Name of submitter: Ecological Society of Australia

The Ecological Society of Australia Ltd (ESA, www.ecolsoc.org.au) is the peak group of ecologists in Australia, with over 1200 members from all states and territories. Our members work in universities and other research institutions, government departments, NGOs, private industry and consultancies. We are a national not-for-profit organisation formed in 1959.

Submission to:
The independent review of the Environment Protection and Biodiversity Conservation Act 1999 – Discussion paper

16 April 2020

SUMMARY

Many of the ESA's members regularly interact with the *Environment Protection and Biodiversity Conservation Act 1999* (henceforth "the Act"). Our members are specialists with respect to those aspects of the Act that relate to (i) threatened species and communities listing and recovery, (ii) impact assessment, (iii) public environmental policy and (iv) the referrals/approval procedure.

In response to the release of *The independent review of the Environment Protection and Biodiversity Conservation Act 1999 – Discussion paper*, we provide specific responses based on expertise in environmental policy and biodiversity conservation. We have responded individually to each of the questions posed in the Discussion paper, and summarise our five key recommendations here:

1. **Adequate funding across all levels of the Act is needed to improve its efficiency and effectiveness.**
2. **Explicitly address the role of traditional owners and traditional knowledge systems in relation to assessment processes and species recovery.**
3. **Specify a requirement in the Act for monitoring and evaluation.**
4. **Mandate greater scientific oversight of assessments and approvals in the Act, and only incorporate changes that use scientific evidence to improve, not reduce, protection of MNES.**
5. **Introduce changes that reduce regulatory and administrative burdens whilst increasing accountability.**

We expand on these points below.

1. Adequate funding across all levels of the Act.

The EPBC Act is Australia's premier piece of environmental legislation. It is designed to protect and manage national environmental assets, known as Matters of National Environmental Significance (MNES), and other protected matters. **The capability to list and protect biodiversity from harm is the cornerstone of the Act.** In addition to environmental legislation, Australia has relatively low human population density, stable governance, a relatively affluent and interested community, vast areas of natural landscapes, and a substantial conservation reserve system. Conservation of Australia's rich and distinctive biodiversity should be achievable relative to that of most other nations. Yet, Australia's extinction rate is one of the worst in the world (Woinarski et al. 2015), and the rate of biodiversity decline and loss is continuing unabated (Ward et al. 2019). Species already

recognised as threatened with extinction are those experiencing the worst declines (TSX 2018). Predicted increases in natural disasters – such as the 2019/2020 megafire season – are likely to increase the risk of extinction for many impacted species and ecosystems.

Ineffective implementation of the Act can be linked to inadequate resourcing of the responsible Department(s) for MNES listing and recovery, impacts assessments and referrals, and community education (May 2017). Preventing extinctions of species legislatively protected under the Act requires:

a) Adequate resourcing to enable improved support services to translate, understand, and implement the legislation of the Act across all sectors;
b) New legislative requirements for resourcing recovery planning and recovery actions for all MNES, mapping of critical habitat (Taylor et al. 2005), evaluating compliance and reporting.

2. Explicitly address the role of Traditional Owners and traditional knowledge systems.

The objects of the Act should be written in such a way as to ensure that Indigenous people are involved in decision-making that affects management and use of their country, history and culture. We recommend that Indigenous people are properly engaged with Act-related processes through "Right-Way" traditional engagement and "free, prior and informed" consent. Traditional knowledge and management have an important role to play in threatened species recovery and management. About a third of Australia is currently regarded as Indigenous lands and 44% of Australia's National Reserve System is managed by Indigenous land managers through the Indigenous Protected Area system. Indigenous people should, where possible, always be consulted and included in discussions ranging from species and community assessments through to regional planning and decisions about management. A targeted review into how the Act can better reflect Indigenous people, knowledge and country is a necessary step towards achieving this goal (Ens et al. 2012, 2015). Specific changes to the Act include:

- Changes to MNES to include the Indigenous Conservation Estate (IPAs and other joint-managed conservation lands), Indigenous Water Rights and Culturally Significant Species.
- Changes to how Controlled Actions are determined and then subsequently assessed that ensures consultation with Traditional Owners as key stakeholders of land (and biodiversity).
- Recognition of Indigenous Bio-Cultural Knowledge (IBCK) and how it is inherently linked to biodiversity conservation.
- Increased leadership roles and powers of the Indigenous Advisory Committee (IAC) and Traditional Owners in decision making.
- Traditional Owner involvement in (joint) management of all Commonwealth reserves which overlap with Traditional Owner land/sea Country.

3. Requirement in the Act for monitoring and evaluation.

Effective monitoring is a critical part of threatened species conservation. Inadequate monitoring data for MNES, recovery and compliance actions, limits our ability to track progress and interferes with our ability to apply effective policy and management (Legge et al. 2018). Furthermore, Australia does not have reliable, comprehensive and publicly available environmental information systems to collate, map, forecast and report on environmental conditions and the state of

individual species (Lindenmayer et al. 2015, 2017, Sparrow et al. 2019). To enable efficient monitoring of MNES, their recovery plans and environmental impacts, we support:

- Clear, science-based **national environmental standards for monitoring, evaluation and data for assessments and referrals,** that ensure data interoperability, allowing data to be combined in national systems and made publicly discoverable, accessible and reusable (as per Recommendation 17 of Dr Craik's 2018 *Review of interactions between the EPBC Act and the agriculture sector* to **develop national environmental standards for monitoring, evaluation and data for assessments and referrals)**. This ensures that all jurisdictions deliver and assess Act-related activities in a consistent, transparent and replicable manner**.**
- Legislation mandating monitoring of Act-related activities and Act-listed species.
- Increased investment into national biodiversity data aggregation and analysis facilities to build reliable, comprehensive and publicly available environmental information systems that map, monitor, forecast and report on environmental conditions and the state of MNES.

Investment into monitoring, data aggregation and evaluation should realise considerable benefits in relation to:

- greater consistency of environmental impact assessment processes and outcomes, because data from other like cases can be readily be drawn upon to inform decisions on new referrals;
- cost savings for businesses engaged in preparing EPBC Act referral (and other) materials and for the Australian Government as administering preparation and review of that material becomes faster and easier;
- accountability for disaster risk management decisions due to clear chains of responsibility and effectively monitored outcomes;
- improved outcomes for species and ecosystems impacted by natural disaster through improved communication and collaboration between science and government, enabling adaptive learning and management and helping to identify causative factors and responsible parties when critical endangerment and extinction events occur.

4. Greater scientific oversight of assessments and approvals in the Act.

The EPBC Act is a comprehensive piece of environmental legislation that incorporates good policies for the protection of MNES. The process of referral, assessment and listing under the Act must remain focused on rigorous scientific assessment, solely based on threat to the species or community. Changes to the Act should only occur if they are based on scientific evidence, and they reflect the evolution of our understanding about biodiversity and the environment, including connectivity, climate change, disaster resilience and ecological communities. Greater scientific oversight of assessments and approvals ensures that:

- The Precautionary Principle is used, as stated in the principles of Ecologically Sustainable Development (ESD), to ensure that there is scientific certainty that environmental damage will not occur as a result of a referred process.
- Decisions about recovery actions, costs, socio-economic impact and resourcing are transparently segregated from the listing process and do not affect the listing of an MNES.
- Decisions about listing MNES are made based on scientific evidence rather than ministerial discretion.

5. Introduce changes that reduce regulatory and administrative burdens and increase accountability.

Such efficiencies include:

- A national approach to environmental data that would help to achieve the objects of the Act (point 3 above).
- Strategic approaches such as science-based bioregional assessments and planning to prioritise areas for enhancing conservation across the landscape by dealing with multiple MNES and cumulative biodiversity impacts (Whitehead et al. 2017). Bioregional planning allows for assessments to be more comprehensive and representative, and reduces the administrative burden of site-by-site assessments.
- Increase focus on assessment of ecological communities and development of community recovery plans. This will provide greater certainty in management and regulation through greater coverage of Australia's ecosystems and biodiversity.
- Adoption of the Common Assessment Method (CAM) (Intergovernmental MOU 2015) by all Australian jurisdictions for listing species and ecological communities. For ecological communities this entails adopting the IUCN Red List of Ecosystems protocol as a CAM across State and Federal jurisdictions. This will increase efficiencies and provide greater certainty in management and regulation through greater coverage of Australia's ecosystems and biodiversity and cross-jurisdictional flow of information and assessments.
- Eliminate the requirement for self-referrals, removing the burden from society to self-assess. The self-referral process for assessments is highly subjective due to personal judgements about "significant" impacts. We propose simplifying the process to mandate that all referrals be put to an independent committee for assessment regardless of the possible impacts.
- A new legislative requirement for accountability with regards to Act-related decisions, including a provision that makes it an offense to cause, contribute significantly to, or fail to take reasonable actions to prevent an extinction. This would align with requirements to assign responsibility for extinctions in the USA under their Endangered Species Act, and ensure that decisions are transparent and easily traceable.

Response to overarching questions in Section 6 of the Discussion Paper

1. Is the EPBC Act delivering what was intended in an efficient and effective manner?

The EPBC Act is not delivering what was intended, whether measured against efficiency or effectiveness. Since its introduction in 1999, the purpose of the EPBC Act has been to

> *protect and conserve Australia's environment, biodiversity and heritage, and promote ecologically sustainable development through the conservation and sustainable use of natural resources.*

In 2011, Australia's State of the Environment (SoE) Report recognised that "*The prognosis for the environment at a national level is highly dependent on how seriously the Australian Government takes its leadership role*".

Despite this alert, the 2016 State of the Environment Report concluded that "*Australia's biodiversity is under increased threat and has, overall, continued to decline. …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."*

Scientific evidence demonstrates that the trends identified in the 2016 SoE report have continued apace since that time (Kearney et al. 2018):

(a) *Vast areas of MNES habitat are being cleared without referral*

The Act is not protecting potential habitat for terrestrial threatened species, terrestrial migratory species, or threatened ecological communities (Ward et al. 2019). Since the EPBC Act came into force in 2000, over 7.7 million ha of the potential habitat for species and communities has been cleared (Ward et al. 2019, Figure 1). Of this clearing, over 93% was not referred to the Federal Government for assessment, meaning the loss was not scrutinized under the Act. While 1,390 (84%) species suffered loss, the Mount Cooper striped skink, *Keighery's macarthuria*, and Southern black-throated finch lost 25%, 23%, and 10% of potential habitat, respectively. This is due to cumulative loss of habitat resulting from mostly unregulated clearing (Reside et al. 2019). The iconic koala also lost ~1 million ha (2.3%) of potential habitat.

