Submission to drafts of the new Biodiversity Conservation Act, the amended Local Land Services Act and supporting tools in New South Wales

Centre for Ecosystem Science, UNSW, Australia

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Executive Summary

The Centre for Ecosystem Science (CES), UNSW Australia, supports all legislative and other instruments of government that improve effectiveness of biodiversity conservation, founded on a strong evidence base. Current rates of loss of biodiversity around the world, in Australia and in New South Wales are unprecedented. The continued loss of biodiversity in NSW indicates a clear need to assess the effectiveness of the legislative framework that governs biodiversity conservation. CES welcomes the opportunity to provide a submission to draft *Biodiversity Conservation Bill 2016* and draft *Local Land Services Amendment Bill 2016*.

The proposed legislation has have strengths but there are major weaknesses that need to be improved before the legislation is suitably configured to arrest the unprecedented decline of biodiversity in NSW. Consequently, the Centre for Ecosystem Science, UNSW Australia cannot support the associated pieces of legislation in their current form.

This submission provides comments on seven key issues that require careful consideration by the NSW Government to develop effective legislation that halts the decline in biodiversity in NSW: Threatened species and ecological communities; Areas of Outstanding Biodiversity Value; protecting biodiversity loss before it becomes threatened; vegetation clearing; offsets; stewardship and biodiversity fund and cross cutting issues. For each, strengths and weaknesses are identified in relation to objects of the legislation, its framework and implementation, followed by improvements considered necessary for the legislation to meet its stated objectives. Specifically, there are improvements which could be made to the seven key issues, as well as rectifying some errors in the drafted legislation.

1. Threatened species and ecological communities

Most aspects of the *Threatened Species Conservation Act 1995* are migrated into the proposed legislation, with the added improvement of identifying Areas of Outstanding Biodiversity Value. There were eight key improvements that can be made to ensure the proposed legislation meets the objectives of the draft *Biodiversity Conservation Bill 2016.*

1.1 Improvements

i.   Vulnerable species and ecological communities should be afforded the same levels of protection as those listed in the Critically Endangered and Endangered categories throughout the draft *Biodiversity Conservation Bill 2016*.

ii. The draft *Biodiversity Conservation Bill 2016* (sections 4.3 – 4.7) needs to ensure that any associated regulations referred to in 4.7 must adopt international standards endorsed by the IUCN (International Union for Conservation of Nature) Red List criteria for listing of species and ecosystems (ecological communities) (IUCN 2012, Keith et al. 2013, Bland et al. 2016, Subcommittee 2016).

iii. Exemptions, defences, certifications, ministerial discretions and other exclusions from protective provisions for the protection of threatened species and ecological

communities should be limited by legislation to exceptional circumstances. To achieve a proper balance between conservation and development, there should be fewer and more explicitly defined exemptions.

iv.   The legislation should require documented justification of any exempt actions. These should be made available on a public website for transparency.

v.   The regulations need to at a minimum to provide a transparent evidence-based framework for identifying 'serious and irreversible impacts on biodiversity values' for both species and ecological communities, taking into account key elements of extinction risk as identified under the IUCN Red Listing criteria for both Species and Ecosystems.

vi.   The legislation must outline minimum qualifications, training or certification for draft *Biodiversity Conservation Bill 2016* and Local Government staff involved in the determination of 'serious and irreversible impacts on biodiversity values'.

vii.   Section 4.3(2) should be amended to "An animal or plant is native to New South Wales, if in the opinion of the Scientific Committee it was established before European settlement." This small change resolves ambiguity about the responsibility of the Scientific Committee for the listing process (stated in section 4.9). It avoids unnecessary costs of expert witnesses to establish the fact in Court and makes wording consistent with that in section 4.4. In reaching an opinion on this matter, the Scientific Committee should consult with relevant taxonomic authorities.

viii.   Individuals who introduce exotic plant species into NSW should be similarly regulated to those that introduce exotic animals. Section 1.6 needs to be altered to make release of plants or animals an offence.

2. Areas of Outstanding Biodiversity Value

The specification of Areas of Outstanding Biodiversity Value can considerably improve the effectiveness of the draft *Biodiversity Conservation Bill 2016.* For this to be effective, there is a need to ensure there is rigour in the listing of the Areas of Outstanding Biodiversity Value.

