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:
Inquiry into Australia's extinction crisis
31 August 2022

The ESA provides this submission as an update on earlier submissions made to this Inquiry, in order to incorporate new scientific knowledge gained since 2018 and in recognition of the expanded Terms of Reference.

We note the lengthy delays in the undertaking of this important Senate Inquiry, which was initiated in 2018. In October 2019, the science community in Australia, in an open letter to the Prime Minister, called on the government to strengthen environmental laws, invest in nature and build a great legacy by ending our extinction crisis. A review of our national environment laws (EPBC Act) was launched to address the extinction crisis, and the final report of the Independent Review of the EPBC Act by Professor Graeme Samuel AC was released in October 2020. To date, none of the recommendations have been implemented. The recently released State of the Environment Report reiterated that the state and trend of plants and animals in Australia continues to decline. The extensive bushfires of 2019-2020 have led to increasing numbers of threatened species nominations under the EPBC Act. The ESA urges strong action and appropriate resources to complete this Inquiry and implement its findings, along with other recent national environmental reviews. It is urgent and imperative that Australia undertakes immediate action if we are to improve the outlook for our threatened flora and fauna.

SUMMARY

Australia is home to a wealth of unique biodiversity that is a cornerstone of our national character, and vital to the ongoing wellbeing and prosperity of our country[1]. All Australians should be alarmed by the threats facing our biodiversity, and the severity of this situation is highlighted by the state of our threatened species – a situation quite rightly described by this Inquiry as a crisis.

The ESA welcomes this Inquiry and sincerely hopes it is the beginning of meaningful national action to reverse the trajectory of biodiversity decline in Australia. We believe this is a surmountable challenge – as a politically stable, affluent, and skilled nation, **Australia is equipped to respond to this crisis**. Australia has a bi-partisan history of national and international engagement in the drive to conserve biodiversity and to stop and reverse declines of species and ecosystems. Our indigenous peoples hold deep knowledge and experience in sustainably managing our biodiversity. To complement this, our world-leading ecological and environmental researchers have a strong track record in building the

knowledge base required to address this crisis. Both public and private institutions, and the wider community, support protection of our biodiversity and saving our threatened species.

These factors provide Australia with a solid foundation to effectively address the fauna and flora extinction crisis. To take advantage of this potential and based on our expertise and experience, we make the following key recommendations to address this crisis:

(1) **Increase national public investment in biodiversity conservation**. At least 2% GDP should be devoted to nature conservation. Investment should go to research, monitoring, on-ground action, and adequate resourcing of the federal Environment Department and other federal bodies to effectively do their jobs in assessing threatened species nominations, developing Recovery and Threat Abatement Plans, implementing conservation and management actions, and monitoring effectiveness of management actions.

(2) **Improve monitoring of threatened species and management actions** – to detect changes in population abundance, evaluate key threats and causes of decline, and to undertake effective adaptive management to reverse species decline.

(3) **Manage key threatening processes** – we know that a small number of widespread threats such as invasive species, habitat loss, and climate change impact many threatened species. National action is needed to address these threats comprehensively, and effective action against these widespread threatening processes can be an efficient use of our investment in biodiversity conservation.

(4) **Implement full suite of recommendations from the Samuel Review of the EPBC Act**

(5) **Deliver strong national coordination:** Addressing the extinction crisis of our fauna and flora requires implementation of a suite of policies and actions in collaboration with many stakeholders across jurisdictions in both the public and private realms. Strong national leadership and coordination must be implemented to achieve this.

We discuss our recommendations in more detail relative to each of the Inquiry's Terms of Reference below.

| *Terms of Reference* | *a) the ongoing decline in the population and conservation status of Australia's threatened fauna and flora species;* |

Australia is a world-leader in fauna and flora extinction (July 2018 IUCN Red List)[2]. 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, and a further 21% of Australian land mammals now classified as threatened[3]. Australia has 1,342 plant species threatened with extinction; populations of threatened flora are declining at faster rates than mammals and birds[4]. Thirty-seven flora species have gone extinct since records began, though many others are likely to have been lost before western scientists even knew they existed[5]. The 2019–2020 Australian megafires have worsened the prospects for many flora and fauna species[6] [7].

These statistics reflect the fact that Australia's current approach to the protection of its biodiversity is inadequate, and requires immediate and substantial attention.

Terms of Reference   b) the wider ecological impact of faunal and flora extinction;

At this time, Australia has not conducted an appropriate risk evaluation to fully estimate the consequences of current or possible future fauna and flora loss, as would be done in other portfolios e.g. Defence infrastructure. The **wider ecological impact of 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[8][9];
- have cascading effects on other species such as co-extinctions or the increase or release of other species (including invasive pests and weeds)[9]; and
- benefit some parasites with potential negative consequences for remaining species and/or human health[9].