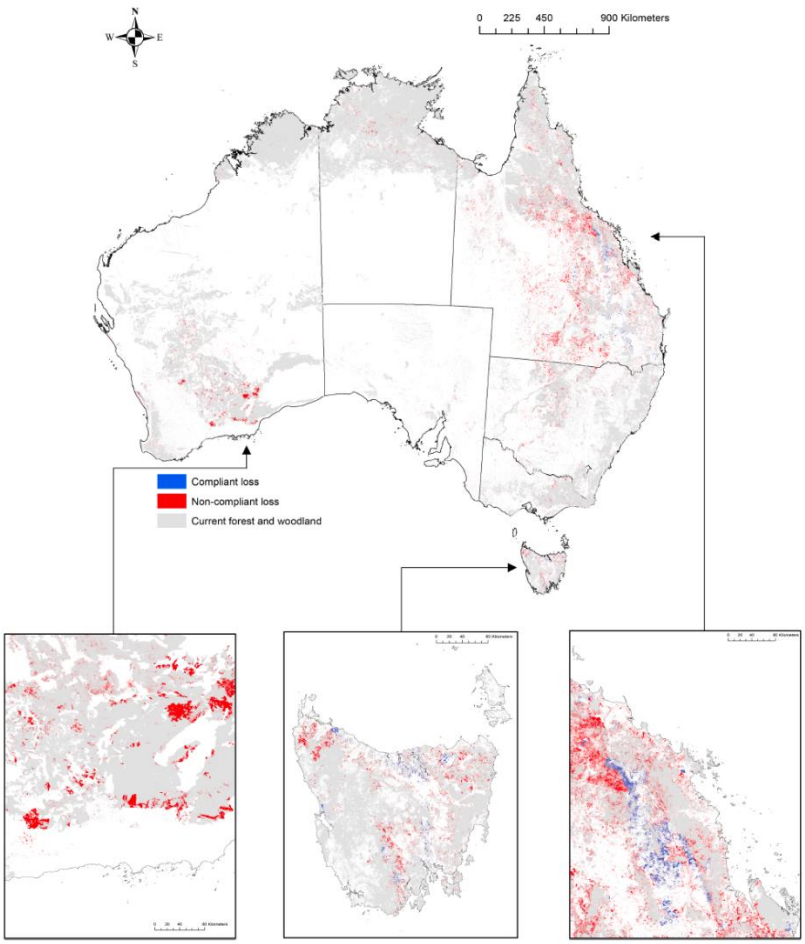

Figure 1. Loss of potential habitat for threatened species and migratory species, and threatened ecological communities. Dark blue represents compliant loss (or loss that occurred with a referral under the EPBC Act) and dark red represents non-compliant loss (or loss that occurred without a referral under the EPBC Act). Three panels highlight the southern Western Australia coast (left), Tasmania (middle), and northern Queensland coast (right). Published in Ward et al. (2019).

(b) *Threatened species populations are declining, but adequately resourced management can reverse species declines.*

Analyses of threatened species trends over time through the Australian Government National Environmental Science Programme's Threatened Species Recovery Hub Project "A Threatened Species Index for Australia" (2018) shows that threatened species are declining both within and outside of the National Reserve System (Figure 2). Protected areas must be actively managed to achieve the best outcomes for biodiversity (Kearney et al. 2018). Evidence suggests that current levels of resourcing for recovery are insufficient to mitigate threats to threatened species, even in State- and Commonwealth-funded reserves (May 2017). However, populations that are adequately resourced (e.g. managed threatened mammal populations in fenced reserves funded through private conservation, non-government organisations) show increased population abundance over the past 15 years, indicating recovery is possible and achievable if well-funded (Figure 2d).

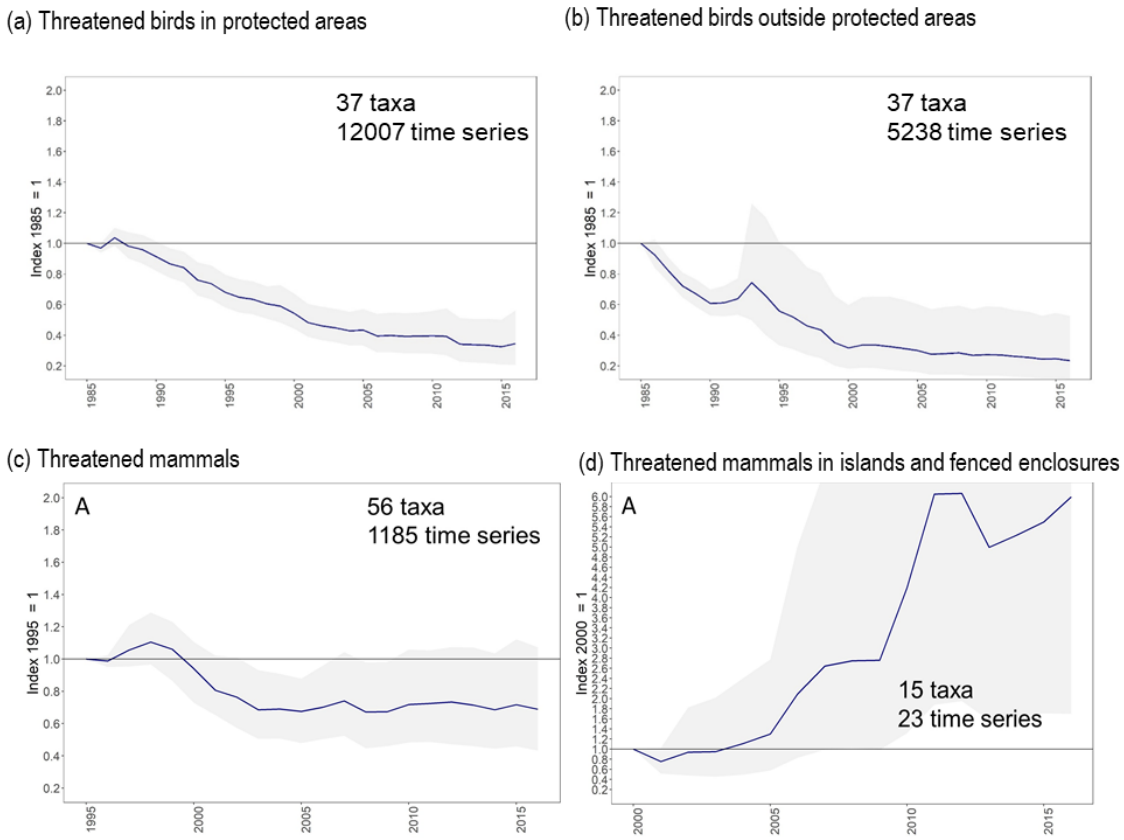

Figure 2. Threatened species multi-taxon trends evaluated through the national Threatened Species Index (TSX 2018), showing bird species (a) inside and (b) outside of Protected Areas between 1985 and 2016, and mammal species (c) between 1995 and 2015 and (d) inside islands and fenced enclosures between 2000 and 2015.

2. How well is the EPBC Act being administered?

Deficiencies in the administration of the EPBC Act have been identified since the Hawke Review in 2009, with most of these problems continuing today. These can be summarised as follows:

- Inadequate Federal Government commitment to its international obligations to the environment, addressing climate change and biodiversity conservation. These include the UN's Sustainable Development Goals (2015a), the Aichi Targets (2015b) and international Treaties and Conventions to which Australia is a signatory such as the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). For example, Australia's 1972 commitment under the World Heritage Convention is to protect representative examples of all major terrestrial, freshwater and marine ecosystem types. This has not been achieved (May 2017, Taylor et al. 2014).
- Inadequate funding to support timely listing of MNES and mitigate the issues that are enabling ongoing loss of biodiversity and environmental degradation at all levels of government (see Case Study 1 below). Existing funding streams for implementing threatened species recovery plans and preventing threatened fauna loss are completely inadequate. Australia has been ranked one of the worst in the world for underfunding biodiversity conservation (Waldron 2013), and

funding has decreased substantially since that study. Declines in the Australian Government's investment in the environment have been associated with widespread losses and declines of species and ecosystems (Legge et al. 2018).

- Reliance on Ministerial discretions in decision-making that should be science-based and independent of political processes.
- A need for formalised agreements underpinning improved coordination and collaboration between Commonwealth agencies and between Commonwealth and State/Territory agencies responsible for biodiversity protection and natural resource management.
- Inadequate baseline data on which to assess trends in biodiversity at local, regional and national levels.
- A lack of science-based monitoring, evaluation and reporting of core measures and a building of trust in government agencies responsible for such monitoring and reporting.
- A lack of strategic coordination and subjective piece-wise processes such as self-referral are leading to inadequate environmental impact assessment that does not account for cumulative impacts, delayed identification, listing and recovery planning for MNES, and direct impacts on MNES.

Case Study 1: Inadequate funding to support timely listing of MNES is contributing to declines and extinctions of Australian species.

The Christmas Island forest skink was formally listed as a threatened species only four months before the last individual died in captivity, but 15 years after the decline was first reported (Woinarski et al. 2014). Extinction of the forest skink, Bramble Cay melomys and Christmas Island pipistrelle between 2009 and 2014 may have been averted if the risk was formally recognised in a timelier manner and effective conservation actions, such as captive breeding programs, were implemented (Woinarski et al. 2017). These four extinctions came to pass as a direct result of delayed action to list and recover species, brought about by inadequate funding for environmental matters at multiple levels of government.

3. Is the EPBC Act sufficient to address future challenges? Why?

The EPBC Act in its current form requires improvements to address future challenges. The Act:

- Fails to adequately prioritise biodiversity conservation as its primary objective;
- Lacks the structures to ensure independent, science-based decision-making and policies and collaborative programs leading to effective implementation;
- Enables discretionary decision-making and action on the conservation of biodiversity;
- Lacks adequate requirements for monitoring, evaluation and implementation of actions to protect and restore biodiversity;
- Fails to entrench adequate funding provisions to support essential environmental actions;
- Fails to establish clear lines of accountability for conserving MNES including provision that makes it an offense to cause, contribute significantly to, or fail to take reasonable actions to prevent an extinction;

- Lacks provision for the transparency needed to restore public/community confidence in government.

Some of the nationally significant factors that are of increasing urgency and must be addressed to update the Act so that it becomes more fit for purpose as we move into a new future include:

a) The impacts of climate change resulting from increased greenhouse gas emissions;
b) Sustainable management of water resources (both as they relate to coal & gas impacts and the wider impacts of drought), taking account of the needs of the environment as well as those of people;
c) Loss of native vegetation resulting from land-clearing increases related to a range of human pressures;
d) Inadequacies of the existing National Reserve System, and in particular National Parks and other areas reserved primarily for their nature conservation values;
e) A need to recognise Ecosystems of National Importance.

Each of these could be addressed by introducing additional MNES to the Act. In the absence of these initiatives, biodiversity will continue to decline and the ecosystem services on which our life depends will be eroded.

As human pressures on the environment grow, greater engagement of individuals and communities in biodiversity conservation and recovery, and environmental protection will also be necessary. In this regard, explicit provision for, and enabling of, Indigenous land management practices, care for our biodiversity, and support for these actions is also required.

4. What are the priority areas for reform?

a. Requiring development and implementation of Recovery Plans for all threatened species, that include identification of critical habitat

Recovery Plans for all threatened species were mandated under the Act prior to changes passed in 2006 (*Environment and Heritage Legislation Amendment Act (No. 1) 2006*). However, after the 2006 amendments, Recovery Plans were no longer required for threatened species but rather became a discretionary matter for the Minister. Recovery Plans help drive efforts and investment for threatened species (Woinarski et al. 2017), and lack of Recovery Plans can contribute to extinction of threatened species (Legge et al. 2018). Recovery Plans are long-term in nature, providing an evidence-based strategy to work towards species protection regardless of changes in Government that may occur. To address Australia's extinction crisis, the Act should be amended to restore the requirement for Recovery Plans for all listed threatened species and communities. Identification of critical habitat should be required in Recovery Plans to trigger mechanisms designed to protect these areas on all land tenures, ensuring that habitat loss does not worsen threats to already threatened species. In the USA, species with mapped critical habitat are more likely to recover than those without mapped habitat, and species with recovery plans are more likely to recover than species without recovery plans, most likely due to the additional requirement of such recovery being adequately resourced (Taylor et al. 2005).

b. Requiring Threat Abatement Plans for all threatening processes and drivers of biodiversity loss

The Act allows the Minister to make Threat Abatement Plans after listing key threatening processes. It is our view that **this provision is a cost-effective mechanism to efficiently address threats to Australia's biodiversity, and so the Act should be amended to require Threat Abatement Plans for all Key Threatening Processes and for additional processes identified as drivers of biodiversity loss**.

Addressing widespread threatening processes such as invasive species, habitat loss, overharvesting of species, and climate change and extreme weather events through the established but underutilised Threat Abatement Plans may enable more efficient use of conservation resources (Allek 2018). In these cases, Threat Abatement Plans would be advantageous in contributing to the protection of a suite of species and ecosystems, according to best available evidence. Such a proactive approach could also help to prevent threats and thus prevent species from becoming threatened in the first place.

Threat Abatement Plans act to coordinate collaborative national effort to mitigate those threats defined as a Key Threatening Processes. Key Threatening Processes could be utilised more effectively to identify threats to biodiversity. These are already legislative instruments under the EPBC that are a cost-effective strategy for achieving biodiversity conservation and could achieve multiple benefits to threatened species and ecological communities.

c. Improving the efficiency and effectiveness of the listing process through greater focus on assessment of ecological communities and allowance for the impacts of natural disasters on MNES

The EPBC Act needs to accommodate the effects that major natural disasters can have on ecosystems and on biodiversity. There is extensive evidence indicating that Australia and the nation's ecosystems and its biodiversity are increasingly prone to more natural and human disturbances, including large-scale catastrophic events. For example, it has been well documented that wildfires will become more frequent, widespread, severe and intense as a result of rapid changes in climate (Williams et al. 2009, Cary et al. 2012).

The EPBC Act should be reformed to better accommodate the impacts of interacting factors in the assessment of the status of threatened species, ecological communities or key threatening processes. This becomes particularly important following major natural disasters, especially in regard to: (1) revisiting listing processes and determining the need for uplisting, (2) recommending additional management actions as soon as major disturbances have occurred (e.g. intensification of feral animal control immediately after fires), and (3) limiting the risks posed by additional disturbances in already disturbed ecosystems (such as limiting post-fire logging in already extensively burned environments).

The ESA supports a greater focus on the assessment of ecological communities as a cost-effective and efficient approach. Listings of threatened ecological communities can benefit multiple threatened species and stimulate the abatement of multiple threatening processes.

d. Requiring monitoring, evaluation and data sharing as a legislative requirement for EPBC-referred processes, EPBC-listed threatened species and recovery plans

While Australia's implementation of threatened species monitoring has been inadequate to date, this is not due to a lack of knowledge or understanding of *how* to undertake monitoring. Our ecological science and management community is experienced in undertaking well-structured and cost-effective monitoring, where data can be used to inform adaptive management. With greater investment in this area, Australia is equipped to implement effective monitoring for threatened species assessment and adaptive management responses.

Existing policy and legislative settings to support monitoring for threatened biodiversity are weak, inconsistent and are not always aligned with international reporting obligations. The ESA recommends their strengthening, including the requirement of monitoring as a legislative requirement.

e. Establishing accountability for endangerment and extinction events.

There is currently no provision in Australian legislation that makes it an offense to cause, contribute significantly to, or fail to take reasonable actions to prevent an extinction. Thus, any agencies or individuals who contribute to extinctions or fail to take reasonable steps to prevent them, operate with impunity.

There is also no formal public inquiry process into endangerment or extinction events, meaning we lose the opportunity to learn from past attempts at threatened species protection and may repeat errors that lead to species extinction.

To address these shortcomings, **we recommend that the EPBC Act is amended so that:**

- **it is an offence to cause or contribute to an extinction, to contribute to threatening processes that cause extinction**, or to fail to take reasonable actions to prevent an extinction;
- **it is possible to assign responsibility for extinctions** e.g. minister, government, department, landholder or public official, and;
- **formal public inquiries are required into each listing of species as critically endangered and all extinctions events**, to enable us to identify the causes of critical endangerment and extinctions to improve future policy and management decisions.

Fundamental to legislative reform is the inclusion of a primary and overarching Object of the Act to not simply "*provide for protection of the environment*", but to *protect Australia's environment and its diversity*.

Independent, science-based decision-making through the establishment of, for example, a National Sustainability Commission and a National Environmental Protection Authority with Indigenous representation, could ensure more efficient and effective biodiversity conservation at the national level. Greater scientific oversight will ensure more effective assessment and listing processes.

5. What changes are needed to the EPBC Act? Why?

See answer to Question 4 above for key suggested changes.

The Hawke Review (2009) provides a useful 'integrated package' of reforms, many of which have not been implemented. For example, the Hawke Review (2009) recommended the expansion of the role of Bioregional Plans under the EPBC (and change the terminology to 'Regional Plans') so that they are used more frequently, and are more substantial and robust. The Hawke Review also recommended that the EPBC be changed to allow the Commonwealth to unilaterally develop Regional Plans, and to ensure that the process for delineating a region for the purpose of the Act is flexible. Such Plans would be further strengthened if they were legislative instruments.

We discuss our recommendations in more detail relative to each of the discussion paper's questions.

Response to specific questions in the Discussion Paper

Question 1.

Some have argued that past changes to the EPBC Act to add new matters of national environmental significance did not go far enough. Others have argued it has extended the regulatory reach of the Commonwealth too far. What do you think?

Past changes to the EPBC Act have increased its reach but these changes were essential to achieving its objects of providing for protection of the environment. Changes are necessary given the dynamic nature of the Australian landscape and the threats faced by Australia's biodiversity. For example, the 2013 EPBC Act "water trigger" amendment to add water resources to the list of MNES, was legislated as a result of increasing scientific evidence (Carmody 2016) on the negative impacts of Coal Seam Gas (CSG) and large coal projects on water resources, in particular groundwater (Pells and Pells 2012, Sydney Catchment Authority 2012, Varma and Michael 2012). CSG is an emerging industry in Australia and therefore scientific evidence on its impacts on groundwater was not available when the Act was first legislated. Most other amendments to the Act since 1999 have come about due to similar growth in knowledge about Australia's biodiversity and human impacts on systems, and it is certain that new changes will be needed in the future to strengthen protection on aspects of biodiversity and the environment that, for whatever reason, were previously unprotected.

As one of only two developed countries globally that is recognised as being 'megadiverse', the Commonwealth must take a leadership role (beyond what is currently the situation) in protection and restoration of the rich natural values for which our nation is recognised and on which our future prosperity depends.

Several additional Matters of National Environmental Significance should be added to the EPBC Act:

- A trigger to guard the National Reserve System of protected areas against significant impacts.
- A trigger to identify and protect Ecosystems of National Importance, such as wetlands of national importance, Key Biodiversity Areas, climate refugia and High Conservation Value Vegetation.
- A greenhouse trigger to ensure that climate change impacts are embedded in strategic planning and that high-emission projects have their impacts thoroughly assessed against international climate goals and national commitments.
- A trigger to assess significant land-clearing proposals, and to prohibit unacceptable impacts on critical habitat and High Conservation Value Vegetation and Key Biodiversity Areas.
- Provision of protective measures for Vulnerable Ecological Communities equal to those afforded to Vulnerable species as MNES.
- Thematic assessments of groups of ecosystems to increase the efficiency of the listing process. In recent years thematic assessments have been undertaken for groups of species (mammals, birds, amphibians) by specialist working groups.
- Recognition of Indigenous species of Cultural Significance – species that are considered locally or regionally threatened where their populations are of cultural significance to local Indigenous

people. Examples include large goannas in south east Arnhem Land (Emilie Ens, Chery Daniels pers. Obs) or brush-tailed possums in east Arnhem Land (Bridget Campbell, thesis in prep).

- Recognition of the Indigenous Conservation Estate – Indigenous Protected Areas (IPAs) and other conservation lands managed through joint agreement between Indigenous people and State agencies and/or environmental NGOs.
- Update the Act's terms to be consistent with international terminology. For example, the MNES "ecological communities" can be updated to "ecosystems", and "extinct Ecological Communities" updated to "collapsed ecological communities (or ecosystems)" to align with international terminology used by other nations and the IUCN.

Question 2

How could the principle of ecologically sustainable development (ESD) be better reflected in the EPBC Act? For example, could the consideration of environmental, social and economic factors, which are core components of ESD, be achieved through greater inclusion of cost benefit analysis in decision making?

1. **Australia's attempts to implement ESD have been inadequate, and immediate attention is required to address this shortcoming**.

When the Principles of Sustainable Development were being developed by the Commonwealth and the States in 1992, the word 'Ecologically' was intentionally introduced in recognition of the outstanding significance of Australia's biodiversity – its diversity and uniqueness as well as its importance to ecosystem health, the health and well-being of people and the importance of this unique environment to landscapes and their productivity. The agreed definition of ESD (1992) was

> *using, conserving and enhancing the community's resources so that ecological processes, on which life depends, are maintained, and the total quality of life, now and in the future, can be increased.*

Current evidence shows that Australia is not achieving ESD, as the ecological processes on which life depends are not being maintained and without changes to current approaches they will not be maintained into the future. For example, Australia is a world-leader in faunal extinction (IUCN Red List 2018). Australia's level of mammal extinction is the highest in the world, with >10% of 273 endemic land mammal species having gone extinct since European arrival, a further 21% of Australian land mammals now classified as threatened (Woinarski 2015), and ongoing declines of threatened mammals (Figure 2).

Nearly 40% of Australia's forest has been lost with most remaining native vegetation highly fragmented (Bradshaw 2012). In total, it is estimated that since European settlement nearly 15% of all of Australia's land has been severely modified through intensive land use developments, particularly for agriculture and urban land uses (Deo 2011). Even after the definition and acceptance of ESD, clearing continues to be one of the most significant threatening process to native species in Australia. Since the commencement of the Act in 2000, Australia's deforestation rates have increased rather than declined (Evans 2016). Of the eleven world regions highlighted as global deforestation fronts, Australia is the only one that is a developed country (WWF 2005). While the Act has been in force,

over 7.7 million ha of the potential habitat for species and communities has been cleared, with 93% of this clearing not referred to the Federal Government for assessment (Ward et al. 2019).

2. **Decision-making processes should focus only on biodiversity, but can draw on scientific and economic approaches such as cost-benefit analysis and the precautionary principle to improve ESD.**

The precautionary principle can be used, as stated in the principles of ecologically sustainable development (ESD), to ensure that environmental damage will not occur as a result of a referred process, even in cases of uncertainty or insufficient data. Application of the precautionary principle is currently rarely done in EPBC Act assessment and listing, and it should be mandated in cases where there is insufficient current knowledge to adequately assess status, threats, or required recovery actions for a species.

With regards to decision-making about listing of MNES, which form a substantial body of activity resulting from the EPBC Act, the ESA strongly recommends that **the process of referral, assessment and listing under the EPBC Act *must* remain focused on rigorous scientific assessment, solely on the basis of threat to the species or community.** Decisions should not be based on ministerial discretion. This is because:

- Current EPBC listing and delisting processes are established on rigorous and transparent scientific processes, with criteria based on those developed internationally by the International Union for the Conservation of Nature (IUCN).
- Processes prescribed by the EPBC Act are scrupulously overseen by an independent scientific committee who review documents and advise the federal Environment Department and the Minister for the Environment. This committee has a range of expertise in marine and terrestrial taxonomy, biology, ecology and conservation.