2.1 Improvements

i.   The listing process for Areas of Outstanding Biodiversity Value should replicate the existing process for listing threatened species, populations, ecological communities and key threatening processes laid down in sections 4.8 – 4.20 of the draft *Biodiversity Conservation Bill 2016*.

ii.   By analogy with section 4.9, the Scientific Committee should be responsible for listing and declaration of Areas of Outstanding Biodiversity Value. This would subject the assessment and listing of Areas of Outstanding Biodiversity Value to the same independent, scientifically rigorous process as other biodiversity assets, signalling the Government's intention for effective implementation. It would also boost public confidence in the decision making process by mandating an open public engagement process, including the ability to receive public nominations.

iii.   The provisions should be extended to marine areas within NSW, as the Fisheries Act has no provisions for declaring Areas of Outstanding Biodiversity Value.

iv.   The bill needs to clearly identify resources to support the assessment, listing of and subsequent protection of Areas of Outstanding Biodiversity Value (as has currently been identified for Private land conservation and the Save Our Species program).

3. Protecting biodiversity loss before it becomes threatened

The draft *Biodiversity Conservation Bill 2016* inadequately protects biodiversity that is not yet threatened. This is not cost effective, given that stopping species becoming threatened is a key objective. Eleven improvements could better ensure that the proposed legislation achieves its objectives.

3.1 Improvements

i.   The definition of biodiversity needs to be within the definitions of the draft *Biodiversity Conservation Bill 2016*, reflecting the name of the legislation, adopting the accepted definition of biodiversity from the Convention of Biological Diversity (https://www.cbd.int/), which explicitly states: that biodiversity or 'biological diversity is defined as "…*the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems.*"

ii.   There is a need for a more proactive and cost-effective approach to conserve all biodiversity in NSW by affording full protection to Vulnerable species and other species and ecological communities not currently identified at risk of extinction. This represents world's best practice.

iii.   There needs to be a funding commitment to deal with key threats to biodiversity (i.e. identified key threatening processes) and not solely focussed on the impacts of threats on threatened species – the current focus of the draft *Biodiversity Conservation Bill 2016*.

iv.   The legislation should focus on ameliorating the effects of key threatening processes. There are some examples where KTPs have been partly addressed include actions for bitou bush and foxes (although in the latter case actions are only to protect a few threatened species and the threat remains unabated across much of NSW) and the Adaptation Hubs for climate change.

v.   The following statement "Strategies to minimise the impacts of key threatening processes may but are not required to be included in the Program (Part 4 Division 6, 4.36 (2)" needs to be removed.

vi.   There needs development of strategies and onground actions for all listed KTPs, with appropriate prioritisation of those with the most impacts on all biodiversity.

vii. This includes specific measures to protect biodiversity and ecological integrity of native vegetation which are inadequately protected by the draft *Biodiversity Conservation Bill 2016* and draft *Local Land Services Amendment Bill 2016*.

viii. There needs to be resources provided to carry out a comprehensive assessment of those species and ecological communities that are considered threatened in NSW, rather than relying on the current incomplete listings for regulation and conservation measures.

ix. Native grasslands and other non-woody vegetation need to be defined specifically as biodiversity and identified in the draft *Local Land Services Amendment Bill 2016*.

x. There should also be clear articulation and measurement of impacts and outcomes of conservation measures to maintain key ecological processes and key functions of existing native vegetation. This should be added to both the Biodiversity Conservation Program and any assessment methodology used to assess impact of development on biodiversity.

xi. There is a need to define ecological integrity within the draft *Biodiversity Conservation Bill 2016* and processes that protect and measure this ecological integrity.

4. Vegetation clearing

The most challenging part of the draft *Biodiversity Conservation Bill 2016* and the associated draft *Local Land Services Amendment Bill 2016* is the implementation of native vegetation management, resulting in changes to clearing. In particular, measures in the draft Bills are highly reliant on uncertain methodology, and do not meet the standards required to provide confidence to the public on the efficacy of the proposed legislation and its regulations. There are 17 improvements that should be made to the two associated proposed legislative instruments.

4.1 Improvements

i. To ensure independence of process, the Minister for the Environment should have responsibility for approving clearing applications and other actions to deal with ameliorating the threat of 'Clearing of native vegetation' as a listed Key Threatening Process under the *Threatened Species Conservation Act 1995*, to maintain biodiversity and ecological integrity. This change would ensure a similar level of probity and accountability that led the Government to re-establish the Environmental Protection Authority as an independent regulator. It would also resolve the anomaly of the Environment Minister being responsible for the Native Vegetation Regulatory Map, but not the regulatory operations to which it applies (Division 2, draft *Local Land Services Amendment Bill 2016*).

ii. