea temperatures and sea levels in coastal areas are expected to affect coastal ecosystems such as seagrass beds, mangroves, coastal saltmarsh and wetlands which protect a range of ecosystem services of economic value.

- Ecosystem services associated with these environments include nutrient and sediment capture and flood water retention in wetlands, nurseries for commercially valuable fish, prawn crab species in mangrove and sea grass environments, and carbon storage in coastal saltmarsh.

- Changing weather patterns in inland areas (for example in NSW) are estimated to lead to drier autumn, winter and spring seasons, and rainfall becoming summer-dominated. However higher summer temperatures are likely to cause greater evaporation to offset the additional rain. [9]

- In addition, changes in rainfall and temperature may lead to greater incidence of forest fires, with loss of timber resources and risks to human life.

- The 2011 Department of Climate Change and Energy Efficiency study of the Australian Alps catchments identified climate change impacts to the extent of snow cover and water yields which deliver 30% of the Murray-Darling Basin's water. The water is estimated to be worth in the order of $10 billion per annum for the national economy. Urgent adaptive catchment management responses have been recommended to help respond to forecast 10% less precipitation per annum, soil erosion, weeds and the impacts of more frequent and hotter fires.

[9] See NSW Climate Impact Profile
http://www.environment.nsw.gov.au/climateChange/20100171ClmtChngNSW.htm.

- Hotter, more humid conditions in some locations may favour certain insect species and lead to changes in the species composition of some ecosystems. These changing conditions may alter predator-prey relationships and affect the ability of native predator species to control pests affecting agriculture, forestry, aquaculture and commercial fishing.

- Beneficial ecosystem services such as pollination of agricultural and horticultural crops may be affected by changes in composition of species in ecosystems, with consequent loss of income to producers.

3.2 Heath Impacts

In addition to the economic impact of changes to ecosystem services for agriculture, forestry, fishing, water supply management, and recreation, another major category of social and economic impacts associated with climate change will be health impacts. The following section is taken from http://www.environment.nsw.gov.au/climatechange/health.htm.

- Such impacts include:
  - heat related mortality and morbidity and
  - mortality and morbidity related to extreme weather events

In addition to these direct heat impacts, climate change is also expected to have a range of indirect health impacts, including:
- increases in water and food borne disease
- changes in seasonality of vector borne diseases
- increases in health impacts of air pollution (ground level ozone and particles)
- population shifts and associated impacts on human health

- In 2009, the NSW Office of Environment and Heritage (OEH) funded a study to determine and characterise the health impacts of extreme heat events in five regions of NSW. The study found that on days of extreme heat, the risk of heat-related hospital emissions increased more than admissions from other causes. The study also found that people with particular underlying health conditions (such as mental and behavioural disorders and cardiac and respiratory diseases) were more susceptible to extreme heat. [10]

- In addition to the social and economic costs to individuals and communities from adverse health impacts, government welfare agencies will incur additional costs in meeting the increased demand for their services.[11]

3.3 Regional communities and climate change

The OEH is working on a cross-Government project to assess the vulnerability of communities in south-east NSW to climate change. This project will study the potential climate change impacts on human health, human settlements, water, agriculture, tourism, major infrastructure, natural landscapes and emergency services. The project is due to be completed during 2011.[12]

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[10] See also NSW Health Adaptation Project <NSW%20Health%20Adaptation%20%20Project%20> http://www.environment.nsw.gov.au/resources/climatechange/Lioyd.pdf

[11] See The Impact of Climate Change on Health Facilities<http://www.environment.nsw.gov.au/resources/climatechange/Cartheyedited.pdf> (Dr Jane Carthey, Centre for Health Assets, Australasia 2007) (pdf, 525 KB) http://www.environment.nsw.gov.au/resources/climatechange/Cartheyedited.pdf

[12] See http://www.environment.nsw.gov.au/climatechange/RegionalImpactsOfClimateChange.htm.

4.0 STRATEGIES TO ENHANCE CLIMATE CHANGE ADAPTATION, INCLUDING PROMOTING RESILIENCE IN ECOSYSTEMS AND HUMAN COMMUNITIES

WCPA and the Worldwide Fund for Nature (WWF) held a seminar in 2007 at the Academy of Science in Canberra: Protected Areas: buffering nature against climate change. The conclusions of this high level symposium remain solid. The following is an extract only edited to remove redundant elements overtaken by time. Publication available at http://www.wwf.org.au/publications/cc-report/.)

Extracts:
Now is a critical time to ensure that national and state climate change adaptation strategies give top priority to securing core lands and waters and enhancing resilience across the landscape. Species show resilience to climate change because they are able to move or retreat to refugia of favourable habitat or alternatively, are able to remain and thrive where they are by adapting.

Enhancing natural resilience has the following key elements:

- Identify and protect climate refugia;
- Conserve large-scale migration corridors;
- Maintain viable populations to enable adaptation;
- Reduce threatening processes at the landscape scale;
- Conserve natural processes and connectivity at the landscape scale;
- Special interventions to avert extinctions.

4.1 Identify and protect climate refugia

'Refugia' is the scientific term for places where favourable habitat will persist or develop as the climate changes. Refugia may exist through natural processes or as a result of human actions.

Refugia may already exist within the current range of a species. Locations that have served as refugia during past climate changes may serve as refugia for the present period of climate change. As conditions outside refugia become hostile with changing climate, a species will be lost from the wider range and persist only in the refugia. For example, fire sensitive plants and trees of moist forests may be eliminated by drought and bushfire through much of their range, persisting only in deep valleys where wetter closed forests survive. Fire suppression may help retain wet forest refugia that otherwise might disappear.

Also, refugia may not currently exist, but may develop outside of the current range of the species as climate zones shift and ecosystems shift with them. In this case it will be crucial to also identify and protect these new refugia and migration corridors to them. Identifying new refugia presents significant methodological hurdles but is an essential job to ensure reserve system decisions are optimal for enhancing natural resilience (Hilbert this volume).

4.2 Conserve large-scale migration corridors

Habitat fragmentation and degradation present significant barriers to species that may need to move to new habitats and refugia. Successful migration requires viable source populations and habitats, destination refugia, and large-scale connectivity in the form of migration corridors or stepping stones between sources and destinations.

