



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

Dear Committee,

The Boobook Declaration steering committee welcomes this timely inquiry into Australia's biodiversity in a changing climate, and appreciates the opportunity to participate.

The Boobook Declaration arose from groups and individuals concerned at the lengthening catalogue of bad news about collapsing ecosystems, and recognising that human induced climate change will be a turning point for nature. Climate change compounds existing threats to biodiversity. But it also gives a new and urgent reason for protecting biodiversity and its stored carbon as a vital contribution to tackling climate change. Communities across the country are working to protect biodiversity with innovative projects. Their work needs to be complemented by a reinvigorated Australian Government effort.

The Boobook Declaration is an action statement that calls on the Australian Government to take four essential actions to safeguard Australia's rich and beautiful diversity of plants, animals and ecosystems. The Declaration has been signed by over 80 organisations to date, representing hundreds of thousands of people across the country.

We specifically address the terms of reference points below.

For more information please contact

Yours sincerely,

Samantha Vine,
On behalf of the Boobook Declaration Steering Committee

Biodiversity in Australia and its territories

Australia is a Global biodiversity hotspot. It has almost 10% of the world's known species. It also has 10% of the world's threatened species.

About 92% of our vascular plants, 87% of our mammals, and 45% of our birds are endemic - that is, they are found no-where else in the world.

Human activity is causing the diversity of life on Earth to be lost at a greatly accelerated rate. In 2004 the IUCN calculated that the rate of loss had risen to 100-1,000 times the 'back ground' level of extinctions— a situation comparable to the five previous "mass extinctions" – the last of which was when the dinosaurs were wiped out about 65m years ago. These losses are irreversible, impoverish us all and damage the life support systems we rely on everyday.

Assessment of whether current governance arrangements are well placed to deal with the challenges of conserving biodiversity in a changing climate.

Australia's extinction rate is alarming and the biodiversity crisis is getting worse. Over the last 200 years Australia has suffered the largest documented decline in biodiversity of any continent.

Almost half of all worldwide mammal extinctions in the last 200 years have occurred in Australia. 1,667 species are listed as threatened under National legislation. A further 103 are listed as extinct. These figures are conservative. The situation is likely to be much worse. Australian governance arrangements, at the current level of funding, have not dealt with the challenges of conserving biodiversity to date and will be inadequate to address increased pressures brought on by a changing climate.

Assessment of current biodiversity policy and legal instruments

International

In response to an alarming rate of species extinctions, Australia ratified the United Nations (UN) Convention on Biological Diversity (CBD) on 18 June 1993. The Convention on Biological Diversity (CBD) is an international legally binding treaty. In 2002, Australia and other parties adopted the 2010 Biodiversity Target: to reduce significantly the rate of biodiversity loss at global, regional and national levels. Australia failed to achieve its 2010 Biodiversity Target.

The global failure to reach the 2010 CBD target to date has been largely attributed to lack of resourcing.

In October 2010, at the 10th Conference of the Parties in Nagoya, Japan, parties including Australia agreed on a new Strategic Plan and a strategy for financial resources mobilisation. The Strategic Plans 20 sub-targets ("Aichi targets") adopted in Nagoya include for example, 2020 targets to incorporate biodiversity values into national accounting, prevent the extinction of known threatened species, and to increase the land and marine protected areas to 17% and 10% respectively.

Of particular importance to this inquiry Target 15 of the Strategic Plan:

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.*

The Protected Areas decision adopted in Nagoya also has strong synergies with the United Nations Framework Convention on Climate Change (UNFCCC). It reminds UNFCCC to pay attention to the role of Protected Areas in adaptation and mitigation, and that such activities should receive financial and technical support through climate-related finance. It further invites UNFCCC to consider ecosystem-based approaches to adaptation, and requests consideration of Protected Areas in Rio Conventions' Joint Activities discussions. The CBD Executive Secretary will also provide advice to make sure REDD+ is consistent with CBD, including consideration of 'safeguards' for biodiversity.

National

The Australian Government's primary piece of environmental legislation is the *Environment Protection and Biodiversity Conservation Act 1999* (the EPBC Act). The EPBC Act provides a legal framework to protect and manage nationally and internationally important flora, fauna, and ecological communities as matters of national environmental significance.

Led by Dr Allan Hawke, a comprehensive independent review of the EPBC Act found that existing laws need a substantial overhaul to meet present environmental challenges. The final report was delivered in late 2009, and recommended new legislation- *The Australian Environment Act*¹ be enacted. The Government is yet to respond to the review or Dr Hawke's recommendations.

Australia's first national biodiversity strategy, the *National Strategy for the Conservation of Australia's Biological Diversity*, was endorsed in 1996. However it failed to meet its goal to protect biological diversity and maintain ecological processes and systems, specifically:

Objective 1.7 *Enable Australia's species and ecological communities threatened with extinction to survive and thrive in their natural habitats and to retain their genetic diversity and potential for evolutionary development, and prevent additional species and ecological communities from becoming threatened.*

The revised National Biodiversity Strategy *Australia's Biodiversity Conservation Strategy 2010 –2030*² includes a number of relevant outcomes and actions, for example

Outcome 2.3.3 *An increase in the use of strategic and early interventions to manage threats to biodiversity including climate change; and*

Action 14 *Identify and protect climate change refugia to strengthen opportunities for genetic and ecological adaptation.*

However, it is difficult to see how the strategy will be delivered given the lack of any financial support. The strategy also lacks baseline information from which to measure progress, or adequate arrangements to oversee whole of government compliance.

¹ *The Australian Environment Act – Report of the Independent Review of the Environment Protection and Biodiversity Conservation Act 1999*. October 2009 Final Report. Commonwealth of Australia.

² Natural Resource Management Ministerial Council 2010, *Australia's Biodiversity Conservation Strategy 2010 2030*, Australian Government, Department of Sustainability, Environment, Water, Population and Communities, Canberra.

Numerous State and Territory initiatives aimed at conserving biological diversity exist, including legislation for the protection of threatened species and policies such as State Biodiversity Strategies and native vegetation policies.

However, although numerous policies and programs contribute to the conservation of biological diversity they have not been sufficient to address the biodiversity crisis.

Why haven't these mechanisms worked?

1. Because biodiversity conservation efforts have been greatly under-resourced.

Recommendation 1: Substantially increase investment in biodiversity and ecosystem protection, restoration and management.

At least 80 organisations believe that the Australian Government should substantially increase investment in better biodiversity management; the Boobook Declaration signatories call for an investment of at least \$9 billion over three years. They also call for the Government to establish an independent widely consultative process into future funding and stewardship of Australia's, terrestrial, aquatic and marine biodiversity.

This investment will fund on-ground work, stewardship payments, water buy-back, protected area extension and management, research, education and training.

Increased investment will not only benefit biodiversity; it will help rejuvenate communities, economies and employment, mainly outside capital cities, and especially in remote Australia.

Analysis of jobs in biodiversity and landscape is poor but, extrapolating from a 2001 study, current employment in the sector would be over 35,000, with a high proportion in rural, regional and remote Australia.

A wide-ranging national inquiry should establish the real level of need for biodiversity investment and the environmental, social and strategic benefits of meeting it.

2. Because current climate change policy does not adequately recognise the important role of natural ecosystems in climate change mitigation.

There are a plethora of international reports including the World Bank Report "*Convenient solutions to an Inconvenient Truth*³" substantiating the critical role of large intact natural systems in climate change mitigation and adaptation. The global potential of biological mitigation through activities such as reforestation, avoided deforestation, and improved agriculture, grazing, and forest management is 100 GtC by 2050, which is equivalent to about 10–20 percent of projected fossil fuel emissions during that period³. Substantial reports exist on the sequestration capabilities of Australia's natural ecosystems. To date this issue has been almost completely absent from climate responses.

³ Convenient solutions to an inconvenient truth: ecosystem based approaches to climate change. 2010 The International Bank for Reconstruction and Development / The World Bank. Washington DC.

Recently, Professor Ross Garnaut's Climate Change Review update paper on 'Transforming Rural Land Use' recommended that the Federal Government align incentives to reduce greenhouse gas emissions through a carbon price and complementary measures; including incentives to build the resilience of ecosystems and biodiversity to the impacts of climate change. Professor Garnaut recommended allocating part of the income from a tax/trading scheme to the landscape sector: up to 10% for Kyoto compliant activities such as tree planting and up to 6% for non Kyoto activities such as soil carbon.

The recently announced Biodiversity Fund is a mechanism to secure a win-win scenario under which biodiversity is better conserved and carbon storage enhanced.

We congratulate the Multi-Party Climate Change Committee on this new initiative, and hope it is the beginning of bigger things to come.

Although at this stage section 9.4 (Biodiversity Fund) of *Securing a Clean Energy Future* still focuses on adaption and does not yet adequately recognise the **mitigation** potential of biodiversity, we believe the Fund will be an important step in demonstrating how important this mechanism is as a mitigation tool.

Recommendation 2: Increase the size of the Biodiversity Fund

The amount of revenue from Australia's carbon price scheme invested in the Biodiversity Fund should be substantially increased. Although a transformational first step, \$157 million per annum will not be sufficient to address the biodiversity crisis.

Increased investment in the Fund will help tackle climate change and its impacts by reducing greenhouse gases in the atmosphere and increasing the resilience of Australia's biodiverse natural environment so it can sequester carbon in the long term.

Projects on all types of land should qualify and marine/aquatic ecosystems should be included.

Existing Commonwealth biodiversity funding levels should be maintained alongside the new Fund.

Governance

The importance of governance over Land Sector activities and the strategic investment of the Biodiversity Fund cannot be over stated.

Recommendation 3: Appointments to the Land Sector Carbon and Biodiversity Advisory Board should be based on merit and at arms length from political processes.

The Composition of Advisory Board should be made up of members with expertise in threatened species conservation, adaptation science, and the climate change mitigation potential of ecosystems, to ensure that funding priorities are based on the best available science.

Funding priorities should be determined by a transparent process, made publically available, and provide clear directions to potential participants. Some funding should be set aside for

monitoring progress and ensuring funds are well targeted. Regular review of the implementation of the Fund should also be made public.

Connectivity between ecosystems and across landscapes that may contribute to biodiversity conservation

The Government needs to invest substantially, and promote the issue of how biodiversity conservation can positively contribute to Australia's carbon reduction as well as assist in building ecosystem and species resilience. As described above the Biodiversity Fund, and the new Wildlife Corridors initiative are good first steps. Our hope is that they will use the best available science to identify pathways for climate adaptation for Australia's threatened species, and facilitate funding that will provide land managers with avenues for climate adaptation.

Connectivity Conservation or landscape scale conservation is an internationally endorsed approach to address habitat fragmentation and provide species the best chance of adaptation. It is also an inclusive approach to conservation, which can cross many land tenures and involve all components of Australian society.

How climate change impacts on biodiversity may flow on to affect human communities and the economy?

*"Biodiversity is our life. We humans are a part of nature, not apart from it. Just like the other species on this planet, we rely on biodiversity for our food, our shelter, our health and all aspects of our well-being."*⁴

Biodiversity is essential to sustaining the living networks and systems that provide us all with health, wealth, food, fuel and the vital services our lives depend on.

Biodiversity also provides solutions to the current climate change crisis. As well as providing carbon storage services, biodiversity give systems resilience, that is, the capacity to absorb disturbance and still retain their basic function and structure.

Climate change exacerbates existing threats and poses a new threat to global biodiversity. As it is lost, we lose options, This section explores how the loss of biodiversity may flow on to affect human communities and the economy.

Fundamental ecological functions and life support

Biological diversity plays a vital role in sustaining life on Earth. Plants, animals and living systems interact with the physical environment powered by the sun's energy to make this planet habitable. For example:

- Plants renew the earth's oxygen, trap sunlight and carbon, and produce food for other species.
- Fungi and micro-organisms create and maintain soils.
- Birds, insects and mammals pollinate plants and maintain nutrient cycles.
- Large-scale ecological processes assimilate waste, moderate climate, and recycle life-essential nutrients such as carbon, nitrogen and phosphorus.

⁴ Ahmed Djoghlaif, Executive Secretary of the Convention on Biological Diversity, March 2010.

Biodiversity influences climate at local, regional and global scales. For example, growing evidence suggests that undisturbed forest helps to maintain rainfall in its immediate vicinity by recycling water vapour at a steady rate back into the atmosphere and through the canopy's effect in promoting atmospheric turbulence. Plants extract carbon from the atmosphere for long-term storage in wood and soils, thereby mitigating climate change. Biodiversity enhances the effectiveness of the biological pump that moves carbon from the surface ocean and sequesters it in deep waters and sediments.

Biodiversity confers resilience on ecosystems and organisms, enhancing their ability to recover from natural and human-caused disturbances. Conversely, loss of a species or reduction in a gene pool could affect the functioning of many other components of the ecosystem.

*"This layer of living organisms—the biosphere—through the collective metabolic activities of its innumerable plants, animals, and microbes physically and chemically unites the atmosphere, geosphere, and hydrosphere into one environmental system within which millions of species, including humans, have thrived. Breathable air, potable water, fertile soils, productive lands, bountiful seas, the equitable climate of Earth's recent history, and other ecosystem services are manifestations of the workings of life."*⁵

Human health, wealth and wellbeing

Our personal health, and the health of our economy and human society, depend on the continued functioning of ecological processes and ecosystems. Many of these natural processes are simply impossible, or prohibitively expensive to replace with artificial systems.

Living organisms provide us with food, fuel, fibre, building materials, medicines and wood products. We currently use a limited range of species, but the genetic diversity remaining in wild populations is an important resource for disease resistance, improved productivity and different environmental tolerances in crop varieties and livestock breeds.

Case study: Diversifying food

Five thousand plant species have been used as food by humans, but less than twenty now feed the majority of the world's population and just three or four carbohydrate crops are staples for a vast majority. One of the important benefits of conservation of biodiversity is the wild plant gene pool, which is available to augment the narrow genetic base of these established food crops. There is great food potential in native Australian plants. The nutritional value of 'bush' foods is quite high, some having greater amounts of protein, fats, carbohydrates, minerals and vitamins than cultivated plant foods. For example, acacia seeds, some 50 types of which were used by Aboriginal people for food, are superior to rice and wheat in energy, protein and fats. The potential of Australian acacias to augment diets in Africa is currently being investigated, and Australian native species of *Vigna* are being explored to add useful characteristics to the domesticated mung bean, and for their potential as food in their own right. The seeds of pigweed (*Portulaca oleracea*), which were commonly eaten by Aboriginal peoples, contain 20 per cent protein, 16 per cent fat, and high levels of iron. A native fig, *Ficus platypoda*, has very high levels of calcium (4000mg/100g), as well as higher protein and fat content than expected for fruits, while the wild Arnhem Land plum has spectacular amounts of Vitamin C – more than 50 times the level found in exotic citrus fruit.⁶

⁵ Millennium Ecosystem Assessment, *Ecosystems and Human Well being: Biodiversity Synthesis*. World Resources Institute, Washington DC, 2005, p18.

⁶ Department of the Environment, Sport & Territories, *Biodiversity and its value*. Biodiversity Series, Paper no.1, Canberra, 1993.

Biological systems provide us with diverse and essential benefits. Vegetation protects water catchments from erosion, **mitigates flooding** and helps to regulate underground water tables. Wetland vegetation and forests act as water purifying systems. Biological diversity helps in the formation and maintenance of soil structure and fertility, thus protecting the productive capacity of soils for crops and pastures. Pest species are controlled by predatory species and competitors.

Components of ecosystems from bacteria to higher life forms are involved in the breakdown and absorption of wastes and pollutants such as sewage, garbage and oil spills. Biological communities can prevent landslides, safeguard coastlines and riverbanks, and prevent the degradation of coral reefs and fisheries due to siltation.

People enjoy a range of social, cultural and health benefits from biological diversity. Natural environments can reduce stress levels, improve mental health, enhance emotional development and a sense of belonging. The diversity of living forms inspires artists, poets, writers, architects and musicians. These living forms provide icons and symbols of cultural significance. Nature is of great spiritual value to many people, whether or not this is part of their religious beliefs. For example, Australia's biodiversity is of deep spiritual and cultural importance to Indigenous Australians.

Biological diversity is a feature of many areas valued for tourism and recreational purposes, which make substantial contributions to regional and national economies. Pursuits such as bird watching, nature photography, diving and snorkelling are directly dependent on biodiversity. The study of biology and ecology provides intellectual stimulation:

*"Trying to understand the incredible complexity of biological systems and how organisms have evolved over more than 3.5 billion years is for some of us the most challenging, fascinating, and fulfilling way we could ever imagine to use our powers of observation and our intellects."*⁷

Why protect biodiversity from the impacts of climate change?

Arguments for protecting biodiversity generally fall into two basic categories:

- (1) biodiversity has an intrinsic value for its own sake simply because it exists, that is worth protecting regardless of its value to humans, and
- (2) humans depend on biodiversity for many aspects of our health, wellbeing and livelihoods (ecosystem services).

Environmental ethicists also stress that humans should protect biodiversity because they are the cause of most of the recent loss of biodiversity through loss of habitat, overexploitation and other perturbations.

Inter-generational equity

Another ethical argument relates to inter-generational equity, which obliges us to pass on to the next generation a planet that is at least as ecologically healthy as it was for our generation.

With regard to human dependence on biodiversity, the Millenium Ecosystem Assessment⁸ found that biodiversity loss and deteriorating ecosystem processes contribute - directly or indirectly - to worsening health, higher food insecurity, increasing vulnerability, lower material wealth, worsening social relations, and less freedom for choice and action.

⁷ E. Chivian & A. Bernstein (eds) *Sustaining Life: How human health depends on biodiversity*. Oxford University Press, New York, 2008, p100.

⁸ Millennium Ecosystem Assessment, *Ecosystems and Human Well being: Biodiversity Synthesis*. World Resources Institute, Washington DC, 2005, p30.

“Protecting biodiversity is in our self-interest. Biological resources are the pillars upon which we build civilizations. Nature's products support such diverse industries as agriculture, cosmetics, pharmaceuticals, pulp and paper, horticulture, construction and waste treatment. The loss of biodiversity threatens our food supplies, opportunities for recreation and tourism, and sources of wood, medicines and energy. It also interferes with essential ecological functions.”⁹

Biodiversity provides some insurance against disease, climate change, fire and drought, ensuring that there are some more robust species or organisms that can survive and rebuild ecosystems. Another reason for biodiversity conservation is the avoidance of the rising costs of inaction. In Australia and elsewhere, ecological degradation already results in significant losses in production, and environmental repair is very costly.

Biodiversity represents unexplored options for the future. Wild plant, animal and micro-organism resources are of great importance in the search for new medically-active compounds, and the potential of Australian biota to contribute to modern medicine has scarcely begun to be realised. Examples of potential products which may be derived from biological resources include sunscreens from corals, light and high-tensile fibres from spider silk, and instant adhesives from velvet worms or barnacles.¹⁰

The complex and interdependent network of relationships between organisms that constitute the web of life are underpinned by biological diversity at genetic, species and ecosystem levels. The loss of a single species can set off a chain reaction that reverberates throughout the system. The total impact of loss of biodiversity is not always apparent and is difficult to predict, as our understanding of ecological relationships is rudimentary. But it is probably safe to say that the clearing of a patch of bush, contraction in range of a species or pollution of a coral reef all contribute to the de-stabilising of planetary life-support systems. Scientists have stated recently that the current rate of biodiversity loss cannot continue without significantly eroding the resilience of major components of Earth-system functioning. This could have consequences that are detrimental or even catastrophic for large parts of the world and associated human populations.¹¹

Strategies to enhance climate change adaptation, including promoting resilience in ecosystems

Recommendation 4. Restore and increase the capacity for publicly funded biodiversity research, auditing, monitoring, accounting and communication

The abolition of Land and Water Australia in June 2009, left a large hole in Australia's capacity for research to underpin sustainable land and water management. This loss compounds the research and auditing deficits identified in the preparation of the 2006 State of the Environment Report, including the lack of robust national trend data for biodiversity or marine and freshwater biota.

Australia urgently needs to establish a long-term monitoring and auditing framework for biodiversity across the continent to assess the impacts of climate change and other drivers of

⁹ 2010 International Year of Biodiversity website, www.cbd.int/2010/biodiversity/ accessed 29 March 2010.

¹⁰ Department of the Environment, Sport & Territories 1993, as above.

¹¹ J. Rockström *et al.*, A safe operating space for humanity. *Nature* vol.461, 24 Sept. 2009, pp472-475.

terrestrial, freshwater and marine biodiversity loss. Australia needs to support the sustainable management and use of our natural resources through investment in scientific research, Indigenous knowledge and education.

An expanded Land, Water and Biodiversity authority should be based on the model pioneered by Land and Water Australia, a core agency investing in and brokering research. Partnerships and formal alliances with research organisations in universities, national scientific organisations such as CSIRO, and others with capacity to undertake and implement research should underpin the work of such an authority.

Mechanisms to enhance community engagement

Recommendation 5. Develop biodiversity education and training programs

Develop our biodiversity education and training programs so that all sectors of the Australian community and business have the knowledge to understand the magnitude of current threats to our biodiversity and the skills to take action to conserve our biodiversity and ecosystems. This is essential to transforming our nation to a healthy, sustainable society and economy.

The Australian Government should seize the opportunity presented by the International Decade of Biodiversity to launch a community-wide program to upgrade ecological literacy, and improve skills in biodiversity management. From schools to work to home, protecting biodiversity is everyone's responsibility.