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Submission to the Senate Inquiry on Australia's Faunal Extinction Crisis

Dear Senate Standing Committees on Environment and Communications,

As a leading collective of Australian researchers working to understand the interaction between society and our environment, we welcome the opportunity to provide feedback to the Senate's Inquiry into Australia's faunal extinction crisis.

RMIT University's Interdisciplinary Conservation Science Research Group recognises that managing biodiversity demands a multidisciplinary approach that reconciles ecological, social and economic concerns.

Over the last 14 years, members of the Interdisciplinary Conservation Science Research Group have been involved in research relating to threatened species and ecological communities.

We have assisted with guidelines and decision support tools related to threatened species policies and programs at local, state and national levels. Our funding sources include the Australian Research Council, the National Environmental Science Program via the Threatened Species Recovery Hub, and the Clean Air and Urban Landscapes Hub. In this submission we address the following terms of reference:

- (a) the ongoing decline in the population and conservation status of Australia's nearly 500 threatened fauna species;
- (c) the international and domestic obligations of the Commonwealth Government in conserving threatened fauna;
- (d) the adequacy of Commonwealth environment laws, including but not limited to the Environment Protection and Biodiversity Conservation Act 1999, in providing sufficient protections for threatened fauna and against key threatening processes;

(f) the adequacy of the management and extent of the National Reserve System, stewardship arrangements, covenants and connectivity through wildlife corridors in conserving threatened fauna;

(l) any related matters.

(a) the ongoing decline in the population and conservation status of Australia's nearly 500 threatened fauna species;

Key recommendations:

1. The Australian Government should follow the recommendations outlined in The Australia State of the Environment 2016 report and implement major reinvestments in conservation across long timeframes to reverse deteriorating threatened species trends.
2. The Australian Government should develop a comprehensive threatened species management program that has the capacity to recover all Australian threatened species and budget for program implementation accordingly.
3. Part of this plan should include fully funded and coordinated national recovery plans for all threatened species.
4. Additional emphasis should be placed on monitoring chronically data deficient species to better understand current patterns of decline, and the factors that threaten individual species.

Rationale

Australia is a unique place for fauna, much of which is endemic (Chapman 2009). But our unique fauna is under threat, and even though data are limited and inadequate to clearly identify the magnitude of its decline (DOTE 2014), currently 448 species are listed as vulnerable, endangered or critically endangered under the federal EPBC Act. In terms of biodiversity loss, Australia remains in the top 20 countries for the number of threatened mammals, birds and amphibians globally (Vié et al. 2009). In the last 200 years, Australia has had one of the worst extinction records in the world; two endemic Australian mammal species have gone extinct since 2009 (Woinarski et al. 2017). In contrast, there have been no mammal extinctions anywhere else in the world this century (IUCN 2018).

The number of species and sub-species listed as threatened continues to increase with little evidence that threats are being reduced, or that the trajectory for threatened species is improving. If there is no improvement in management, it is predicted that ten Australian birds and seven mammals will be extinct by 2038 (Geyle et al. 2018). The Australian Government's report, *The Australia State of the Environment 2016*, highlights the severity of the faunal extinction crisis, concluding:

"The outlook for Australian biodiversity is generally poor, given the current overall poor status, deteriorating trends and increasing pressures. Our current investments in biodiversity management are not keeping pace with the scale and magnitude of current pressures. Resources for managing biodiversity and for limiting the impact of key pressures mostly appear inadequate to arrest the declining status of many species. Biodiversity and broader conservation management will require major reinvestments across long timeframes to reverse deteriorating trends" (DOE 2016; our formatting).

In addition to known population declines, chronic data deficiency limits information on population trends for many Australian species. For example, reptile species remain largely unassessed due to chronic data shortages; 60% of Australian species are either unassessed or listed as data deficient (IUCN 2018). Population data from the Mammal Action Plan (Woinarski et al. 2014) is largely elicited from experts rather than empirically calculated, owing to a lack of survey and monitoring data on Australian threatened mammals.

Current conservation action implemented by NGO's and State Government agencies are assigned based on individual objectives. This has led to ad hoc allocation of conservation action inconsistent with necessity (Ringma et al. 2017), leading to significant gaps in species coverage within conservation programs. For example, over 40% of predator threatened mammals remain unrepresented in the national network of predator free fences and islands (Ringma et al. 2018).

(c) the international and domestic obligations of the Commonwealth Government in conserving threatened fauna;

Key recommendations:

1. The Australian Government should respect its international obligations. At a minimum the Australian Government should aim to:
 - Meet the 20 Aichi Biodiversity Targets and the associated Australian targets set in The Australian Government's Strategic Plan for Biodiversity 2011-2020;
 - Protect the habitat of migratory species as agreed by various international agreements;
 - Protect all of Australia's 66 Ramsar internationally significant wetlands by rejecting all proposed developments which encroach on them;
 - Reduce greenhouse gas (GHG) emissions to 26-28 per cent below 2005 levels by 2030.
2. The Australian Government should set and strive to meet ambitious international targets, which include:
 - Meeting and transparently reporting on the Sustainable Development Goals targets and indicators (especially Goal 13 Climate Action, Goal 14 Life Below Water and Goal 15 Life On Land);

- Promoting GHG emissions reduction targets under the Paris Agreement to keep climate warming below 1.5°C above pre-industrial levels, with quantitative targets and effective sanction and retaliation in cases of non-compliance.

Rationale

Australians are passionate about the environment and protecting threatened fauna. Almost 1.3 million people volunteered their time to help the environment in 2010 (Volunteering Australia 2016) and evidence shows a large proportion of the Australian public are concerned by environmental issues (Chapman et al. 2017). The Australian public expect the Government to show leadership in protecting threatened species and their habitats, yet there remains a lack of government action and support for threatened fauna (Woinarski et al. 2014; Chapman et al. 2017).

Australia ratified the Kyoto Protocol in 2007 and its Doha Amendment in 2016, formalising GHG emissions reduction targets by 2020. The Paris Agreement was also ratified in 2016, with a target to reduce GHG emissions by 26-28 per cent below 2005 levels by 2030. However, it has been argued that Australia's obligation under the Paris Agreement is insufficient, and that current policies 'fall far short' of the emissions reductions required to meet the 2030 target (Climate Action Tracker 2017). This is concerning, given that climate change is expected to significantly impact threatened species (O'Neill et al. 2017; Warren et al. 2018 & 2013). Extensive mitigation actions are necessary to reduce the threat of climate change for Australia's threatened fauna.

Australia also ratified the Convention on Biological Diversity in 1993 and has obligations through this international commitment to achieve the 20 Aichi Biodiversity Targets included in the Australian Government Strategic Plan for Biodiversity 2011-2020. Although ten associated measurable targets were set in Australia's Biodiversity Conservation Strategy 2010-2030, these have not been met (DOE 2016). Furthermore, the draft of the currently-revised national biodiversity strategy, Australia's strategy for nature 2018–2030 (Commonwealth of Australia 2017), has reduced conservation ambitions and lacks any measurable targets

Australia has international obligations for migratory species which spend part of the year here. 41 migratory species from multiple taxa are listed as threatened under current legislation (EPBC Act 2018). The Australian Government has a duty to the international community to ensure these species are protected while in our country. Migratory species and their journeys are a source of pride and wonder for cultures worldwide. Aside from the moral imperative, we are obliged to fulfill our international agreements for the protection of migratory species. Australia has been a party to the Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention) since 1991, which lays the legal foundation for internationally coordinated conservation measures throughout a species' migratory range.

These International commitments extend to individual taxa, and Australia has bilateral migratory bird agreements with Japan (JAMBA), China (CAMBA) and the Republic of Korea

(ROKAMBA), requiring the protection of migratory bird habitat. Furthermore, Australia is a signatory to the Convention on Wetlands of International Importance (RAMSAR), an intergovernmental treaty dedicated to the conservation of wetlands. Despite this, the protection of RAMSAR wetlands and other migratory bird habitat is undermined in Australia, and the incremental loss of habitat is likely to be having global effects (Lee et al. 2006; DOE 2015). Migratory birds play a critical role in maintaining ecosystems worldwide, making their conservation a global priority; their value is estimated at billions of dollars to the U.S. economy alone (U.S. Department of the Interior 2011). As such, irrespective of Australia's obligations under international law, there are also good economic reasons to ensure the proper resourcing and facilitation of conservation outcomes for migratory species and their habitats.

We, as a nation, have the resources and expertise to conduct world-leading biodiversity conservation. Our policies and approach to conservation should reflect global best practices. Yet, Australia continues to fail to meet its international obligations and agreements.

(d) the adequacy of Commonwealth environment laws, including but not limited to the Environment Protection and Biodiversity Conservation Act 1999, in providing sufficient protections for threatened fauna and against key threatening processes;

Key recommendations:

1. The Australian Government should pursue an intergovernmental agreement with the states and territories to establish a framework to limit vegetation clearing to ensure protections for the habitat of threatened fauna.
2. There should be transparent governance, monitoring, and evaluation for biodiversity offset arrangements undertaken via the EPBC Act.
3. The Australian Government should establish an independent National Sustainability Commission to set national environmental standards, undertake strategic regional planning and report on national environmental performance; with sufficient institutional capacity to act.
4. The Australian Government establish an independent National Environmental Protection Authority that operates at arm's length from government to conduct transparent environmental assessments and inquiries, as well as undertake monitoring, compliance and enforcement actions.
5. The Australian Government should introduce clear guidelines for placing accountability onto national, state and local governments, as well as other stakeholders in the protection of biodiversity. This should include legal mechanisms for holding responsible parties to account, and legal consequences for failure to protect against loss of biodiversity which is preventable. All extinctions should require public inquiry to determine their cause and allow for improvements to legislation.
6. The Australian Government should review and update the list of key threatening processes to adequately reflect the full range of threatening processes. Currently, a key

omission relates to urban and industrial development processes, which continue to pose a major threat to Australia's biodiversity.

Rationale

It is generally accepted that policy should be evidence-based. Yet, the EPBC Act allows for a high degree of ministerial discretion in decision-making, in which scientific and other evidence may be overruled or disregarded. Additionally, many key concepts (e.g. cumulative impacts) are poorly defined; as such, decision making is vulnerable to subjective interpretation. This lack of clarity greatly diminishes the protections that the EPBC Act might otherwise afford threatened fauna.

Under this system, species recovery plans are systematically undermined. When the EPBC Act was first passed into law, the listing of a species as nationally threatened triggered a legal requirement for the development of a National Recovery Plan (NRP). Amendments to the EPBC Act now allow the Minister to decide that a NRP is not required for individual listed species. Currently, half of all listed species do not have a NRP (Watson et al. 2010). The delay in construction and implementation of recovery plans for the Christmas Island Pipistrelle and the Bramble Cay melomys provide exemplars of the failure of Australian legislation to act with appropriate speed to prevent extinctions (Woinarski et al. 2017).

The EPBC Act has issues with compliance and enforcement. This is particularly an issue for biodiversity offsets implemented under the EPBC Act. Offsets are designed to result in biodiversity gains to compensate for losses elsewhere from development or extraction. If they fail to deliver appropriate gains, the result is net loss of biodiversity. As offsets focus on threatened species and ecological communities, ensuring offset transparent governance, appropriate monitoring, and evaluation is crucial to understand the extent to which offsets are playing their role in averting extinctions going into the future.

The EPBC Act offset policy explicitly states that decision making for offset arrangements will be made in a consistent and transparent manner using scientifically robust information and that "suitable offsets must have transparent governance arrangements including being able to be readily measured, monitored, audited and enforced" (EPBC Act offset policy 2012, p 24). While we strongly agree these are vital characteristics for an offset scheme, there is currently little evidence that offsets are meeting these criteria. A first vital step in achieving these criteria would involve the Department of the Environment to make information on impacts and associated offsets publicly available in a single easily accessible location. This could consist of a publicly accessible register of offsets, such as the Environmental Offsets Register that has been implemented by the Western Australian Government (see <http://www.offsetsregister.wa.gov.au/public/home>). This would allow data on offsets to be collected and stored in a manner such that the link between the impact and the offset intervention is clear, allowing the effectiveness of the offsets to be measured and evaluated

over time (Peterson et al. 2006). This additional transparency would also allow greater public confidence in the offsetting process.

Another key weakness of the EPBC Act is that it does not adequately address the biggest drivers of biodiversity decline:

- The loss and degradation of habitat;
- Altered fire regimes;
- Invasive species;
- Urbanisation & Industrialisation; and
- Climate change.

The increasing threats faced by our fauna highlights the importance of ensuring that all remaining native vegetation be properly protected from clearing. This vital measure requires national leadership. Currently, state and territory clearing laws are inconsistent, with recent relaxations in some states driving major increases in clearing, resulting in large losses of endangered habitat. Clearing in Queensland for example, has escalated rapidly since the 1970s with 9.7 million ha of total forest being lost to land clearing (Simmons et al. 2018). NSW is also in the process of relaxing its vegetation clearing controls, which is likely to result in a similar spike in clearing and habitat loss. Clearing at this scale poses one of the most significant threats for Australian biodiversity and necessitates leadership from the Australian Government. Without such leadership, states and territories are likely to continue to permit vegetation clearing in pursuit of parochial interests, to the detriment of the nation.

In conclusion, Australia must enact systemic long-term legislative changes to provide effective protection for threatened fauna, despite the presence of pressures which may favor short-term economic interests.

(f) the adequacy of the management and extent of the National Reserve System, stewardship arrangements, covenants and connectivity through wildlife corridors in conserving threatened fauna;

Key Recommendation:

1. Increase funding to support our National Reserve System and devise greater financial and nonfinancial incentives (e.g. land rate rebates; tax deductions; extension support) to private landholders to contribute to landscape scale conservation.

Rationale

Protected areas form the cornerstone for threatened species conservation. Land designated as a protected area, whether on public or privately-owned land, is dedicated in perpetuity to the management and conservation of nature (Dudley 2008; Hardy et al 2017). Australia's National Reserve System (NRS) remains currently inadequate as an ecologically representative network

of protected areas. Almost 1,700 ecosystems and over 120 species of national significance lack any representation within the NRS, and less than half of the 85 bioregions have reached the 17% target of total area protected (Taylor 2017). Expanding the protected area estate across both public and private land will be an essential part of arresting the threats to, and the ongoing decline of Australia's threatened species.

(I) any related matters;

The use of urban greening to support threatened species

Key Recommendations:

1. An integrated, nation-wide urban greening plan is needed to provide an overarching vision and strategic spatial planning to renature cities for the benefit of threatened species.
2. The Australian Government can facilitate more extensive uptake of Biodiversity Sensitive Urban Design (BSUD) by specifying BSUD principles as a priority in City Deals.
3. There is considerable opportunity to green Australian schools to provide habitat for threatened species, which in turn will have health and educational benefits.

Rationale

High levels of biodiversity exist inside cities, providing key ecosystem services such as water management, pollination, decomposition and pest control (Ziter 2016). In Australia, biodiverse vegetation in and around cities provides ecosystem services critical for climate change adaptation and mitigation, most notably through cooling and flood prevention (Coutts et al. 2013; Norton et al. 2015). Urban greening not only enhances biodiversity in our cities, it also encourages more healthy and active lifestyles, promotes well-being, brings communities together (Lee & Maheswaran 2011; Astell-Burt et al. 2013) and has been associated with reducing all-cause respiratory, cardiovascular and cancer mortality (Aerts et al. 2018). In addition to the functions performed by urban biodiversity, cities themselves can be important biodiversity hotspots requiring recognition and protection in their own right (Maclagan et al. 2018). In Australia, thirty percent of threatened species occur in cities (Ives et al. 2016), meaning our urban spaces present important opportunities for conservation and the prevention of future extinctions.

A critical challenge for biodiversity conservation relates to the ever-increasing disconnection of people from nature, which is particularly notable in urban environments. This 'Extinction of Experience', in which people spend less time in nature, is associated with reduced emotional affinity toward nature, and a general decline in pro-environmental attitudes and behaviours (Pyle 1978; Miller 2005). Cities represent an unparalleled opportunity to re-enchant the Australian population with nature, reverse the Extinction of Experience and deliver a remarkable range of health and wellbeing benefits to urban residents (Soga & Gaston 2016).

The rapid growth and sprawl of Australia's cities means integration of biodiversity into cities is reliant on mechanisms and incentives to include biodiversity sensitive urban design principles in new developments (Garrard et al. 2018). However, biodiversity preservation and habitat creation are not well considered in current planning and development instruments. Biodiversity sensitive urban design is a planning and development approach that not only emphasizes the retention of important habitat, but also aims to add habitat value to new developments.

Current policy promoting urban greening in Australian cities has occurred on an individual council basis. Examples include the City of Melbourne 'Green Our City Strategic Action Plan 2017–2021', and the City of Sydney 'Green Roofs and Walls Strategy 2012'. The widespread uptake of urban greening policies in Australia is being prevented by lack of locally specific knowledge, capacity and guidelines for implementation (Williams et al. 2010; Matthews et al. 2015). A national strategy for urban greening in Australia would allow for the creation and application of best practice across cities, coordinate efforts between public and private sectors, and ensure that threatened species are accommodated in greening initiatives.

Private landholdings form the majority of land area in Australian cities and can provide important habitat for native wildlife. Schools provide a location for urban greening, presenting both biodiversity and educational benefits. There is strong evidence that children who have easy access to green space have improved cognitive development (Dadvand et al. 2015) and develop more positive attitudes towards nature (Hosaka et al. 2017). The promotion of positive relationships with nature is not only a key objective of Australia's strategy for nature 2018-2030 (Commonwealth of Australia 2017) but is fundamental for the success of ongoing conservation efforts. The City of Paris is currently implementing a strategy to green all of Paris' 800 schools by 2040 in response to increasing urban temperatures (Clement 2008). Australia would greatly benefit from such an incentive here.

Concluding statement

In conclusion, the Australian Government should enact systemic change to provide effective protection for threatened species. It is the belief of RMIT's Interdisciplinary Conservation Science Research Group that with sufficient funding and political support, Australia's extinction crisis could be significantly reduced and eventually prevented completely. We look forward to working with relevant state and federal government agencies to reverse the trend of declining threatened species in Australia and are happy to provide more information on any part of this submission.

Yours sincerely,

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