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 the 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 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[10]. This shows the potential for well-designed management interventions to lead to recovery and restoration of ecosystems[11][12].

Terms of Reference   c) the international and domestic obligations of the Commonwealth Government in conserving threatened species;

Conserving threatened species is a matter of national significance that warrants the leadership and intervention of the Commonwealth Government. Accordingly, Australia is a signatory to the World Conservation Strategy (WCS)[13], the Convention on Biological Diversity (CBD)[14] and the related Sustainable Development Goals (SDGs)[15] to name a few. These commitments resulted in the first National Strategy for the Conservation of Australia's Biodiversity in 1996[16], and the first federal act to protect biodiversity, the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act)[17]. These commitments have been reinforced by successive governments from all sides of politics.

In addition, the EPBC Act binds Australia to not make declarations that are inconsistent with the CBD, the Apia Convention[18] and the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)[19].

The CBD's Aichi target 12 and the United Nation's SDG 15 set targets to prevent extinction of known threatened species. There is currently no provision in Australian legislation that makes it an offence to cause, contribute significantly to, or fail to take reasonable actions to prevent an extinction. Thus, any agencies or individuals who contribute to species endangerment or extinctions, or who fail to take reasonable steps to prevent them, operate with impunity[20]. We recommend that the Commonwealth Government address these serious deficiencies and commit Australia to avoiding preventable extinctions of known threatened species, and discuss this further in responses to ToR d).

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

Stronger environmental laws and resources for their enforcement are needed to address the extinction crisis. To ensure we achieve the primary objective of Australia's environment laws - to protect the environment and conserve biodiversity - relevant Departments and agencies must be adequately resourced and staffed to ensure effective implementation, monitoring, and compliance with environmental legislation.

The EPBC Act was ahead of its time when first enacted and continues to play a vital role in the protection of Australia's threatened species and ecological communities, as well as other Matters of National Environmental Significance (MNES). However, Australia is overdue to introduce more streamlined, contemporary environmental legislation.

Revised legislation is needed to modernise processes, address the significant and overwhelming impacts of climate change and other cumulative threats, focus on restoration in addition to protection, and integrate Traditional Owners' and biocultural knowledge into all processes related to the Act. The statutory review of the EPBC Act completed in 2020 (the 'Samuel Review') outlined 38 interconnected recommendations to chart an improved course for environmental management and biodiversity conservation. We commend the Samuel Review and its recommendations as the basis for changes to the EPBC Act to improve its effectiveness and efficiency.

One of the greatest threats to the implementation of the EPBC Act are the prolonged and continuing cuts to the Federal Environment Department, which undermine its capacity to effectively support implementation of the legislation. Environment spending as a proportion of the overall budget spend has declined from half of one per cent (0.5%) of the total federal budget in 2013-14 to 0.37% in 2020-21[21]. Such severe cuts make it difficult for Australia to provide any meaningful leadership on the positive actions needed to conserve threatened species. They also contribute to delays in the threatened species listing process, and the provision of useful advice to proponents and land managers.

Terms of Reference   *e) the adequacy and effectiveness of protections for critical habitat for threatened fauna under the Environment Protection and Biodiversity Conservation Act 1999;*

The EPBC Act does not currently include adequate mechanisms to enable protection of critical habitat for threatened species. Currently, the identification of critical habitat is only applied to Commonwealth-managed land, and only a handful of sites are registered**. Identification of critical habitat should trigger mechanisms designed to protect these areas on all land tenures, ensuring that habitat loss does not worsen threats to already threatened species**. One possible mechanism would be through the identification of key critical habitats in Recovery Plans and Conservation Advices. Such a change will assist in protecting those habitat areas required for threatened species conservation[22].

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

Protected areas play an important role in threatened species conservation, and Australia's National Reserve System (NRS) is no exception. However, protected areas must be actively managed to achieve the best outcomes for biodiversity[23]. The 'passive' setting aside of land in itself can address some threatening processes occurring in that land area, such as habitat loss. In itself, however, it does not address other threatening processes in that area such as invasive species. Addressing these kinds of threats – and achieving the greatest positive impact from protected areas – requires investment in active management of threats within protected areas. Recent analysis suggests that active management of Australia's NRS could address all threats within that land tenure, having flow-on positive impacts on approximately 48% of Australia's threatened species. This is compared with impact for only 3% of threatened species if no active management is undertaken[25].

Despite this, it must also be recognised that protected areas, no matter how well-managed, cannot address all threats facing threatened species. For example, climate change, invasive species, diseases, and pollution are threats that operate regardless of land tenure. Addressing these threats requires landscape management approaches. The current National Reserve System also cannot be used to exclusively address decline in all threatened species, because not all of Australia's threatened species occur in the footprint of our NRS.

It is also worth recognising the importance of private lands set aside for conservation purposes, some of which already form part of the NRS. A landscape management approach incorporating these lands alongside public tenure conservation land and, in conjunction with wildlife corridors, has potential to achieve substantial positive outcomes for threatened fauna species.

To make better use of protected areas in addressing the extinction crisis, we recommend:

- **Expansion of the NRS,** informed by a scientific analysis of critical habitats under-represented in the system so far;
- **Enhanced investment in NRS to implement effective threat management** within the NRS; and,
- **Investment in a nationally coordinated approach to landscape-scale management** of threats that is collaborative across jurisdictions and private land tenures, enabling Australia to leverage the maximum positive impact from all protected areas for threatened species conservation.

Terms of Reference   ***g) the use of traditional knowledge and management for threatened species recovery and other outcomes as well as opportunities to expand the use of traditional knowledge and management for conservation;***

Traditional knowledge and management have an important role to play in threatened species recovery and management. There is potential for greater use of traditional knowledge and management to address the extinction crisis, particularly because traditional knowledge systems offer unique aspects including:

- **Filling knowledge gaps:** Especially in remote and regional parts of Australia, traditional knowledge has been shown to fill significant gaps in knowledge about species distribution, habitat preference, diet and reproduction[24] [25] [26]. This is particularly true of species that are culturally significant such as the Bilby, Sea Turtles or large Goannas.
- **Potential to support onground management actions:**
  - About a third of Australia is currently regarded as Indigenous lands and a third of Australia's National Reserve System is managed by Indigenous land managers through the Indigenous Protected Area system. Therefore, Indigenous lands play an important role in Australia's national conservation agenda.
  - Recent research found that three-quarters of Australia's terrestrial or freshwater vertebrate species cited as threatened have ranges that overlap with Indigenous lands[27]. They also found that this overlap represents 45% of the range of each threatened species on average.

Indigenous people should therefore be included in initial discussions about species and ecosystems management through to decisions about management. They should be provided with opportunities to apply their unique knowledge, to have access to formal training and to collaborate with ecologists.

Terms of Reference   *h) the adequacy of existing funding streams for implementing threatened species recovery plans and preventing threatened fauna loss in general;*

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 countries in the world for underfunding biodiversity conservation, grouped among many developing countries[28], 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[21].

Australia should be aiming for investment in environment and biodiversity conservation to be at the upper end of the OECD and G20 proportions of Gross Domestic Product (GDP). At present we are allocating less than 1%, whereas the budget should be 2% to enable recovery of threatened species and ecosystems and to address other environmental failures[29].

Australia should commit to investing a minimum 2% of GDP in the environment and biodiversity conservation, and allow for greater investment if it aims to reverse the observed declines in Australia's fauna species.

Terms of Reference   *i) the adequacy of existing monitoring practices in relation to the threatened species assessment and adaptive management responses;*

Effective monitoring is a critical part of threatened species management and conservation. Monitoring is required to detect changes in population abundance and their causes, and to determine effectiveness of management actions when they are implemented. This latter component should ideally be embedded as part of an adaptive management framework.

The current record on monitoring of threatened species in Australia is very poor. Approximately 30% of Australia's threatened fauna species are not monitored at all and many are monitored

inadequately[22]. For threatened plants, even fewer are monitored systematically[4]. Funds to support ongoing monitoring of threatened species' populations are insufficient to identify population trends over time and causative factors, as well as the change in the trajectory after management actions are implemented. The State of Environment Report (2016)[30] identified how a lack of long-term monitoring interferes with the ability to apply effective policy and management and establish early warning of threats. The State of Environment Report (2021)[31] confirms that biodiversity continues to be monitored very poorly in Australia. Damningly, it concludes that we still cannot assess the state and trend of most species with any confidence.

Monitoring frameworks must also identify triggers for action, otherwise we are simply observers to decline and extinction as was the case for the Christmas Island pipistrelle[32].

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.

Specifically, in relation to monitoring we recommend:

- **Application of the precautionary principle** in cases where there is insufficient current knowledge to adequately assess status, threats, or required recovery actions for a species;
- Where critical knowledge gaps for threatened species are identified, **targeted research and monitoring activities should be initiated to address these gaps**. This could be facilitated by a dedicated fund administered by the Department of the Environment or other suitable body; and,
- The **EPBC Act should specify a requirement for monitoring and evaluation** – of listed threatened species, and of recovery plans – with a requirement to include triggers for management intervention.

The ESA's members hold significant experience and expertise in monitoring species and ecosystems, and welcome an opportunity to work with government and other stakeholders in designing and implementing robust monitoring activities for Australia's threatened species.

Terms of Reference   j) the adequacy of existing assessment processes for identifying threatened species conservation status;

The 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 overseen by an independent scientific advisory council who review documents and advise the Department and the Minister for the Environment. This council has a range of expertise in marine and terrestrial disciplines.

Recent years have seen the development of new processes to ensure more efficient listing and delisting processes, reducing duplication of State and Commonwealth processes – including the development of a Common Assessment Method (CAM) - and strategically streamlining assessment processes (i.e. the Species Expert Assessment Plan (SEAP)). There is also increased collaboration

among expert groups to undertake status review assessments of multiple species at a time and submit a status report to the Committee for consideration that may result in recommendations to amend the EPBC list of threatened species.

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 about action, economic impact and resourcing need to be transparently segregated from the listing process.

As well as the scientific rigour of the assessment process, consideration must be given to timely processing of listings. We are aware of substantial delays that often arise between the threatened species nomination being received by the Department, and this nomination being assessed and a decision made. To achieve effective administrative process of these requests, **the federal Environment Department needs to be adequately resourced**, as noted elsewhere in this submission.

Terms of Reference   k) the adequacy of existing compliance mechanisms for enforcing Commonwealth environment law

As noted under Terms of Reference d), we recommend that recommendations from the EPBC Act Review are implemented to ensure clear lines of accountability for conserving threatened species, and identifying the causative factors and responsible parties when critical endangerment and extinction events occur.

We also recommend that **the delivery of EPBC Act compliance functions is urgently improved to address key concerns identified by the Australian National Audit Office through recent reviews[33] [34]**. These concerns include a lack of timely and targeted information regarding compliance functions, IT system limitations that undermine compliance monitoring, and an inability to demonstrate that compliance monitoring activities have been effective in protecting the environment. Adequate investment in biodiversity conservation as noted above can contribute to these improvements. In addition, we recommend that staff who are responsible for reviewing EPBC referrals and managing compliance functions are **suitably qualified and knowledgeable in ecological science** so they can critically assess the information before them.

Design of EPBC Act **conditions of approval must also be improved to ensure they deliver environmental outcomes**. Currently, most conditions specified as part of EPBC Act approval decisions are input-based conditions that are not linked to environmental outcomes. For example, a proponent may be required to install a certain number of nest boxes as part of their approval conditions. However, there is no requirement that these nest boxes be effective in providing alternative habitat for displaced fauna. Thus, the proponent may be compliant with their approval conditions while achieving no environmental outcome. The federal Environment Department released an Outcomes-based conditions policy in 2016[35] that seeks to address this deficiency. Outcomes-based conditions define an environmental outcome that must be achieved, without prescribing how to do it. This approach allows the approval-holder to focus on achieving environmental outcomes at the lowest cost, encourages innovation, and increases transparency around the achievement of environmental outcomes. To improve compliance mechanisms under the Act, **we recommend that this outcomes-based approach to approval conditions be mainstreamed** by the Department of the Environment.

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In addition, there is a need **to improve the monitoring of implementation of EPBC approval conditions** for major developments. Currently this monitoring is largely reliant on reports from environmental consultants who are contracted directly by development proponents. This arrangement clearly establishes a high risk of conflict of interest. To ameliorate this risk, proponents could instead contribute a designated amount to the Department who can then directly undertake this monitoring or contract suitably qualified professionals to undertake it and report back to the Department.

Terms of Reference (I) final report of the Independent Review of the Environment Protection and Biodiversity Conservation Act 1999 (the Samuel Review)

As noted above, we commend the Samuel Review and its recommendations as the basis for changes to the EPBC Act to improve its effectiveness and efficiency. Adoption of the interconnected suite of recommendations will provide a robust framework for upholding environmental protection and accountability.

Given the Independent Review of the EPBC Act (the Samuel Review), the ESA emphasise the following key points:

1. Retain and reinforce the role of an independent agency for monitoring and enforcing compliance with National Standards.

The Final Report emphasises the need for independent oversight of operations of the Act to ensure new national standards are implemented consistently and effectively. This applies to decision-making done under accredited arrangements (e.g. with States/Territories), and for decision-making done by the Commonwealth. Key entities to deliver this independent oversight include the recommended statutory position of Environment Assurance Commissioner (EAC), the recommended independent Office of Compliance and Enforcement within the Department of Agriculture, Water and the Environment, and new oversight committees (e.g. for Indigenous engagement and participation, biodiversity conservation, water resources) with an overarching Ecologically Sustainable Development Committee.

2. Explicitly acknowledge the risks to biodiversity that will arise by transferring responsibility for development assessments to States and Territories without an independent environmental watchdog to uphold national standards.

The Final Report has considered the risks associated with transferring responsibility in the following ways: (i) retaining recommendations for independent oversight, (ii) framing decision-making in clear, outcomes-based and ecologically-robust National Environmental Standards, (iii) explicitly packaging the 38 recommended reforms as an interconnected suite that must not be separated, (iv) recommending that national-level laws for Indigenous cultural heritage protection require immediate and comprehensive review to better empower indigenous Australians to protect and manage ecological and cultural resources, and (v) a staged accreditation model to replace bilateral agreements, with the Commonwealth retaining "the unfettered right to make decisions, even where an accredited arrangement is in place and working well."

3. Provide recommended timeframes for implementation of components of the plan, and highlight risks when timing is misaligned. This would include addressing risks of immediate implementation of a State-based assessment and approvals process, in the absence of well formulated National Standards, or defined critical habitats.

The Final Report provides a clear timeframe for the delivery of reforms ('Section 12 – The reform pathway') and states the urgency at which these be delivered.

4. Require new MNES that include a new climate trigger, which includes the requirement for proponents to explicitly consider the cumulative impacts of their actions under specific climate change scenarios and transparently disclose the full emissions profile of the development.

The Final Review makes a clear statement about not adding new MNES. The Review recommends that development proposals should be required to "a) explicitly consider the likely effectiveness of avoidance or mitigation measures on nationally protected matters under specified climate change scenarios; and b) transparently disclose the full emissions of the development." We take this to mean that the contribution of an action (with mitigation in place) to future climate change scenarios per se will not trigger scrutiny (i.e. whether or not a 'significant impact') under the Act. Rather, new standards will ensure that proposals to mitigate impacts of development (through onsite remediation, offsets, etc.) must account for future climate scenarios. In this regard, we understand this recommendation to be less about climate change mitigation, and more about ensuring actions affecting MNES and subject to conditions under the Act are resilient to various projected climate futures.

Terms of Reference (m) the Australia State of the Environment 2021 report

The State of the Environment Report (2021) (SoE)[31] re-emphasises the findings of previous SoE reports - that the state and trend of plants and animals in Australia continue to decline. Many of the pressures on biodiversity in Australia have increased in intensity, with the number of terrestrial and marine threatened species rising since the 2016 report. The report suggests that to secure our most threatened species, Australia must increase the extent and representativeness of the protected area system, support recovery efforts and better manage threats and pressures. Importantly, the SoE report (2021) recognises that Australia's key national legislation for protecting threatened species, the EPBC Act, is not effective in delivering improved outcomes for biodiversity.

The ESA agrees with the findings of the SoE report (2021) and recommends the following responses as imperative to improve the prognosis for Australia's threatened flora and fauna:

1. **Protect and restore native vegetation**: land is being cleared and degraded at alarming rates. Strong policy to protect vegetation and halt further loss of native vegetation is needed.
2. **Save species and ecosystems**: investment in threatened species management and monitoring is insufficient. Increased long-term investment in environmental management, research and monitoring is needed to halt further losses of species and ecosystems.
3. **Act on climate change**: impacts of climate change on Australia's species and ecosystems are increasing, including increased intensity and frequency of extreme events like fire. Substantive abatement of greenhouse gas emissions is critical to avoid the most severe impacts of climate change. Actions to improve ecosystem resilience and adaptation need to be scaled up urgently.
4. **Adopt the recommendations of the Samuel Review of the EPBC Act**: the 38 interconnected recommendations of the review chart an improved course for environmental management and biodiversity conservation in Australia, and will provide a robust framework for upholding environmental protection and accountability.
5. **Include Indigenous Australians**: increased representation and authentic inclusion of Indigenous communities is needed in ecosystem policy and management decisions.

6. **Enhance environmental monitoring**: a national environmental monitoring program that leverages existing systems and platforms is needed to track management effectiveness and inform future investment in the environment. Enhanced investment in monitoring must include investment to make historical and new data FAIR (findable, accessible, interoperable, reusable).

For further information

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

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Submission prepared on behalf of the ESA by its Policy Working Group and approved by the Vice-President (Public Policy and Outreach) and President, 30 August 2022.

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