Listings must be informed by rigorous scientific assessment focused solely based on threat to the species or community. **Decisions about action in response to listing, economic impact and other socio-economic matters should be transparently segregated into separate processes from the threatened listing process.**

Principles of cost-benefit analysis for non-financial economic factors are poorly resolved. These include the loosely-defined ecosystem services and biodiversity markets. We would caution against using current cost-benefit approaches until the discipline has resolved broader socio-economic and biodiversity issues. They could then assist in improving decision-making. Costs of any given decision should instead be quantified as the costs to biodiversity, ecosystem services, and the environment.

Question 3

Should the objects of the EPBC Act be more specific?

The Objects of the Act need to be more specific, strengthened, focussed on ecological outcomes not administrative processes. Objects should have a clear purpose, with time-bound ecological goals and objectives and clear deliverables for biodiversity against which to measure progress. Accountability on

environmental protection has been lacking and measurable goals will enable the community to track the performance of governments in delivering the Objects of the Act.

One clear objective in the Objects – Item e (ii) establish an Australian Whale Sanctuary has been achieved. The other more clearly stated objectives, items e(i), e (iii) and e (iv), have been partly achieved in the cases of a small number of species and ecosystems. This indicates the value of having explicit goals and deliverables.

In addition to ensuring that Objects are measurable and time-bound, the Objects of the Act should be changed so that protection of Australia's environment, biodiversity and natural heritage become a clear primary Object, with other secondary Objects subordinate to this Object. Such subordinate Objects could include:

- ESD;
- Science-based enforceable duties and mechanisms for implementing actions to meet the primary Object;
- Enhanced Commonwealth leadership in achieving the primary Object;
- Provision for an independent statutory body addressing National Sustainability plans and actions and a National Environmental Protection Authority assessing, considering approvals of, monitoring compliance with, and enforcing nationally agreed standards.
- Recognition of Aboriginal and Torres Strait Islanders' knowledge of caring for country and facilitation of their involvement in and leadership of land management, using their knowledge while ensuring their free, prior and informed consent to such use, and primary substantive rights to biocultural knowledge.
- Ensuring that Australia has in place and properly implements its obligations under all relevant international treaties, conventions and related documents.
- Ensuring public accountability, community participation and equity in decision-making affecting the environment of both present and future generations.

Question 4

Should the matters of national environmental significance within the EPBC Act be changed? How?

We recommend the following changes to MNES (see Question 1):

- A trigger to guard the National Reserve System of protected areas against significant impacts.
- A trigger to identify and protect Ecosystems of National Importance, Key Biodiversity Areas, climate refugia and High Conservation Value Vegetation.
- A greenhouse trigger to ensure that climate change impacts are embedded in the Act.
- A trigger to assess significant land-clearing proposals, and to prohibit unacceptable impacts on critical habitat and High Conservation Value Vegetation and Key Biodiversity Areas.
- Protective measures for Vulnerable Ecological Communities equal to those afforded to Vulnerable species as MNES.
- Recognition of IPAs and Culturally Significant Species as MNES.

The following steps will facilitate the above changes to MNES:

- Oversight of triggered MNES by a National Sustainability Commission;
- Approval of referrals must be science- and evidence-based;
- Thematic assessments of groups of species and ecosystems;
- Consistent, transparent decision-making processes that can be tracked from initiative to end decision;
- Removal of the self-referral process, and requirement for all proposals to be assessed by an independent scientific body;
- Clearer definition of 'significant impacts';
- Improved monitoring, reporting and public accountability mechanisms.

Question 5

Which elements of the EPBC Act should be priorities for reform? For example, should future reforms focus on assessment and approval processes or on biodiversity conservation? Should the Act have proactive mechanisms to enable landholders to protect matters of national environmental significance and biodiversity, removing the need for regulation in the right circumstances?

An overarching objective of the Act is to protect Australia's environment and biodiversity. The Act is not achieving this objective (see response to Overarching Question 1).

The Act should focus on the protection of biodiversity and recovery of threatened species and ecological communities as well as species of cultural significance to Indigenous groups. This elevates the environment and its life sustaining properties as the primary object of the Act. It ensures biodiversity and ecological integrity are a fundamental consideration in decision-making. This is necessary to address contemporary challenges that face biodiversity in Australia: land use change, human settlement patterns, systems of production and consumption, as well as the increasing threat of climate change. One guiding principle should be that biodiversity is protected at a whole-of-landscape scale to capture cumulative impacts on species, and that the critical importance of ecological connectivity on biodiversity be recognised.

The Act should not be amended unless the changes improve environmental protection. Changes should be evidence-based and reflect the evolution of our understanding about biodiversity, threats and its protection.

Current priorities for reform within the Act include (in no particular order):

Biodiversity protection

- **Decisions should be based on scientific evidence and on Australia's international obligations to biodiversity**. Such obligations include the Convention on Biological Diversity, Convention on Migratory Species, Convention on International Trade in Endangered Species of Wild Flora and Fauna, and Ramsar Convention on Wetlands. These obligations should be set out in the Act.
- **Threatened species' 'critical habitat' identified at the time of listing**, **together with recovery planning** that includes mechanisms to protect these places from further development. Australia has not listed any critical habitat for the protection of threatened species on the federal critical habitat register for more than a decade (Cox 2018).

- **Systematic identification of nationally significant ecosystems and the establishment of a truly 'comprehensive, adequate and representative' network** of National Reserves through Commonwealth/State collaboration. The current national reserve system is underfinanced (May 2017) and not representative of Australia's unique biodiversity. Taylor et al. (2014) found that many ecosystems are not yet adequately protected: 1,655 (28%) of terrestrial ecosystems had <15% of their area protected. Fourteen bioregions have less than 5% protected.

Assessment and approvals

- **Approval of referrals must be science- and evidence-based.** Currently, ministerial discretion contributes to ongoing approval of projects subject to consideration as MNES (Case Study 2).
- Removal of the self-referral process, and requirement for all proposals to be assessed by an independent scientific body will ultimately lead to efficiencies due to consistent, transparent decision-making processes.
- Clearer definition of 'significant impacts' and improved monitoring, reporting and public accountability mechanisms will assist in achieving more consistent biodiversity outcomes.
- The efficiency of the species listing process has improved in recent years as a result of the adoption of the Common Assessment Method (CAM) by most Australian jurisdictions . The ESA supports the continuation of this approach and its extension to include ecological communities.
- Under the EPBC, status reviews of particular groups of species has been undertaken using a Species Expert Assessment Plan (SEAP) process. The ESA supports the continuation of this approach, particularly given its transparent basis with clear criteria.
- The ESA also supports the ongoing collaboration with IUCN specialist groups in undertaking nation-wide rapid assessments
- Listings of threatened ecological communities benefit the conservation of multiple threatened species that may occur within them. The Commonwealth and NSW have been responsible for most of the ecological communities listed to date. Australian governments have agreed in-principle to a Common Assessment Methodology (CAM) for listing ecological communities (as for species), but so far only NSW and the ACT have opted in to implement the CAM for ecological communities.

Case Study 2: Reliance on Ministerial Discretion leads to outcomes that contravene the objects of the EPBC Act and international obligations.

The Toondah Harbour development project in Queensland plans to build 3,600 apartments on wetlands that are listed under Australia's international obligations to the Ramsar Convention and that provide habitat for migratory waterbirds, including the critically endangered eastern curlew (Gartry 2018). Despite being described as "clearly unacceptable" (Cannane and Trigger 2018) in terms of the risks to MNES listed under the Act by the federal environment department who rejected the proposal twice, the minister allowed a third submission to proceed for further assessment. Such a decision violates Australia's national obligations to MNES under the Act as well as Australia's international obligations to migratory species and protection of Ramsar wetlands.

Scientific oversight of decision making

- Listing and environmental impact assessment decisions should be based on the best available science. All decisions should rely on scientific evidence to improve, not reduce, protection of MNES. The process of referral, assessment and listing under the EPBC Act must remain focused on rigorous scientific assessment, solely based on threat to the species or community.
- Changes to the Act should be based on scientific evidence and reflect the evolution of our understanding about biodiversity and the environment, including connectivity, climate change, and ecological communities.
- Decisions about action, economic impact and resourcing need to be transparently segregated from the listing process.

Disaster resilience

- The Act should be reformed to accommodate the impacts of interacting factors, in particular major natural disasters, in assessment of the status of threatened species, ecological communities and key threatening processes. This becomes particularly important following major natural disasters in regard to: (1) revisiting listing processes and determining the need for uplisting, (2) recommending additional management actions as soon as major disturbances have occurred (e.g. intensification of feral animal control immediately after fires), and (3) limiting the risks posed by additional disturbances in already disturbed ecosystems (such as limiting post-fire logging in already extensively burned environments).
- Increased capacity in, and funding for, near-term ecological forecasting (such as through a Biodiversity Disaster Risk Agency) is critical to disaster resilience. Tulloch et al. (submitted) show that there is potential for near-term ecological forecasting to improve decision-making for recovery of MNES, with key priority areas including forecasting the likely impacts of drought and extreme rainfall on scheduled biodiversity conservation actions. We have the weather forecasting tools to predict most weather-related impacts reported for conservation actions, including cold and hot temperatures, drought, flooding and high rainfall up to at least four months in advance (the Australian Community Climate Earth-System Simulator – Seasonal ACCESS-S, Hudson et al. 2017a,b).
- Natural disaster impacts on biodiversity cannot be ignored – Tulloch et al. (submitted) show that extreme weather events affected biodiversity recovery actions across 60% of the Australian continent's bioregions over the past four decades. For some management decisions, weather affected up to 80% of reported actions, and more impacts were negative than positive. This translates to massive economic losses due to misspent and wasted management funding and efforts on those actions that were unsuccessful due to near-term weather impacts – impacts that could have been prevented or mitigated if near-term forecasts using readily available weather data had been built (Hagger et al. 2018).

Strategic approaches

- Science-based bioregional assessments and planning – in which the Commonwealth provides leadership – offer a mechanism for prioritising areas for enhancing conservation across the

landscape. Such assessment reduces the administrative burden of piecewise project-by-project assessments and recovery plans targeted towards individual species (Braby 2018), and ensures greater efficiencies as well as improved biodiversity outcomes (Case Study 3).

- Strategic planning requires formalised agreements underpinning improved coordination and collaboration between Commonwealth agencies and between Commonwealth and State/Territory agencies responsible for biodiversity protection and natural resource management.

Case Study 3: Despite being protected under the EPBC Act, significant proportions of habitat of MNES is cleared without referral.

Since 2000, more than 93% of 7.7 million ha of cleared potential habitat of MNES was not referred to the Federal Government for assessment, meaning the loss was not scrutinised under the Act (Ward et al. 2019). In the case of the endangered black-throated finch, 500,000 hectares of potential habitat has been cleared without referral (Reside et al. 2019). Even when referred, most habitat was allowed to be cleared. More than 700 development projects overlapping the finch's habitat have been referred to the Federal Government under the Environment Protection and Biodiversity Conservation (EPBC) Act 1999. Only one out of the 775 projects—a housing development near Townsville—was refused because of an unacceptable impact on the finch. Such piecewise applications added up to more than 20% of the remaining habitat for the black-throated finch being cleared since the inception of the EPBC Act.

Indigenous involvement

The objects of the Act should be written in such a way as to ensure that Indigenous people are involved in decision-making that affects management and use of their country, history and culture. This needs to be consistent with the UN Declaration on the Rights of Indigenous Peoples and Article 8(j) of the UN Convention on Biological Diversity, and with the principles of access and benefit-sharing identified under the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization (Nagoya Protocol, 2011).