For example, highland rainforest frog species need sufficiently large source populations to produce enough colonists to reach distant refugia. They also need stepping stones of streams or wetlands spaced so that colonists can move safely between them. Alternatively, frog eggs may be carried by water birds to new habitats. Destination refugia must also be protected with appropriate resources and natural processes to allow successful growth and reproduction.

Since every species has other species and resources it depends on with similar requirements, whole communities may need to move together for any given species to survive. This kind of biological *permeability* is needed at large scales with corridors of the order of tens to hundreds of kilometers across all tenures, to facilitate the migration of animals and plants tracking shifting climatic zones and generally requires protection of extensive areas with intact native vegetation cover.

However, it also important to remember that enhanced connectivity may also favour some native species perhaps to the detriment of other high conservation value species as well as favouring exotic invasive species, thus requiring more effort to control weeds and pests. The scale and pattern of connectivity must be tailored to the needs of priority species, considered on a bioregional basis.

4.3 Maintain viable populations to enable adaptation

Replication of habitats in the reserve system is a vital form of insurance against the risk of extinction by protecting multiple source populations, climate refugia and migration corridors. Even without climate change, small isolated reserves lose species over time as the result of chance events. For example a disease or fire might wipe out a reptile population in a small rainforest patch. If that is the only remaining habitat, the species is lost forever.

Multiple source populations and destination refugia, and multiple migration routes within large-scale corridors across the entire geographic range of a species are needed for an acceptably low risk of extinction in a dynamic landscape. Replication is a central element in determining the *Adequacy* of the reserve system (Young this volume). The *Representativeness* goal of the National Reserve System is also a means of ensuring replication.

With sufficient replication a species can also remain viable with diverse populations and so retain capacity to adapt to the new climate to remain where they are. High genetic diversity in source populations may also permit evolutionary adaptation to changed climate.

For example, multiple refugia for many plants in the Australian Alps are already entirely within the national park system, highlighting the importance of having large reserves with a great diversity of habitats. One way to ensure reserve systems capture a great diversity of habitats, refugia and migration corridors is to ensure reserves encompass significant environmental gradients of temperature, altitude and rainfall across landscapes.

4.4 Reduce threatening processes at the landscape scale

Recovering resilience for natural systems requires significant reduction of threatening processes. The weaker natural systems are from multiple threats, the greater the likely impact of the additional stresses of climate change.

The major threats impairing natural resilience to climate change are:

- Land clearing and resulting loss and fragmentation of core habitats and migration corridors;
- Unsustainable extractive land use activities, primarily livestock grazing and logging;
- Changed hydrology and extraction of water;
- Invasive weeds and animal pests;
- Inappropriate fire regimes (intensities, frequencies and timings).

Climate change may make many existing threats worse:

- Bushfire risk becomes more extreme with climate change-induced drought and high temperatures;

- Exotic species invasions may be enhanced as native ecosystems come under stress;
- Escalating economic demands and shifts in human populations due to climate change may result in more water extraction and conversion of natural areas to agriculture and settlements.
- In particular the largely intact northern savannahs and rivers face renewed efforts to intensity agriculture as prolonged drought and unsustainable practices reduce production in the southeast of the country (Blanch this volume).

A precautionary approach requires prevention of land clearing, water diversion and intensification of uses in remaining natural areas in order to preserve options for a comprehensive climate adaptation response.

Some of these threats are eliminated by creating protected areas. However protected area boundaries rarely contain all necessary elements of high conservation value native ecosystems and must be managed in conjunction with adjoining lands. Some threats like feral pests and weeds can only be managed both on and off reserves. Continuance of threats through poor management practices on adjacent off-reserve lands can detract from the protection provided by the reserve system.

To best deal with threats comprehensively, threat management has to be coordinated across land management agencies at appropriate scales. Bioregional approaches by definition incorporate the full physical variation of natural environments into landscape planning and so are the most appropriate tools. For transboundary and whole-of-nation climate change threats to protected areas, a new, co-operative and integrated management plan is needed, in addition to individual state, territory and Commonwealth initiatives (Worboys this volume). Given adequate financial resources, this will ensure that critical climate change threats that affect multiple bioregions and jurisdictions are dealt with systematically and effectively.

4.4.1 Fire

There is significant pressure to control fires on reserves primarily to protect built assets on neighbouring lands. Fire management agencies must recognise that the prime purpose of protected areas is natural asset protection and must adopt an ecological approach driven by scientific evidence, goal setting, monitoring and evaluation.
Conversely, protected area managers will also have to accept that a new climate may bring a permanent change to fire regimes and ecosystems. They must:

- find ways to manage species "turnover" as a result of changing fire regime, while minimising losses of key biodiversity assets;
- identify and protect fire refugia where natural fire regimes can feasibly be retained.

4.4.2 Invasive species

Invasive weed and pest species are a major threat to Australia's biodiversity and are expected to be climate change 'winners' in general. They generally demand the greatest management effort of protected area managers.
Controlling or eliminating invasive species at a landscape scale by closely coordinating on- reserve and off-reserve control actions is essential to allow recovery of natural resilience.
At the same time efforts to stop new and emerging invasive species before they become problems need to be redoubled.

4.5 Conserve natural processes and connectivity at the landscape scale

IUCN WCPA has developed the concept of strategic, large-scale 'connectivity conservation' in response to the extinction crisis.

Connectivity conservation focuses on maintenance and restoration of ecosystem integrity across entire landscapes. Connectivity is built around core habitats or refugia protected in reserves which are linked and buffered across different tenures and land uses in ways that maintain natural ecosystem processes. Such non-fragmented landscapes will better allow species and ecosystems to survive and move, thus ensuring that populations are viable, and that both ecosystems and people are able to adapt to land transformation and climate change. Connectivity conservation is a proactive, holistic, and long term approach which is achieved by agreements, incentive schemes, land-use planning, philanthropic actions, business transactions or other appropriate actions.

One element of connectivity is migration corridors allowing species to adapt to shifting climate zones to climate refugia.

A second element is the maintenance of the natural processes and access to resources that the species needs to survive when they arrive and establish in those refugia such as:

- food and water sources;
- pollinators, dispersal agents and other beneficial species;
- cover and shelter from enemies and weather;
- nest, breeding and germination sites.

The challenges for connectivity conservation are to:

- identify and enhance desired flows particularly for keystone, endangered and vulnerable species;
- monitor and hinder threatening processes such as feral pests and weeds;
- coordinate these actions across tenures and land management regimes both on and off the reserve system.

4.6 Special interventions to avert extinctions

In some cases, climate refugia or core habitats cannot be maintained or are unlikely to persist naturally. Moreover, migration may not be possible. In such cases, intensive management may be needed to ensure valued species or ecosystems are not lost. This is of greatest concern for species whose high mountain habitats may "disappear" with climate change, with little chance of successful natural migration to refugia. However, such interventions may be less cost effective and more risky in the long term than protecting intact natural areas.

5.0 MECHANISMS TO PROMOTE THE SUSTAINABLE USE OF NATURAL RESOURCES AND ECOSYSTEM SERVICES IN A CHANGING CLIMATE

- The future of conservation is innovation – new models and new partnerships. This is clearly already evident in Australia with exciting innovations such as the Indigenous Protected Areas, which are seen as globally significant new forms of governance, the development of a major private land trust sector and increasing numbers of innovative economic instruments.

- We are also seeing many new and interesting partnerships emerging and new entrants into conservation activities e.g. the purchase recently by RM Williams of a

major arid lands property for restoration for the biodiversity and consequent carbon credits.[13]

- This is only the beginning and there is great scope for new models to emerge particularly in combining biodiversity goals with climate mitigation (carbon sequestration) and adaptation goals. There is scope for many elements of Australian society to be involved in these new forms of conservation especially large land managers such as indigenous, defence, pastoral and mining sectors.

- However for this complex 'tool box' of new models to continue to emerge will require support by all levels of government. Innovative governance requires grants to the voluntary sector to maintain a viable NGO community, incentive mechanisms, stewardship payments, rate and taxation incentives and multiple biodiversity and carbon market mechanisms to encourage conservation on private lands, investment in large scale biodiverse vegetation restoration and terrestrial carbon plantings.

6.0 AN ASSESSMENT OF WHETHER CURRENT GOVERNANCE ARRANGEMENTS ARE WELL PLACED TO DEAL WITH THE CHALLENGES OF CONSERVING BIODIVERSITY IN A CHANGING CLIMATE

In order to facilitate best practice governance arrangements to conserve biodiversity it is necessary to recognise not only the interactions between species, ecosystems and environments, but that these will change with the changing climate. Therefore, laws, policies and institutions must facilitate protection at the bioregional landscape scale and be flexible enough to adapt to change.

Governance arrangements in Australia are, however, fragmented – both vertically and horizontally – which hampers current biodiversity conservation efforts and ill-equips the nation to deal with the future challenge of climate change. Four key issues are identified below.

6.1 Australia's constitutional arrangements

Australia's constitutional arrangements have led to vertical fragmentation of biodiversity conservation efforts between different levels of government. The lack of any specific 'environment' power in the Australian Constitution has meant that in order to pass federal legislation, some other constitutional power must be utilised. In most cases this is the 'external affairs' power but the 'corporations' and 'trade and commerce' powers have also been used. For example, the principal piece of environmental legislation at the Federal level is the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBCA). This legislation implements a number of pieces of international law regarding biodiversity conservation including the Convention on Biological Diversity, Convention on Migratory Species, Convention on International Trade in Endangered Species, Ramsar Convention on Wetlands of International Importance and the World Heritage Convention. This has provided a coordinated framework within a single harmonising legal instrument that represents a significant advance on previous law. But the restrictions on federal jurisdiction mean that it is of limited application and scope.

The last 50-60 years has seen a general increase in the use of constitutional powers at the federal level, in many cases driven by international law developments. This trend has had the positive effect of drawing national attention to key issues and in many cases generating funding and resources. But it has widened the division between the national and local levels. Other developments, particularly the establishment of regional bodies (eg Catchment Management Authorities), have taken place and these multiple efforts must be integrated to ensure coordination from the national to local levels.

[13] http://www.environment.gov.au/parks/nrs/getting-involved/case-studies/pubs/henbury-carbon.pdf

The States retain the primary power to pass laws for biodiversity conservation and have done so in each jurisdiction, as discussed below. Although guidance has been provided at the national level through the National Strategy for the Conservation of Australia's Biodiversity and *Australia's Biodiversity Conservation Strategy 2010-2030,* each state and territory is responsible for their own laws, policies and plans. Whilst flexibility is important, responses have been varied and a more harmonised approach is necessary to maintain well-functioning ecosystems and ensure biodiversity conservation. In some cases governance approaches are based on bio-regional (eg catchment management in respect of water), but this is not standardised across the country and any one State may have different arrangements to another (eg coastal zone planning and management also differs from state to state.)

These vertically fragmented governance arrangements are not suitable to address the complex issues facing biodiversity in the face of climate change in Australia. Integration is needed across all levels including local government which has the closest connection to communities and responsibility for most land use planning decisions - which in many cases most directly influence habitats and ecosystems. In essence this is a cross-tenure issue whereby the interconnectedness of species and landscapes, which do not respect political boundaries, is not being catered for with respect to terrestrial areas. Harmonisation of laws and policies across politico-legal boundaries must be prioritised if bioregional biodiversity conservation is to be advanced to address the impacts of climate change.

6.2 Sectoral Division

The vertical fragmentation is compounded by sectoral division within the framework of environmental law. This is particularly evident at the state level where different laws and institutions govern various aspects of the environment. Although each state varies, in most cases there are separate pieces of legislation covering threatened species (eg Threatened Species Conservation Act (NSW), Wildlife Conservation Act (WA)), protected area management (eg National Parks and Wildlife Act 1974 (NSW), National Parks Act 1975 (VIC)) land use planning and development approval (Environmental Planning and Assessment Act 1979 (NSW), Planning and Environment Act 1987 (VIC)), pollution (Protection of the Environment Operations Act 1999 (NSW), Environmental Protection Act 1986 (WA)), water allocation and usage (Water Management Act 2000 (NSW), Water Act 2000 (QLD)). Added to this is the challenge of governing marine environments and the land-water interface which tends to be dealt with in separate legislation: Marine Parks Act 2004 (QLD), Coastal Protection and Management Act 1995 (WA), Coastal Protection Act 1979 (NSW)).

Whilst each of these legislative responses is an essential component of an appropriate biodiversity governance regime, none by themselves provide a complete solution. Land use planning clearly affects the protection of habitats, the degradation of which is a major driver of biodiversity loss. Threatened species legislation plays an important part in protecting species but by itself cannot protect biodiversity as it generally requires overwhelming evidence before a species is listed (which is not possible where data is poor). Similarly, protected area management legislation is an important tool for conservation, but may inadequately deal with the dynamic nature of ecosystems. Many species are not static (eg migratory species) and many more will alter their range in the face of climate change. This adds to the importance of achieving synergy across environmental governance regimes

Thus, this horizontal fragmentation, between laws addressing various environmental threats and concerns, adds to the vertical dissonance between levels of government and governance. Much greater integration is needed between different actors, institutions and regulation and

These weaknesses are exacerbated in a changing climate. Biodiversity is already under pressure and will undoubtedly suffer further in the context of climate change. Even if the current governance regime protected biodiversity to the maximum extent possible today, it is poorly-equipped to address future changes. Many of these regulatory instruments were put in place prior to the emergence of climate change as a significant driver of biodiversity loss.

Therefore, climate change has been added to the regimes rather than being the focus of legislative goals. Where current legislation does refer to climate change little guidance is provided to assist decision-makers in implementing policies and plans to address impacts and facilitate adaptation. Whilst it is important that climate change is dealt with in a holistic manner, alongside other biodiversity threatening processes, much greater attention needs to be paid to the translation of broad goals into action on the ground. In particular regard needs to be had to utilising a range of modern regulatory options (eg market-based mechanisms, economic instruments etc) to achieving positive biodiversity outcomes.

6.3 Separation of disciplines and actors

A further point of disjuncture is the separation of disciplines and actors. In particular, the development of law and policy has tended to be isolated from science. As increasing scientific evidence emerges, in terms of climate change impacts on species, ecosystems and landscapes, governance arrangements must be equipped to respond swiftly and facilitate the uptake of adaptation strategies. Consistent and robust pathways must be provided for science to feed into governance mechanisms. Better integration would facilitate faster responses to new stressors. Furthermore, it would assist with connectivity conservation providing wildlife corridors and landscape scale ecosystem conservation, essential in a changing climate where species' range will alter.

Similarly, arrangements must facilitate the involvement of all key stakeholders including communities and non-governmental organisations, both of which continue to play an important part in biodiversity conservation and are likely to have a more significant role in the future.

The current governance arrangements in Australia mean that there is a complex array of laws, policies, plans, institutions and actors of relevance to biodiversity conservation and action on climate change. Complexity and fragmentation are not necessarily problematic but if they conflict or overlap they become inefficient and in some cases counterproductive. Coordinated approaches which operate synergistically need to be identified and implemented.

In order to be able to address the coming challenges a stronger nationally consistent governance regime must be developed, involving COAG agreements for uniform legislation across each state and participatory institutions to support adaptation initiatives. It is unlikely that a one-size-fits-all approach could or should be identified. But a range of governance options needs to be identified that facilitate a coordinated response. Current governance arrangements in many cases are specifically aimed at protecting biodiversity but not necessarily in the context of climate change. The current arrangements focus heavily on political boundaries, which is inappropriate in circumstances where species ranges and ecosystem structures will alter over time. Law and policy, and the institutions that support them, can provide a platform for biodiversity conservation in the face of climate change but attention needs to be paid to facilitating a nationally consistent approach which overcomes the fragmentation outlined above to ensure a sustainable future for Australia's biodiversity.

7.0 MECHANISMS TO ENHANCE COMMUNITY ENGAGEMENT.

- Over the last few decades Australians have shown that they are willing to contribute to the health of their nation's biodiversity. Millions have participated in Landcare, Dune care, Greening Australia Conservation Volunteers and the myriad programmes of NHT and Caring for our Country.

- The Commonwealth, States and Territories support a large number of programs aimed at addressing biodiversity loss. However, without exception, the cost to Australia of loss and degradation is in the billions but the investment in holding and improving our natural capital is in inappropriately modest millions. The recent announcement of a Biodiversity Fund of $946 million over six years to deal with climate change is a welcome boost.

- Lack of funding can diminish and exhaust the critical social engagement of the community. Too many people drop out from 'grant application fatigue'. The need to address threatening processes is not an issue of 'projects' which begin and end. The task of land and coastal management will be on going whether it is fire management, weed and feral animal control or revegetation. We need to recognise this more explicitly with a large national environmental endowment fund which can identify strong on-going programs and give them secure funding over many years against identified outcomes.

- Various proposals for a national environmental endowment fund have been put forward to fund long term effective management. These proposals should be seriously examined to provide the major on-going funding needed to ensure Australia's biodiversity and ecosystem health and all related benefits to Australia are not severely degraded. A percentage of the revenues derived from the carbon price could be allocated to these initiatives.

- In addition we need far more programs of active engagement of ordinary urban people in the natural world. Canada has many such innovative programs. New Australians should be given a Parks Pass with their citizenship papers and invited into our parks. Like Canada we should use our urban parks to teach people how to camp, bush etiquette and basic bush walking rules. Providing opportunities to understand how indigenous people valued and used species is also vital. Park Agencies should be actively encouraged to develop programs at low cost for school children to know and love the Australian outdoors with all its profound cultural and natural values.

Thank you for the opportunity to contribute to this important Inquiry.

ATTACHMENT A

INTERNATIONAL AND NATIONAL DOCUMENTS WHICH SUPPORT LANDSCAPE SCALE CONNECTIVITY CONSERVATION.

Convention on Biological Diversity
The Landscape-scale connectivity approach is entirely line with many key recommendations of the Strategic Goals of the Convention on Biological Diversity passed recently at the 10th COP in Nagoya Japan, in particular Targets 11 and 15:

Target 2: By 2020, at the latest, biodiversity values have been integrated into national and local development and poverty reduction strategies and planning processes and are being incorporated into national accounting, as appropriate, and reporting systems.

Target 5: By 2020, the rate of loss of all natural habitats, including forests, is at least halved and where feasible brought close to zero, and degradation and fragmentation is significantly reduced.

Target 7: By 2020 areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity.

Target 8: By 2020, pollution, including from excess nutrients, has been brought to levels that are not detrimental to ecosystem function and biodiversity.

Target 9: By 2020, invasive alien species and pathways are identified and prioritized, priority species are controlled or eradicated, and measures are in place to manage pathways to prevent their introduction and establishment.

Target 11: By 2020, at least 17 per cent of terrestrial and inland water, and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscape and seascapes.

Target 12: By 2020 the extinction of known threatened species has been prevented and their conservation status, particularly of those most in decline, has been improved and sustained.

Target 13: By 2020, the genetic diversity of cultivated plants and farmed and domesticated animals and of wild relatives, including other socio-economically as well as culturally valuable species, is maintained, and strategies have been developed and implemented for minimizing genetic erosion and safeguarding their genetic diversity.

Target 14: By 2020, ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and well-being, are restored and safeguarded, taking into account the needs of women, indigenous and local communities, and the poor and vulnerable.

Target 15: By 2020, ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced, through conservation and restoration, including restoration of at least 15 per cent of degraded ecosystems, thereby contributing to climate change mitigation and adaptation and to combating desertification.

Target 17: By 2015 each Party has developed, adopted as a policy instrument, and has commenced implementing an effective, participatory and updated national biodiversity strategy and action plan.

Target 18: By 2020, the traditional knowledge, innovations and practices of indigenous and local communities relevant for the conservation and sustainable use of biodiversity, and their customary use of biological resources, are respected, subject to national legislation and relevant international obligations, and fully integrated and reflected in the

implementation of the Convention with the full and effective participation of indigenous and local communities, at all relevant levels

Target 19: By 2020, knowledge, the science base and technologies relating to biodiversity, its values, functioning, status and trends, and the consequences of its loss, are improved, widely shared and transferred, and applied.

Australia's Biodiversity Conservation Strategy 2010-2030
The Landscape-scale Connectivity approach is entirely in line with ***all*** the key recommendations of Australia's Biodiversity Conservation Strategy 2010-2030 to enhance resilience.

The 10 national targets are as follows:

1. By 2015, achieve a 25% increase in the number of Australians and public and private organisations who participate in biodiversity conservation activities.
2. By 2015, achieve a 25% increase in employment and participation of Indigenous peoples in biodiversity conservation.
3. By 2015, achieve a doubling of the value of complementary markets for ecosystem services.
4. By 2015, achieve a national increase of 600,000 km2 of native habitat managed primarily for biodiversity conservation across terrestrial, aquatic and marine environments.
5. By 2015, 1,000 km2 of fragmented landscapes and aquatic systems are being restored to improve ecological connectivity.
6. By 2015, four collaborative continental-scale linkages are established and managed to improve ecological connectivity.
7. By 2015, reduce by at least 10% the impacts of invasive species on threatened species and ecological communities in terrestrial, aquatic and marine environments.
8. By 2015, nationally agreed science and knowledge priorities for biodiversity conservation are guiding research activities.
9. By 2015, all jurisdictions will review relevant legislation, policies and programs to maximise alignment with Australia's Biodiversity Conservation Strategy.
10. By 2015, establish a national long-term biodiversity monitoring and reporting system.

Implications of Climate Change for Australia's National Reserve System
Connectivity Conservation is also well in line with the ***2008 Report Implications of Climate Change for Australia's National Reserve System***14 which said:

"Species and ecosystems will change in their requirements and distributions, therefore ensuring that widespread and diverse habitat is protected in the future will be essential for conserving species. The bioregional framework used to develop the NRS targets habitat diversity at multiple scales; this is an excellent process for strategically developing a system of protected areas that will remain effective under climate change. However, to be effective the bioregional framework must be implemented as widely as possible through the NRS and other habitat protection programs."

Australia's Biodiversity and Climate Change
This approach is also consistent with the 2009 Australia's Biodiversity and Climate Change Report (the Steffan Report) which said:

"a central strategy is giving ecosystems the best possible chance to adapt by enhancing their resilience. Approaches to building resilience include managing appropriate connectivity of fragmented ecosystems, enhancing the National Reserve System, protecting key refugia, implementing more effective control of invasive species, and

14 Dunlop, M., & Brown, P.R. 2008. *Implications of climate change for Australia's National Reserve System: A preliminary assessment.* Report to the Department of Climate Change, Department of Climate Change, Canberra, Australia.

developing appropriate fire and other disturbance management regimes. In some instances, ecological engineering will need to be considered.15

Caring for our Country
The government has good commitments in many strategic documents to this approach. The six Caring for our Country priorities are also highly compatible with the notion of mosaics of land, under multiple governance and ownership all contributing to a more resilient landscape.

The ALP platform
The ALP platform on the environment as set out in ***A Healthy Environment 2010*** sets out policies which support the Landscape-scale Connectivity approach.

Green Corridors Plan
The Gillard Labor Government will invest $10 million over the forward estimates to build the resilience of our environment to climate change. We will work with the 56 regional natural resource management groups to develop a National Green Corridors Plan to prepare our native plants and animals as well as our agricultural landscapes for climate change.

Federal Labor will work with the community through regional natural resource management groups to plan these Green Corridors on a continental scale. Green Corridors will link up national parks and reserves with well managed private land. Farmers will be encouraged to participate on a voluntary basis through incentives such as stewardship payments, capital grants or support from volunteer conservation organisations. The Plan will guide future investments under Caring for our Country.

The National Green Corridors Plan will consider climate change impacts and identify critical linkages in the landscape to allow the migration of species. It will also aim to protect natural stores of carbon in native ecosystems to minimise our greenhouse gas emissions.

As the National Green Corridors Plan is being finalised, Federal Labor will support regional natural resource management groups to revise their regional plans to help coordinate action at the regional, state and national scale. We will also pilot this approach in at least one region to test its effectiveness.

Manage native species and natural resources at the landscape scale
A re-elected Gillard Labor Government will take a more strategic, landscape-scale approach to managing biodiversity. To implement this broader landscape scale approach, in its second term Federal Labor will:

- Improve the Australian community's awareness of our unique biodiversity, and increase our collective understanding of how it contributes to our health and wellbeing.
- Continue to clearly identify our priorities, and use these priorities to focus our investment and our regulatory efforts.
- Coordinate our investment in parks and reserves with complementary programs that support good management elsewhere in the landscape, for example, through supporting farmers in voluntary environmental stewardship schemes.
- Make greater use of markets by properly valuing biodiversity in the economy and in our daily lives.
- Continue to invest directly in the environment, but more strategically, clearly stating the priorities we are seeking.

15 Steffen W. et al 2009, *Australia's Biodiversity and Climate Change*, Department of Climate Change.

ATTACHMENT B
TEXT OF THE KINGSCLIFF COMMUNIQUE FROM THE LINKING LANDSCAPES SUMMIT 2009

Introductory Message from Bob Debus MP

Dear colleague

When I was asked to support the development of this urgent message to all governments and the community on the need to strongly increase efforts to achieve large scale conservation I was happy to accept.

We face environmental problems of unprecedented urgency. The global financial crisis is responding to effective public policy and its getting better. The global environmental crisis is getting steadily worse. We need a national defence strategy for our environment.

In 2007, as State Minister for the Environment I was privileged to launch the New South Wales component of a conservation corridor stretching 2,800 kilometres along Australia's Great Eastern Ranges.

I was convinced then and now that the concept of working with private and public land managers to make links between national parks and other reserved lands across the Australian landscape is fundamental to the security of our iconic natural and cultural environment. We need to link nature and also to link people so that we better respond to the increasing fragmentation of habitat and growing threats associated with climate change. Through creation, protection and restoration of major ecological corridors we will give our species the best chance of survival and at the same time store carbon in healthy forests, woodlands, swamps, grasslands, farmland and soils.

This approach, known internationally as 'connectivity conservation' will also bring communities together with a common vision and purpose. Too often in the past conservation was seen as the task of government and environmentalists. We now understand it is in everyone's interest and that all Australians have a role. We understand that damaged environments are bad for us all. On the other hand healthy, thriving environments are good, not only for our unique plants and animals, but for water catchments, fisheries, natural biological controls, human health and the Australian tourism industry - the lifeblood of many regional economies. More recently we have understood that the protection and restoration of natural systems will critically improve carbon storage capacity.

The Kingscliff Summit meeting brought together an exceptionally wide range of interest groups who in turn gave broad support to connectivity conservation strategies. This is extraordinarily encouraging because we need support from the highest level of government to the grassroots communities to realise our vision of linkages in the landscape.

The Hon. Robert Debus MP

THE KINGSCLIFF COMMUNIQUÉ: 2009

We are facing a time of profound threat to our nation's biodiversity, ecological health, productivity and the wellbeing of society. An unprecedented Summit, brought about by this threat, was held in Kingscliff NSW 6th – 7th October, 2009. Over one hundred representatives came together from the diverse fields of science, land and natural resource management, conservation, NGOs, green carbon, business and philanthropic sectors.

The Summit was driven by a shared sense of urgency. As a result, we are calling for the development of an innovative national network of landscape scale conservation corridors. This is a national response to the formidable challenges of climate change as it exacerbates existing threats to the degradation of ecosystems and species. Without such action there will be serious, insurmountable losses to Australia's economy, culture and society.

Connectivity Conservation is a whole of landscape approach to conservation that promotes biodiversity, climate change mitigation and resilience. Protected areas are buffered and linked by lands managed on many tenures for both conservation and sustainable use.

What is being proposed is essentially new, as integrated conservation efforts to date have faced problems of 'silos'. While the Commonwealth's 'Caring for Our Country' Initiative contains both National Reserve System (NRS) and Natural Resources Management (NRM) programmes and many strategic documents, including the National Biodiversity and Climate Change Action Plan and the recent Steffen Report on Biodiversity and Climate Change have endorsed the need for 'partnership approaches' for 'ecological connectivity', there have only been limited linkages in both policy and implementation.

With 70% of Australia's land mass under private land managers, support and leadership from government is not all that is needed. We need to work together with Indigenous and other private landholders on a large scale response appropriate to the scale problem. Our aim is to link people and link land.

For over 50,000 years Indigenous Australians have seen themselves as part of the environment not separate or different from it. Landscape scale connectivity conservation reconnects us to the land. We were asked to "listen to the land" by a representative of the Bundjalung Nation. We did and this is our message.

Our message: We need a National Defence Strategy for Australia NOW
"With climate change deepening the already serious issues of land, water and species decline, we acknowledge the achievements of existing government and community efforts, but scientific fact tells us we are not stemming the losses.

As a result we call for urgent action to dramatically upscale conservation and restoration of Australia's natural environment, and in doing so both secure the immense carbon found in natural systems and contribute to the resilience and adaptation capacity of species and systems.

Building on the vital core protected areas and national parks we call for landscape scale conservation corridors across all land tenures which will include and honour the cultures, knowledge and experience of all Australians. We call for all sectors to inspire, encourage and promote integration of conservation and sustainable land management to secure the future of our economy, community wellbeing and our unique rich variety of ecosystems, plants and animals.

We believe this is nothing less than a Natural Defence Strategy for Australia."
Steps towards a National Defence Strategy

ACTION IS NEEDED NOW

1. National, state and local governments should commit to landscape scale connectivity conservation as a critical strategic platform with the capacity to deliver major national objectives: supporting biodiversity conservation; retaining and sequestering carbon; providing for species adaptation; retaining key services such as water catchments and coastal protection; supporting regional communities and economies through sustainable landuse and tourism; and maintaining the health and wellbeing of society.

WE MUST WORK TOGETHER

2. The national importance of the issues needs to be acknowledged within COAG. Approaches to connectivity conservation to be urgently developed involving all relevant departments of government and the community.

3. The widest range of partners including the business sector must be engaged in developing and implementing initiatives. Partners in landscape scale conservation are ready to work with the federal, state and territory governments to identify strategic priorities.

4. The critical rights, knowledge and roles of Indigenous communities in landscape scale conservation must be acknowledged and respected. Policies of all parties need to foster organisational, community and individual capacity for people to contribute their experience, knowledge and skills to the national effort.

5. Natural Resource Management (NRM) and the National Reserve System (NRS) programs and their many partner organisations need strong support as complimentary programmes in delivering a sustainable future. Stronger links between natural resource management other land managers must be established and nurtured.

6. National Parks and protected areas must remain as the core natural and cultural lands to be built on and managed effectively. The NRS needs continued strong resourcing for acquisition and management.

SECURE INVESTMENT IS ESSENTIAL

7. An exponential increase in the investment in landscape scale conservation is required by government and other sectors. This investment must be commensurate with the scale of the challenges and the actual and potential losses to the nation. This can be achieved by;

   - supporting existing landscape scale initiatives
   - providing incentives for land owners and managers through the current taxation review for sustainable land use processes and conservation initiatives
   - Investing in the development of large scale biodiverse carbon plantings (millions of hectares) across regional Australia to provide job opportunities, mitigate climate change effects, assist adaptation and respond to the global biodiversity crisis
   - Providing long term, consistent funding delivered by an endowment fund; the Wentworth Group and others have suggested an option could be via a percentage of the revenue generated from the sale of CPRS emissions permits.
   - recognising the value of Australia's natural systems as 'green carbon' and factoring this into Australia's climate change response, including both market

and complimentary measures to fund conservation area retention and restoration to secure carbon.

8. All sectors should work to develop a practical system of national landscape scale "environmental accounts" to measure and monitor the health of, and investment in, our environmental assets.

9. Landscape scale initiatives must be supported by major efforts to address key threatening processes like: development pressure on fragile ecosystems, inappropriate grazing regimes, industrial logging, land clearing, inadequate management of invasive plants and animals, inappropriate fire and poor water management.

10. Given the essential roles of private landholders, we need urgent reviews at all levels of government to ensure incentives are maximised and disincentives removed, to encourage participation in connectivity conservation.

11. Governments need to support the development of good science combined with land holder experience and traditional knowledge. This must be available as the basis for planning, monitoring and evaluation in landscape scale conservation.

CONCLUSION

Every recent assessment of Australia's biodiversity has reaffirmed a grim future for species, systems and many areas of landuse. All participants in the Linking Landscapes Summit were united in a sense of urgency and a belief that major, large scale response is essential in dealing with these big issues.

This approach has global endorsement. In 2006 the leading international 'protected areas body' (World Commission on Protected Areas of the International Union for the Conservation of Nature) issued the Pappallacta Declaration:

"The maintenance and restoration of ecosystem integrity requires landscape-scale conservation. This can be achieved through systems of core protected areas that are functionally linked and buffered in ways that maintain ecosystem processes and allow species to survive and move, thus ensuring that populations are viable and that ecosystems and people are able to adapt to land transformation and climate change. We call this proactive, holistic, and long-term approach connectivity conservation."

Australians are not just losing our unique landscapes, animals and plants but the natural capital and wealth of our country on which we all ultimately depend. It is not a time for silence, silos or cynicism but a time for all sectors to work together to adopt the key directions of this communiqué, and work together in partnerships for connectivity conservation across the Australian continent.

This Communiqué was circulated to all participants prior to the conference for responses. At the conference delegates were provided with opportunities to offer changes. The final Communiqué was debated and key points adopted by the conference in the final session of the Summit. The Communiqué therefore reflects a consensus of individual experts but is not intended to be a formal policy position of the organisations to which delegates are affiliated.

ATTACHMENT C

LINKING LANDSCAPES
Collaboration

AIKEN HILL COMMUNIQUÉ 2010

The Linking Landscapes Collaboration was initiated at the November 2009 Linking Landscapes Conference at Kingscliff, NSW. This conference summed up its messages in the Kingscliff Communiqué. The core message of the Communiqué remains valid.

> *"In the face of climate change deepening the already serious issues of land, water and species decline, we acknowledge the strengths of many government and community efforts, but scientific fact tells us we are not stemming the losses.*
> *Therefore we call for urgent action to dramatically upscale conservation and restoration of Australia's natural environment, and in doing so both secure the immense carbon found in natural systems and contribute to the resilience and adaptation capacity of species and systems.*
> *Building on the vital core protected areas and national parks we call for large scale connectivity initiatives across all land tenures which will include and honour the cultures, knowledge and experience of all Australians.*
> *We call for all sectors to inspire, encourage and promote integration of conservation and sustainable land management to secure the future of our economy, community wellbeing and our unique rich variety of ecosystems, plants and animals. 16*

In December 2010 many of the same groups and individuals met to progress a shared vision of large scale connectivity initiatives for beneficial biodiversity, natural resource and climate change outcomes. The result is the Aiken Hill Communiqué which sets out supported key messages to government.

Linking Landscapes Collaboration is a broad coalition of groups and individuals who support Landscape or Connectivity Conservation17. This 'whole of landscape' approach envisages large scale areas where core protected areas are buffered and linked by sustainable use and conservation management on many lands (or seas) and tenures. This approach is internationally endorsed by all major international conservation bodies and incorporated into the Convention on Biological Diversity's Programme of Works on Protected Areas18 and recently adopted CBD 2020 Strategic Targets19. It promotes

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16 Kingscliff Communiqué http://www.linkinglandscapes.net.au/images/stories/communique_2009%20final.pdf
17 'Connectivity Conservation' is the term used by the IUCN World Commission on Protected Areas in their global work
18 For example CBD COP 7 Decision VII/28 Protected areas (Articles 8 (a) to (e).
19 See Convention on Biological Diversity Strategic Target 11

biodiversity by addressing fragmentation and building resilience while securing natural carbon sinks and providing many other positive benefits.

It is an inclusive approach to conservation which aims to mobilise governments, NGOs, philanthropic trusts, indigenous people, rural land holders and many other land managers to work cooperatively at scale. It can apply to marine as well as terrestrial landscapes but this document is aimed at terrestrial programs.

We commend the following directions to the government:

THE AIKEN HILL COMMUNIQUÉ

'Green Corridors' to major national direction
The Linking Landscapes Collaboration contends that large scale integrated conservation is the major strategic direction for terrestrial biodiversity conservation policy and practice and a major contributor to both climate change mitigation and adaptation.

A substantial community, well represented by the Collaboration stands ready to support this direction in public policy.

This approach is consistent with the Australian government's biodiversity and climate change adaptation documents, the Green Corridors Plan and, more significantly for the long term, with the goals of the recently released Australian National Biodiversity Strategy 2010-2030.

The Government's Green Corridors Plan is a timely but relatively small program. It is only an initial step in what needs to be a fundamental direction for the foreseeable future. Implementation of the Green Corridors Plan should establish the foundations of a much larger on-going program and reorientation of Caring for our Country.

Connectivity conservation at a national scale will need to address legislative, policy, and resourcing issues to assist the rapid and effective implementation. Therefore this strategy needs to be 'mainstreamed' as a key national direction in multiple portfolios.

The Commonwealth Government should, in collaboration with the States and Territories, commission a report to identify the most strategic regions for investment. This should be an overlay on existing planning frameworks such as IBRA and be an important criterion for priority funding.

Any strategic plan should fully acknowledge the commitment of Indigenous traditional owners and managers to manage their lands and waters for the health of the environment and for the many cultural, social and economic benefits healthy landscapes provide.

Any strategic plan should fully acknowledge the high level of current investment and generation of partnership approaches by existing landscape initiatives such as The Great Eastern Ranges Initiative[20], Habitat 141[21], Gondwana Link[22], NatureLinks in South Australia and the new Trans Australia Eco Link initiative in SA and NT[23].

Linking Landscapes is a Climate Change Policy
Any strategic plan should recognise the potential to reduce GHG emissions from degrading activities in the landscape and to improve carbon sequestration as landscapes recover their natural carbon stocks. A research and monitoring programme to support

[20] http://www.greateasternranges.org.au/
[21] http://www.parkweb.vic.gov.au/habitat141/habitat141flyer.pdf
[22] http://www.gondwanalink.org/
[23] www.naturelinks.sa.gov.au.

climate mitigation benefits and promote protection and restoration activities as both an adaptation and mitigation solution to climate change should be supported.

Prioritising projects which deliver carbon and biodiversity benefits under schemes like the Carbon Farming Initiative are potentially important tools for helping all land managers deliver large scale reductions in emissions arising from degrading activities and improved sequestration from promoting ecological recovery of natural systems.

Revenue from any carbon price should be set aside to foster protection and restoration of natural carbon stocks by reducing emissions associated with degrading activities and improving sequestration through long term protection.

Maintaining and building from the strength of the NRS
The protected areas of the Australian National Reserve System (NRS) are the key sanctuaries of Australian biodiversity and the cornerstone of any integrated approach to biodiversity across large landscapes.

The NRS has been found to be one of the most cost-effective investments that governments can make to secure the nation's biodiversity[24] . The increased federal funding to the NRS in 2008 ($180 million boost over 5 years) was essential and welcome, but it is still well below various expert recommendations[25]. It should not be reduced in favour of other programs.

The current national targets in Australia's Strategy for the National Reserve System 2009-2030 should be reviewed in the light of emerging science and brought forward. The goal of achieving "areas critical to climate change resilience by 2030" should be prioritised.

NRM, NRS and IPA programs are equally essential for integrated approaches
To achieve the ecological, social and economic goals of Linking Landscapes, Natural Resource Management (NRM) and the National Reserve System (NRS) programs and their many partner organisations need to be recognised as equally important as complementary programmes.

Many land owners are willing to manage their land in part or overall for biodiversity values. However, grant application fatigue undermines community commitments. Landholders need longer term funding and ongoing extension advice to support their conservation efforts.

The Indigenous Protected Area Program has been extremely successful, bringing active management to large areas under the ownership of indigenous Australians and many social and cultural benefits relevant to 'Closing the Gap'. Therefore IPA funding commitment needs to be secure and sustained over many years.

The Commonwealth, State and Territory land and sea management agencies should also be supported to assist IPAs with adequate capacity building programs to blend modern science and technology with traditional knowledge.

Northern and central Australia's lands and waters present one of the last great intact systems on earth. However the region faces great ecological and developmental challenges. The Commonwealth should lead discussion on establishing a major framework vision for a sustainable and just future for Northern Australia and its arid interior.

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24 Possingham, H., Ryan, S., Baxter, J. and Morton, S. 2002, Setting Biodiversity Priorities. A paper prepared as part of the activities of the working group producing the report Sustaining our Natural Systems and Biodiversity for the Prime Minister's Science, Engineering and Innovation Council in 2002. DEST, Canberra, p.9. Available www.dest.gov.au/sectors/science_innovation/ (look under committee/reports).
25 This paper is directed at the terrestrial environment however the completion of Australia's system of marine protected area sis also strongly supported.

Good science underlies good policy

The collaboration applauds the Government's commitment to a "strategic, landscape-scale approach to managing biodiversity"(ALP 2010). Effective management requires strategically targeted across tenures and many partners. Evaluation of management effectiveness and adaptive management responses need to be available to all participants.

The partnership approach will require a complex 'tool box' of mechanisms supported by all levels of government. The Commonwealth should work with government and non-government partners to develop innovative governance models for conservation and incentive mechanisms (including taxation) to encourage conservation on private lands, investment in large scale biodiverse vegetation restoration and terrestrial carbon plantings.

Funding for a sustainable future

The Commonwealth, States and Territories support a large number of programs aimed at addressing these issues and many components of society also contribute their efforts. However, without exception, the cost to Australia is in the billions, the funding in inappropriately modest millions.

Various proposals for a national environmental endowment fund have been put forward to fund long term effective management. These proposals should be seriously examined to provide the major on going funding needed to ensure Australia's biodiversity and ecosystem health and all related benefits to Australia are not severely degraded. A percentage of the revenues derived from the carbon price should be allocated to these initiatives.