We suggest the following changes to the Act:

- Changes to MNES to include the Indigenous Conservation Estate – IPAs and other conservation lands managed through joint agreement with State agencies and/or environmental NGOs. This will require State jurisdictions to formerly recognise IPAs as part of the reserve system and not simply as Crown land, in many cases vacant or unallocated Crown land.
- Changes to MNES to include Culturally Significant Species, and possibly landscapes. Culturally significant species are spiritually important, totems, provide a source of bush food/tucker/meat or medicine, are used for ceremonial purposes or are used as materials for tools or implements to undertake customary activities.
- Changes to how Controlled Actions are determined and then subsequently assessed that ensures consultation with Traditional Owners as key stakeholders of land and biodiversity in environmental impact assessments, regional and strategic planning processes, including the development and implementation of recovery plans, threat abatement plans and planning

associated with the National Reserve System – CAR planning, including Strategic Environmental Assessments (SEA). Currently the Act requires the Minister to only have considered the role and interests of Indigenous peoples, which is not the same as having the right to give free, prior, and informed consent on decisions that have a direct or indirect impact on the lives and rights of Traditional Owners.

- Provision for indigenous involvement and prior consultation (mandated) in the declaration or listing of threatened species, ecological communities and conservation significant places such as Ramsar sites, especially when those assets occur on or are associated with Native Title determined (in particular exclusive possession – freehold) lands, or lands where the rights of indigenous peoples have not be impinged upon (Aboriginal owned- freehold) or have been reaffirmed through a settlements/agreement process.
- Recognition of Indigenous Bio-Cultural Knowledge (IBCK) and how it is inherently linked to biodiversity conservation. This will align with international standards (Nagoya Protocol) to ensure protection of and equitable sharing of benefits derived from Australia's biological genetic resources. This outcome must ensure the use of traditional knowledge is undertaken with the cooperation and approval (free, prior and informed) of the holders of that knowledge and on mutually agreed terms (Ens et al. 2015).
- Improved recognition of IBCK should also ensure Traditional Owner engagement as part of threatened species/ecological community listings, species/community recovery planning (including translocation plans), threat abatement planning and development of conservation advice statements. Meaningful consultation with Traditional Owners communities allows for the potential discovery of innovative local solutions crafted through 'bottom-up' community governance processes. Local solutions often deliver better Traditional Owner buy-in.
- Recognition of Indigenous Water Rights and the declaration of Indigenous Water Rights as an MNES, particularly when water rights may be reinforced through a Native Title determination or when a controlled action may impact on the ability of Traditional Owners to access and use their rights. An example where this has occurred is in central Queensland's mound spring landscape where mine water drawdown has impacted ecosystem function and the health of culturally significant species. Changed hydrological regime from mine water drawdown has led to the death of paperbark melaleucas from which bark was traditionally collected for ceremonial events.
- Empower bio-regional planning approaches to bring together neighbouring Healthy Country Plans, Ranger Teams and Prescribed Body Corporates in partnership with government agencies, corporate sponsors, NGO and philanthropists. This would deliver better outcomes for biodiversity conservation, land management and economic and spiritual wellbeing of society.
- Ensure Traditional Owner involvement in the (joint) management of all Commonwealth reserves which overlap with Traditional Owner land/sea Country (currently restricted to National Parks). Expand to include World Heritage, National Heritage and Ramsar areas.
- Acknowledge that the provision of environmental services by Traditional Owners through initiatives such as the IPA program contribute significantly to the maintenance of Australia's biodiversity and assist with the mitigation of climate change impacts (e.g. savannah burning).
- Increase the role and powers of the Indigenous Advisory Committee (IAC) and the voice of Traditional Owners in decision making committees of the Department and advice to Minister/Government especially where that decision/advice directly impacts Traditional Owners.

One positive step to achieve this has been including Indigenous representation on the Threatened Species Scientific Committee. Representation should be improved across other federal Environment Department decision making and advisory committees such as the Biological Diversity Advisory Committee, Australian Biological Resources Study (ABRS), Parks Australia, and the National Environmental Science Programme. It would also require those Department officers with delegated authority (the Delegate) to make decisions on development proposals and their controlled actions to consult appropriately with the IAC and/or Traditional Owners. Whilst better engagement with the IAC should be encouraged, it should never be a substitute for direct and comprehensive engagement with Traditional Owners on issues affecting their land/sea Country.

Compliance and enforcement

- Inclusion of enforceable duties to act on scientific advice within defined timeframes, on issues such as nominated MNES and their recovery.
- Accountability for decisions leading to extinctions, and penalties to serve as deterrents to non-compliance with the Act. For example, it should be an offence to cause or contribute to an extinction, to contribute to threatening processes that cause extinction, or to fail to take reasonable actions to prevent an extinction.

Information and reporting

- Annual reporting to Parliament, addressing performance against revised EPBC Act Objects, using nationally agreed environmental data standards and science-based SMART indicators, is needed to build trust in government decisions and to guide improved performance. There is a lack of adequate biodiversity data readily able to be collated from local to regions, state and national levels, and no requirement for reporting reasons for decisions not to comply with various provisions of the EPBC Act (e.g. failure to implement the provisions for action on MNES, such as water impacts of proposed coal mines).
- Regular audits of, and reporting on the performance of decision makers and plans (e.g. recovery plans, bioregional plans), should complement SOE reports and national environmental accounting to ensure accountability and demonstrate return on investment for decisions.

Question 6

What high level concerns should the review focus on? For example, should there be greater focus on better guidance on the EPBC Act, including clear environmental standards? How effective has the EPBC Act been in achieving its statutory objectives to protect the environment and promote ecologically sustainable development and biodiversity conservation? What have been the economic costs associated with the operation and administration of the EPBC Act?

See responses to Questions 1, 3 and 5.

Question 7

What additional future trends or supporting evidence should be drawn on to inform the review?

The review's Discussion Paper (Samuels 2019) captures the key pressures on the environment that are already in place and will continue to expand unless significant action is taken at all levels to address them. Two additional actions will help inform the review and future Act-related actions:

1. **Investment into collecting and collating nation-wide long-term ecological monitoring data to inform trends**

The ability to predict future trends of many of Australia's MNES and threatening processes is limited due to the inadequacy of data and long-term monitoring, which subsequently interferes with our ability to apply effective policy and management. The scarcity of high-quality long-term monitoring data on MNES was highlighted by the State of the Environment Report 2011:

"Data on long-term trends in biodiversity are limited, making it difficult to interpret the state or trends of major animal and plant groups in most jurisdictions"

and reiterated by the State of the Environment Report 2016:

"Evidence for the effectiveness of recovery planning for threatened species is variable. Little evidence exists to suggest improvement in the state or trend of most threatened species".

Under-funding of critical science institutions, such as State and Territory herbaria and museums (O'Donnell 2019), means that we often lack information needed to inform nominations of threatened biota and ecosystems, assessment of threats, and information about listed entities can be outdated (Braby 2018, James et al. in press). Because the assignment of conservation status to any species requires a substantial amount of evidence, particularly in relation to a species' distribution, population size and trends, breeding success, and threats, about 2600 species (12% of Australia's vascular plants) are categorised as Data Deficient (or equivalent) under state/territory listings, and this proportion has increased over the past two decades. Many of these species are likely to be imperilled but simply do not have the data to be uplisted. For example, 39% are known from 10 or fewer herbaria or museum collections and 160 of the species have not been recorded for more than 30 years. To address these shortcomings, the ESA supports a long-term commitment and increased investment into national biodiversity science infrastructure such as the foundational infrastructure delivered under the National Collaborative Research Infrastructure Strategy, like the Terrestrial Ecosystem Research Network.

Case Study 4: Poorly known species on Christmas Island at risk of extinction

At least 250 species are found only on Christmas Island and nowhere else in the world. Christmas Island faces numerous threats including invasive species and climate change – without conservation action these species could disappear forever. Of the 250 unique endemic species on Christmas Island, 16 are terrestrial vertebrate species, and of these 16 species, 12 are formally listed as threatened or extinct under the EPBC Act (with a further five endemic terrestrial vertebrate subspecies also listed as threatened). In contrast, none of the approximately 200 endemic invertebrate species is listed as threatened or extinct under the EPBC Act, notwithstanding that more than 50 of these species have not been reported for more than 100 years. Because the poorly known endemic invertebrates are not recognised as threatened, they

are not explicitly considered in strategic planning or conservation management. Because many are now likely to be extinct, the extent of loss of biodiversity on the island is likely to have been greatly underestimated (James et al. in press).

2. Investment into near-term ecological forecasting capacity to understand and predict the consequences of natural disasters on biodiversity

The EPBC Act needs to accommodate the effects that major natural disasters can have on ecosystems and on biodiversity. Strategies that can be embraced to improve ecosystem and biodiversity resilience and resistance (Bennett et al. 2014) and better guide decision-making under the EPBC Act (e.g. more rapid, evidence-based listings of threatened fauna, flora, ecological communities as well as Red-listed ecosystems) include:

- accommodating the impacts of interacting factors in the assessment of the status of threatened species, ecological communities or ecosystems. This becomes particularly important following major natural disasters, especially in regard to: (1) revisiting listing processes and determining the need for uplisting, (2) recommending additional management actions as soon as major disturbances have occurred (e.g. intensification of feral animal control immediately after fires), and (3) limiting the risks posed by additional disturbances in already disturbed ecosystems (such as limiting post-fire logging in already extensively burned environments).

A relevant initiative arising from the 2016 National Research Infrastructure Roadmap is a scoping study for a possible National Environmental Prediction System (https://science.uq.edu.au/neps). This scoping study is in progress currently, and outcomes of this process could inform a near-term ecological forecasting capacity to support implementation of the Act.

3. Decision science approaches such as risk assessment to estimate consequences of current and future policies for biodiversity and humans

Australia has not conducted an appropriate risk evaluation to fully estimate the consequences of current or possible future loss of biodiversity, as would be done in other portfolios e.g. Defence infrastructure. The wider ecological impact of species extinction is likely to be profound and, as more species go extinct, this will have cumulative environmental impacts. Species extinction may:

- alter ecosystem functions so that ecosystems no longer provide important goods and services such as pollination, nutrient movement, food and water provisioning (Cardinale et al. 2012, Young et al. 2016);
- have cascading effects on other species such as co-extinctions or the increase or release of other species (including invasive pests and weeds) (Young et al. 2016);
- cause unknown consequences to the epidemiology of emerging infectious diseases (e.g.Daszak et al. 2000; Civitello et al. 2015); and
- benefit some parasites with potential negative consequences for remaining species and/or human health (Young et al. 2016).

For example, many species of fungi consumed by Australian marsupials such as bettongs and potoroos form beneficial mycorrhizae with numerous *Eucalyptus* spp., that enhance nutrient uptake

and health of these trees. The fungi are dependent upon these native animals to disperse their spores, and so the loss of these species has cascading effects on the health of the entire ecosystem. Current work to reintroduce bettongs and other small mammals at Mulligans Flat Nature Reserve near Canberra is demonstrating that these negative cascading ecosystem effects can be reversed when a species is reintroduced to an area where it had become locally extinct (Batson et al. 2016). This shows the potential for well-designed recovery planning and associated management interventions to lead to restoration of ecosystems (Claridge et al. 1993, Zosky et al. 2018).

Question 8

Should the EPBC Act regulate environmental and heritage outcomes instead of managing prescriptive processes?

While environmental and heritage outcomes should be clearly identified, it is also important that monitoring, evaluation and enforcement measures needed to guide improvement are identified.

Outcomes should include the principles of:

- 'non-regression of environmental goals'
- 'continuous improvement' in environmental standards and management; and
- commitments to 'maintaining and improving' our national ecosystems, based on regular science-based assessments.

Question 9

Should the EPBC Act position the Commonwealth to take a stronger role in delivering environmental and heritage outcomes in our federated system? Who should articulate outcomes? Who should provide oversight of the outcomes? How do we know if outcomes are being achieved?

Yes. There have been numerous failures of existing arrangements to protect biodiversity and the environment (e.g. an 800% increase in vegetation clearing in NSW between 2013 and 2016 – Davies 2018) through bilateral arrangements that delegate responsibilities to the States. Such failures indicate a need for stronger Commonwealth leadership in protecting and conserving environmental and heritage values across the country.

Areas where this might occur include:

- Broader use of the Commonwealth's Constitutional powers to protect the environment and heritage through the application of the numerous environment-related Treaties and Conventions to which Australia is a signatory (see APEEL 2017), as well as the UN Convention on the Rights of Indigenous Peoples;
- Expansion of the Matters of National Environmental Significance within the EPBC Act (see response to Question 1);
- Providing leadership in developing clear, science-based standards, collating monitoring of outcomes against those standards, using national standards and Common Assessment Methods, overseen by an independent National Sustainability Commission;

- Joint implementation with other levels of government, business and the community, of bioregional plans, threat abatement and recovery plans – their development, monitoring, reporting and improvement.

The inadequacy of current biodiversity monitoring and data collation in Australia (Legge et al. 2018) means that it is difficult to know if Act-related actions are achieving their goals. The EPBC Act does not currently require mandatory monitoring in relation to threatened species, but rather adopts a discretionary approach (s171). It provides that the '*Minister may […] co-operate with […] any person for the purpose of identifying and monitoring components of biodiversity*'. Section 171(2)I refers to the (non-obligatory) monitoring of species' conservation status. This is insufficient to track historical, current and future trends and inform listing and environmental impact assessment. The lack of mandatory monitoring requirements in relation to threatened species in the EPBC Act was recently highlighted in the Environment and Communications Reference Committee Report (2019), p 46.

Mandatory monitoring will simply place Australia's EPBC Act in line with endangered species legislation in other developed nations. Contrary to Australia, USA, UK, Germany and Canada all impose a mandatory monitoring requirement in relation to threatened species. For example, The [USA] Endangered Species Act of 1973 (16 USC § 1533) provides for mandatory monitoring in relation to endangered or threatened species (Section 1533(3)I(iii)):

> *"The Secretary shall implement a system to monitor effectively the status of all species with respect to which a finding is made under subparagraph (B)(iii) and shall make prompt use of the authority under paragraph 7 to prevent a significant risk to the well being of any such species."*

Question 10

Should there be a greater role for national environmental standards in achieving the outcomes the EPBC Act seeks to achieve? In our federated system should they be prescribed through:

- ***Non-binding policy and strategies?***
- ***Expansion of targeted standards, similar to the approach to site contamination under the National Environment Protection Council, or water quality in the Great Barrier Reef catchments?***
- ***The development of broad environmental standards with the Commonwealth taking a monitoring and assurance role? Does the information exist to do this?***

We support Recommendation 17 of Dr Craik's 2018 *Review of interactions between the EPBC Act and the agriculture sector* to **develop national environmental standards for monitoring, evaluation and data for assessments and referrals, that enable data to be incorporated into national datasets in a timely fashion and allow data to be made publicly discoverable, accessible and reusable.** National standards increase data interoperability and ensure that different jurisdictions deliver and assess Act-related activities in a consistent and reusable manner.

An independent, science-based Commonwealth Authority should take responsibility for overseeing and collating monitoring and assurance measures related to biodiversity protection. This will almost certainly require improved use of both national standards and Common Assessment Methods, similar

to that already agreed between the Commonwealth and some States and Territories in relation to threatened species and ecological communities (Intergovernmental MOU 2015).

Australia does not have reliable, comprehensive and publicly available environmental information systems to map, monitor, forecast and report on environmental conditions and the state of individual species (Lindenmayer et al. 2015, 2017, Sparrow et al. 2019). Our ecological science and management community is experienced in undertaking well-structured and cost-effective monitoring, where data can be used to inform adaptive management. Investment into monitoring aligned with national standards should realise considerable benefits in relation to:

- greater consistency of environmental impact assessment processes and outcomes, because data from other like cases can be readily be drawn upon to inform decisions on new referrals;
- cost savings for businesses engaged in preparing EPBC Act referral (and other) materials and for the Australian Government as administering preparation and review of that material becomes faster and easier;
- accountability for disaster risk management decisions due to clear chains of responsibility and effectively monitored outcomes;
- improved outcomes for species and ecosystems impacted by natural disaster through improved communication and collaboration between science and government, enabling adaptive learning and management and helping to identify causative factors and responsible parties when critical endangerment and extinction events occur.

An ecosystem surveillance system is required to guide monitoring in Australia. The system would represent a strategic approach to achieve a robust, comprehensive and efficient national monitoring program. This would include a better-resourced environmental monitoring system integrating programs, sites, data centres, administrators and technology, to provide real-time information nationally in standard accessible and consistent formats. It would be used by environmental managers and decision makers at regional, state and national levels. Components of such a system already exist through State and Territory Government activities, and Commonwealth investment in national research infrastructure like the Terrestrial Ecosystem Research Network, Integrated Marine Observing System, and Australian Research Data Commons.

Any steps towards a national and integrated system should build upon these existing activities, with coordination through an independent national environmental authority, in cooperation with State and Territory environmental management agencies (Ecosystem Science Council 2019).

Question 11

How can environmental protection and environmental restoration be best achieved together?

- ***Should the EPBC Act have a greater focus on restoration?***

  Restoration is a necessary component of the EPBC Act, given the extent of degradation of Australia's biodiversity (species and habitat loss and threats to continued existence). Despite having large start-up costs, restoration and subsequent protection and maintenance of restored areas (Maggini et al. 2013) is the only way to recover many threatened species at risk of extinction. National standards for ecological restoration already exist (Standards Reference Group 2018).

- ***Should the Act include incentives for proactive environmental protection?***

Incentives for proactive management are valuable, but the eligibility terms must ensure that recipients are not rewarded for actions that should properly be regarded as their civil responsibility. At the same time, application processes for legitimate incentives should not be so onerous as to act as a deterrent to those to whom incentives are legitimate.

- ***How will we know if we're successful?***

Measurement of the success of national environmental protection and restoration requires improvement. Investment in monitoring and national standards is key to tracking outcomes.

Collaboration between individual landholders and scientifically trained staff in universities and/or government agencies has repeatedly shown that landholders can provide sound ongoing monitoring and reporting.

The national Threatened Species Index Project (2018) enables those collecting long-term data on threatened species to contribute to a growing database of threatened species trends. It has identified numerous low-cost existing monitoring projects carried out through citizen science that will, with relatively low levels of continuing government investment, ensure that we can evaluate how threatened species respond at national and regional scales to investment in protection and restoration.

- ***How should Indigenous land management practices be incorporated?***

Inclusion of Indigenous people is important at all levels from a high level Indigenous Land and Water Commissioner, through ensuring and resourcing 'free, prior and informed' consent, to management, recognition of Indigenous Protected Areas and financial and other support to better enable direct involvement of Indigenous people in leadership and knowledge-sharing between Indigenous owners of Country and non- Indigenous participants. The Akwe Kon Guidelines (2004) provide important guidance in successful implementation of biodiversity conservation and management. One example of incorporation of appropriate use of Indigenous land management practices is the 'Hotspots' fire & biodiversity program developed by the NSW Nature Conservation Council in collaboration with NSW Rural Fire Services, and another is the reintroduction of 'cultural burning' and carbon emission abatement programs in northern Australia.

Recognition of the Indigenous voice will require:

- Greater acknowledgement of Indigenous Bio-cultural Knowledge (IBCK) and the role it currently plays in biodiversity conservation and land management, especially on the Indigenous Land estate,
- Indigenous consultation and acknowledgement with respect to threatened species and ecological community assessments and listing, threatened species and ecological community recovery planning and the development and implementation of threat abatement plans, and
- Indigenous consultation and acknowledgement in the assessment of Controlled Actions, and their subsequent environmental impacts.

Investment in Indigenous land management is smart not only from an environmental perspective but also from an economic perspective. Analyses of the Social Return on Investment of the Indigenous Protected Area (IPA) and Working on Country (WoC) programs show that these are delivering around three-fold investment returns (Social Ventures Australia 2016).

The ability to acknowledge Indigenous land management practices on the Indigenous Land estate (e.g. IPAs) and their contribution to the EPBC Act objectives (biodiversity conservation and land management outcomes) is possible and will encourage greater implementation of Indigenous methods. More challenging will be the use and acknowledgement of Indigenous land management practices in areas where Native Title has been extinguished and Traditional Owners rights and ability to undertake traditional practices are diminished. Land tenure legislative regimes that enable customary activities through joint management and stewardship agreements will be required, and will require improved inter-jurisdictional collaboration.

Question 12

Are heritage management plans and associated incentives sensible mechanisms to improve? How can the EPBC Act adequately represent Indigenous culturally important places? Should protection and management be place-based instead of values based?

Heritage reform is difficult, as it involves amendments to multiple statutes across silos and jurisdictions. Importantly, Indigenous worldviews emphasise holistic relationships and responses to heritage protection/management, and such relationships and knowledge should be reflected in the Act. The following changes will begin such progress, and a targeted review into how the Act can better reflect Indigenous people, knowledge and country is a necessary step towards achieving this goal (Ens et al. 2012, 2015):

- In Indigenous culturally important places, Traditional Owner Corporations and Aboriginal leaders should be invited to lead the development of plans and mechanisms to support their aspirations for protecting country and culture, and in what ways the Act can protect both place-based values and non-place-based cultural values.
- The EPBC Act (and Aboriginal and Torres Strait Islander Heritage Protection (ATSIHP) Act) promote a distinction between the environment and Indigenous heritage/culture but the two are intrinsically and inherently linked, especially to Traditional Owners. As stated in responses to Questions 1 and 4, Indigenous culturally important places and species should be added to the Act as MNES.

Question 13

Should the EPBC Act require the use of strategic assessments to replace case-by-case assessments? Who should lead or participate in strategic assessments?

This is one of the recommendations of the 2009 Hawke review that remains to be implemented and the recommendation has been repeated in numerous contexts since. As both Commonwealth and

State/Territory inputs are needed, strategic assessments will only be successful in protecting and restoring biodiversity and the environment if they are independently overseen (e.g. by a new National Sustainability Commission) using nationally agreed tools and standards based on best-available science.

Self-assessment by landholders or individual proposers will rarely be appropriate given the complex layers of information required. Case-by-case assessments lead to an inadequate capacity to identify and measure cumulative impacts of threats on species reduces the potential for coordinated approaches to their management (Whitehead et al. 2017). Currently, most projects are assessed for the likelihood of significant impacts in isolation of every other project (see Case Study 3 in our response to Question 5). This leads to underestimation of the broad-scale impacts that development can have on species. The necessary mechanism to address these concerns is a national environmental data and monitoring program that links federal, state and territory data on biodiversity, strategic planning and environmental impact assessment. Spatial prioritisation methods based on decision science can improve the efficiency of decision-making by explicitly considering cumulative impacts of multiple proposed developments on multiple species over large spatial scales (Whitehead et al. 2017).

Question 14

Should the matters of national significance be refined to remove duplication of responsibilities between different levels of government? Should states be delegated to deliver EPBC Act outcomes subject to national standards?

The EPBC Act is a cornerstone piece of legislation that helps to protect MNES in Australia. This is important as several MNES occur nationwide and are not restricted to state level borders or political boundaries. **We do not recommend the refinement of MNES to remove duplication of responsibilities across different levels of government but recommend uniformity in the regulations associated with the protection of MNES across governmental levels. We also recommend that all jurisdictions deliver EPBC Act outcomes subject to national standards to maximise MNES protection in Australia.**

In 2012 the Wentworth Group of Concerned Scientists made an assessment that handing environmental approval powers to state governments would "*take environmental policy in Australia back decades. It will not only damage the environment, it will also result in project delays because of the inevitable opposition to such poor environmental protection*".

Environmental regulation is carried out by both the Commonwealth, and States and Territories, and even local governments, concurrently (Streamlining environmental legislation 2014). While the Commonwealth government has a specific and limited role with environmental regulation, States and Territories take on all other environmental regulations. Responsibility extent between the States and Territories is the same, but how these governments deliver their responsibilities differ. This can lead to factors affecting the application process, assessments, and approvals of projects.

In the United States, the Endangered Species Act 1973 (ESAct) is the significant environmental regulatory legislation that protects listed threatened and endangered species. Due to conservation measures such as recovery actions and extinction prevention when species are listed, the ESAct can be highly effective at bringing back species from the brink of extinction. Success stories include the

American bald eagle, gray wolf, whooping crane, peregrine falcon, grizzly bear, and gray whale (Evans et al. 2016).

The ESAct's comprehensive legislation is most effective at the federal level with varying levels of support at the state levels (Camacho et al. 2017, Camacho et al. 2018). Although bills have been proposed to provide states greater oversight (Enzi 2017, O'Donoghue 2014, Paul 2013), research shows that the state laws are weaker and would result in less protection of threatened and endangered species (Camacho et al. 2017, Primo 2014). For example, only 18 out of 50 states cover all animals and plants listed by the federal ESAct, leaving 32 states providing less coverage than federal statutes. Other weaker state laws include 23 states not requiring best scientific data, 42 states with limited or no inter-agency consultations required, and 38 states failing to provide any authority on critical habitat designation for listed species (Camacho et al. 2017). These limited laws – at the state level – would lead to disastrous protections. Best protective measures for threatened and endangered listed species and ecosystems would be to have states uphold comprehensive Commonwealth and federal laws while providing states and territories funding, resources, and support to ensure compliance across all levels of government.

State-controlled environmental regulation for ESAct would be similar to state and territory control for the EPBC Act. Differences in state ideology, political leaning and political influence on the valuation of flora and fauna could lead to highly variable environmental regulation (Primo 2014). For example, a listed species that cuts across two states would be protected in one state while the neighbouring state would not provide protection, let alone have policies to protect the species. This runs the risk of losing the species altogether as the population decreases in size given arbitrary state borders that plants and animals do not abide by. Similarly, within a state, variability in responses at the local level can have positive or negative effects on the outcomes of species protection as noted by the kit fox and Delta smelt fish examples in California, respectively (Primo 2014). Only the federal or Commonwealth governments would have the scope to ensure that the listed species would be protected under both states.

The protection of species requires that all levels of governments work together to enhance the habitat, improve genetic diversity, and ensure that the best available science is used to deliver on the species' survival. Using the Commonwealth's framework of the EPBC Act is a great way of ensuring that Federal, State and Territory governments have unified standards on species outcomes, and for States and Territories to develop and deliver outcomes based on national standards.

Question 15

Should low-risk projects receive automatic approval or be exempt in some way?

Having capacity to 'fast track' low-risk projects could theoretically enable more efficient use of resources because effort could be directed towards reviewing and assessing higher risk projects that require careful attention. However, if an approach like this were pursued, there would have to be very careful consideration of the criteria to define 'low-risk'. Consideration would also need to be given as to how to consider the cumulative impacts of low-risk projects – while a single low-risk project may indeed pose limited risks to threatened species or ecosystems, multiple low-risk projects combined could equate to a substantial risk.

Under current application of the EPBC Act, over 700 projects were approved that each destroyed critical habitat for the endangered Black-throated finch *Poephila cincta* in northern Queensland, with an additional 500,000 ha of habitat being cleared without referral under the Act (Reside et al. 2019). This demonstrates that even when projects are assessed, the process is not resulting in effective environmental outcomes. **It is unlikely that automatic approvals for low-risk projects will ensure that the EPBC Act achieves its aims and purpose.**

Given the irreversible impacts of degradation of the environment and/or biodiversity loss, and the acknowledged paucity of data on the majority of MNES (Legge et al. 2018), automated data are currently inadequate to provide automatic approvals or other exemptions to projects which might be assessed as 'low risk'. Importantly, in the absence of good data on the distributions and trends of MNES and on the impacts of threats on MNES to assess risk, no project should be defined as low-risk. This is because often the integrity of available information is inadequate to recognise the presence of threatened species or other high biodiversity values or Indigenous heritage. Science-based human review should always be included prior to any decision. Here, the precautionary principle should be applied until adequate data is obtained to prove otherwise.

How could data help support this approach?

A national approach to environmental data collection, aggregation and sharing would help to achieve the objects of the Act. Successive national State of the Environment reports have noted the absence of suitable environmental data to appropriately assess the state and trends of Australian environments. This lack of data undermines the capacity for informed and effective environmental decisions and actions to address current and future environmental challenges.

Should a national environmental database be developed?

Yes. The seeds of a national environmental database already exist thanks to significant Commonwealth investment through programs like the National Collaborative Research Infrastructure Strategy (NCRIS), that has enabled development of national environmental databases for terrestrial ecosystems (TERN, www.tern.org.au), marine ecosystems (IMOS, www.imos.org.au), urban environments (AURIN website), and species occurrence records (ALA, www.ala.org.au). There are also initiatives like the Australian Research Data Commons (ARDC) that provide expertise and leadership in data infrastructure and data management. Any investment in a national environmental database should build upon these existing facilities and seek to connect and enhance them.

Should all data from environmental impact assessments be made publicly available?

Data from environmental impact assessments should be made publicly available and published through a national environmental database (Tulloch et al. 2018). Much of the data on MNES results from EIS or other work done by resource-development companies, whose approvals would enable them to benefit from public resources. Other data is collected during projects funded (in total, or in part) by public funding. All of this data should be collected consistent with agreed national standards and should be publicly available (e.g. in a national environmental data facility, Belbin and Williams 2016) to assist with achieving EPBC Act Objects.

The only exception may be in circumstances where this could threaten a species or ecosystem, for example publishing the location of threatened species that may be targeted by collectors. Frameworks for managing such sensitivities have already been developed and implemented through aforementioned Commonwealth investments like TERN and the ARDC and independent scientific peer-reviewed studies (Tulloch et al. 2018).

Question 16

Should the Commonwealth's regulatory role under the EPBC Act focus on habitat management at a landscape-scale rather than species-specific protections?

We support a landscape-scale approach to habitat management under the EPBC Act.

Climate change, habitat clearance, invasive species, urbanisation, diseases, pollution, and altered fire regimes threaten multiple species. The scale and pervasiveness of these threats requires landscape-scale management approaches and a long-term commitment of resources. Further, landscape-scale management of threats requires a nationally coordinated approach that is collaborative across jurisdictions (APEEL, 2017 -2).

A landscape-scale approach requires 1) the inclusion of guidelines for landscape-scale management principles, 2) a framework for landscape action plans, and 3) legislative long-term targets across a comprehensive range of biodiversity indicators, to be integrated within the Act. Further, landscape-scale management requires amendments to the environment impact assessment process under the Act in terms of increased scope in space and time, to encompass an assessment of project impacts at a landscape-scale (Cristescu et al. 2019).

Landscape-scale management may cross jurisdictions and may change those areas within a landscape to be protected or available for development; therefore, landscape-scale approaches need to be supported by innovative funding mechanisms (McDonald et al. 2019).

Importantly, given the scale of individual species threat (national listing of vulnerable, endangered and critically endangered species and ecological communities), species-specific protection will be required for long periods into the future until habitat management is coordinated and effective.

Question 17

Should the EPBC Act be amended to enable broader accreditation of state and territory, local and other processes?

The Commonwealth has ultimate responsibility to achieve the National Standards, meet international obligations and be accountable to the Australian public. It also needs to work collaboratively with the States and Territories to support their efforts to deliver their responsibilities effectively and efficiently.

In some cases enabling broader accreditation of State, Territory and local processes will deliver efficiencies. A collaborative approach to developing Strategic Assessments and bioregional landscape plans (See Question 13) would, as a matter of course, bring Commonwealth, State, Territory, local planning and recovery plans together, and avoid duplication or the need to separately accredit State plans. State plans could become the basis of "Strategic Landscape Plans", with further information

added by the Commonwealth (to ensure that its National Standards and international obligations were met), Traditional Owners (to ensure that cultural values and aspirations for Country were met) and from relevant Recovery Plans (to protect threatened ecosystems and species).

Question 18

Are there adequate incentives to give the community confidence in self-regulation?

No. Native vegetation removal (especially in NSW and Queensland) and the technical/scientific aspects of habitat and other conservation requirements mean that few in the community will have the technical expertise to adequately make the necessary assessments to underpin ecologically 'safe' self-assessment.

For land-owners to see financial and social value in protecting the environment, there needs to be meaningful incentives. There are opportunities to provide:

- free or affordable advice including whole-farm plans or ecological assessments with clear recommendations for actions, particularly if the land is, or buffers, critical habitat for threatened species, includes key connectivity pathways or protects threatened species, or contains significant wetlands or waterways,
- rebates or tax incentives for placing conservation covenants on private land,
- perpetual stewardship payments (e.g. through a revolving Biodiversity Fund),
- opportunities for landowners to apply for funding to implement on-ground work, and
- support in preparing funding applications and progress reports for on-ground works.

Any incentives provided to the community need to be linked with capacity-building initiatives for community members.

Question 19

How should the EPBC Act support the engagement of Indigenous Australians in environment and heritage management?

How can we best engage with Indigenous Australians to best understand their needs and potential contributions?

What mechanisms should be added to the Act to support the role of Indigenous Australians?

There are numerous ways in which the EPBC Act (or its updated replacement) should properly support the engagement of Indigenous Australians in environment and heritage management. These include:

- **International Agreements.** Commitment to, and active implementation of, article 8(j) of the UN Convention on Biological Diversity and the supporting Awke: Kon Guidelines (2014) adopted at the 7th Conference of Parties to the Convention are an important part of meeting our international obligations as a signatory to the Convention. To this must be added an Australian commitment to the UN Declaration of the Rights of Indigenous People (United Nations 2007). The Declaration (Article 19) addresses the need for ensuring that Indigenous people give their 'free, prior and informed consent' to any decisions that 'may affect them'. The EPBC Act or

Regulations, should address these commitments and should ensure that processes for environmental decision-making are set up to ensure compliance with UN Sustainable Development Goal 16.7 (2015), which requires 'ensuring responsive, inclusive, participatory and representative decision-making at all levels'

- **Leadership Positions.** The proposed National Sustainability Commissioner should be supported by an Indigenous Land and Water Commissioner and an Indigenous Cultural Heritage Council.
- **Changes to MNES.** As indicated in responses to Question 1, Indigenous Protected Areas and culturally significant species should become Matters of National Environmental Significance.
- **Consultation and engagement with decisions**. We recommend Indigenous consultation, engagement and leadership in relation to environmental and heritage protection and management at all levels, recognising their customary rights to use biodiversity and respect their sharing of Indigenous knowledge. Leadership provided by community-based land conservation organisations (e.g. Indigenous Protected Areas) and non-government organisations (e.g. Australian Wildlife Conservancy, Bush Heritage Australia, the Pew Foundation and others) provides a sound model for co-management and shared learning between Indigenous and non-indigenous land managers.

Question 20

How should community involvement in decision-making under the EPBC Act be improved? For example, should community representation in environmental advisory and decision-making bodies be increased?

Increased community representation in environmental and decision-making bodies is one pathway to improved community involvement in decision-making. However (as for Indigenous representatives) individual, Indigenous and NGO-based representatives should not be expected to fill these roles without recompense for costs of participation.

There are five areas of reform needed to increase transparency and access to justice, and enable the community to contribute to decision-making under the EPBC Act:

- The inclusion of public participation provisions at all stages of decision-making under the EPBC Act, including making submissions, developing bioregional plans, and providing expert, scientific and traditional knowledge;
- Provision for merit review of key decisions;
- Open standing to review errors and enforcement breaches;
- Protective cost orders; and
- Easily accessible and timely access to information on government actions and decisions, including access to feedback on the reasons for decisions.

Question 21

What is the priority for reform to governance arrangements? The decision-making structures or the transparency of decisions? Should the decision makers under the EPBC Act be supported by different governance arrangements?

Equal priority should be given to improving the governance arrangements relating to decision-making structures and to enhancing the transparency of decisions and they are intertwined. Given the extent of the current 'extinction crisis' and other aspects of biodiversity loss and environmental degradation, a comprehensive revision which addresses issues across the breadth of concerns should be undertaken.

Question 22

What innovative approaches could the review consider that could efficiently and effectively deliver the intended outcomes of the EPBC Act? What safeguards would be needed?

These issues are addressed throughout the content of this submission (see for example response to Question 5).

Some additional recommendations:

- **Dealing with emerging threats.** Emerging issues are difficult to manage in a regulatory system as traditional regulation tends to be a trailing instrument. The creation of a mechanism based on the concepts of foresight and scenario planning and which is capable of providing institutional advice on emerging issues would be a useful way forward (Hawke review 2009, p. 148).
- **Indigenous holistic approaches.** Adoption of Indigenous holistic approaches to conserving environmental and cultural assets offers a transformative and inclusive approach to unique management of Australia's linked biological and cultural assets (Ens et al. 2014, 2015, 2016; Moritz et al. 2013).
- **Technology.** Identification of technological media and tools that can be employed to assist the public to engage effectively in processes under the Act, including citizen science and online tools.
- **Innovative funding mechanisms.** Establishing an ongoing Biodiversity Restoration Fund.
- **Link to additional national and international legislation and policy.** For example, climate change policy and legislation needs to be clearly linked to the Act to ensure conservation of biodiversity into the future and protection and conservation of heritage, including cultural heritage and IBCK.

Question 23

Should the Commonwealth establish new environmental markets? Should the Commonwealth implement a trust fund for environmental outcomes?

The need to substantially increase funding allocations to almost all aspects of sustainable environmental management and biodiversity protection is a recurring theme in most forums considering ways to improve our biodiversity conservation and restoration (see, for example the 2016 national State of the Environment report, which identifies 'insufficient resources for environmental management and restoration' as one of six key challenges.)

Environmental markets have the potential to attract substantial private sector and philanthropic funding sources. New environment markets should be focused on valuing the wide range of social benefits and costs derived from the environment. Once properly valued, taking account of both short- and long-term values (the later often hidden) derived from ecosystem services, these should become an integral part of policy and decision-making. A set of National Environmental Accounts, based on peer-reviewed scientific methods and administered by an independent National Sustainability Commissioner should underpin decisions.

A Commonwealth Trust fund directed to environmental outcomes and biodiversity conservation and restoration should be established (e.g. a Biodiversity Restoration Fund), both to encourage philanthropic contribution and as a repository for mandatory contributions from commercial sector operations impacting on the environment. Such a fund should be administered by an independent body, whose members include technical experts bringing appropriate scientific expertise to decision-making. Financing such a fund is possible from the tax base and environmental levies. For example, visitors to national parks and nature reserves generate existing tax revenue in the order of $2.3 billion a year; this could be reinvested into a Commonwealth Trust fund directed to environmental outcomes (May 2017).

Question 24

What do you see are the key opportunities to improve the current system of environmental offsetting under the EPBC Act?

A rigorous application of the mitigation hierarchy is an essential first step in improving the current system of environmental offsetting under the Act. This requires the integration of clear and specific guidance on mitigation at project inception, with an emphasis on the avoidance and minimisation steps in the mitigation hierarchy (Hawdon et al. 2015, Maron et al. 2016). Biodiversity and offsetting experts should be engaged in the development of regionally appropriate offset guidance and support tools (Hawdon et al. 2015, Fitzsimons et al. 2012). A suitable training and accreditation programme for environmental consultants and government personnel working in offset policy needs to be established (Hawdon et al. 2015).

Offsetting policy needs to mandate the documentation of steps taken to avoid and minimise prior to offsetting as per the mitigation hierarchy (Maron et al. 2016). Offsets should be used only as a last resort (Environmental Offsets 2014). 'Red flag' or 'no-go' areas, such as World Heritage sites and critically endangered ecological communities and species, require listing and must be excluded from offsetting arrangements (Commonwealth of Australia 2014; Hawdon et al. 2015).

Where offsetting is opted for, mechanisms must secure offsets in perpetuity, without being subject to further development (Commonwealth of Australia 2014; Hawdon et al. 2015). This requires:

- Improved methodology for determining offset requirements for impacts relating to development (Peterson et al. 2018);
- Project developments postponed from commencing until an appropriate biodiversity offset has been secured (Hawdon et al. 2015);
- Development of a transparent framework to minimise post-approval modification of offset conditions (Hawdon et al. 2015);

- Establishment of a robust process for public participation during planning and EIA processes (Hawdon et al. 2015);
- Consultation of Traditional Owners during the assessment, design, implementation and monitoring of offsets (Hawdon et al. 2015, Fitzsimons et al. 2012).

Improved offset metrics are required to better conserve the biodiversity values they aim to protect (Marshall et al. 2019). Such metrics should:

- Be linked to biodiversity values commonly used in the fields of conservation and biology, with improved alignment between offsetting and specific biodiversity targets as well as broader conservation targets (Simmonds et al. 2019). These values include the biodiversity features of interest, as well as the long-term persistence of those features (Marshall et al. 2019);
- Be founded on ecological and species population processes to better encapsulate processes that contribute to patterns of biodiversity (Marshall et al. 2019);
- Adequately consider landscape level impacts of the development on populations and species (Bekessy et al. 2010; Crouzeilles et al. 2015);
- Be consistent internally, i.e. those used prior to impacts through to those used to evaluate offset performance (Marshall et al. 2019);
- Be included in offset strategies through explicit statements of how selected metrics will contribute to the attainment of offset targets (Marshall et al. 2019).

Transparency of offset schemes needs to be improved, including mandatory disclosure by buyers of offset credits to potential offset credit providers regarding the type and amount of biodiversity impact to which offset-funded work is linked (Maron and Louis 2018). In addition, mandated disclosure by environment NGOs about any volunteer support related to offsets and the net environmental outcomes associated with offset-related work is warranted (Maron and Louis 2018). Further, retrospective use of voluntary or subsidised restoration as offset credits should be disallowed (Maron and Louis 2018).

Monitoring requirements need to be more robust, including a provision for frequent reports and a mechanism for the storage of data (offset plans, monitoring reports, spatial location, implementation results) in a national, publicly available database (Tulloch et al. 2018, Hawdon et al. 2015, Maron et al. 2016). Evaluation of offset schemes is required at site and policy level and independent oversight and auditing of offset schemes and policy is necessary (Maron et al. 2016).

Compliance monitoring should adopt risk-based approaches and focus on projects most likely to cause environmental harm (Hawdon et al. 2015). Appropriate non-compliance penalties should be incorporated in offset schemes (Hawdon et al. 2015) and the federal Environment Department should be adequately resourced and staffed to ensure adequate monitoring and compliance actions (Commonwealth of Australia 2014).

To summarise, if offsets are to be used, the regulations governing their use must:

- Include a ‘like-for-like’ requirement so that the species and ecological communities being protected by the offset are those that are being adversely affected by a proposed development.
- Ensure that there is ‘no nett loss’ of the affected species and/or ecological communities.

- Not permit so-called 'supplementary measures', enabling a proponent to 'pay their way ' out of biodiversity protection through a cash contribution to other activities such as environmental research.
- Not permit discounting of offset requirements where the offsets may cause a proposed project to become unviable.
- Exclude from offsetting provisions any species or ecological community listed as threatened under the provisions of the EPBC Act, since the risks associated with reliance on offsetting place at further risk these already highly vulnerable aspects of biodiversity.
- Ensure that lag-times between an impact occurring and the offset being established are minimised, and where this is not possible, should not permit the offset.

While some of these measures are already included in Commonwealth offsetting arrangements, others are not and there is also a lack of consistency between Commonwealth and State offsetting requirements, such that NSW (and possible other States) allow several of the actions of concern.

Question 25

How could private sector and philanthropic investment in the environment be best supported by the EPBC Act?

Could public sector financing be used to increase these investments?

What are the benefits, costs or risks with the Commonwealth developing a public investment vehicle to coordinate EPBC Act offset funds?

Tax and other concessions for philanthropic investments based on sound scientific requirements are one possible incentive, but numerous others are likely possible, including a Biodiversity Restoration Fund supported through a combination of Commonwealth and philanthropic investment. Care should be taken to avoid negative impacts on philanthropic support for NGOs currently delivering effective conservation management.

Question 26 Principles to Guide Future Reform

Do you have suggested improvements to the above principles? How should they be applied during the review and in future reform?

The principles provided in the Discussion Paper (p.26) are generally sound. However, care must be taken to ensure that in 'reducing [unnecessary] regulatory burdens for Australian businesses and governments', natural values and ecosystem services are not damaged in either the short- or longer-term, while acting on behalf of short-term business outcomes. Determining what is 'necessary' should be determined based on best available science.

We strongly support the addition of the following in the new list of Principles to be applied during the review and in future reform:

- Science-based decision making for all environmental matters, using the best-available science, and accounting for risk and uncertainty,

- Use of the Precautionary Principle to avoid impacts rather than minimising, mitigating or accepting them,
- Non-regression of laws or legal protections for biodiversity, and
- Responsiveness to a changing climate – anticipate future impacts, needs and responses.

In addition to the specific questions asked throughout this discussion paper, the broad questions that this review is seeking to answer are:

Is the EPBC Act delivering what was intended in an efficient and effective manner?

How well is the EPBC Act being administered?

Is the EPBC Act sufficient to address future challenges? Why?

What are the priority areas for reform?

What changes are needed to the EPBC Act? Why?

See executive summary.

For further information

The ESA welcomes the opportunity to provide further information to this Review or to discuss our submission in more detail. We may be contacted using the details below:

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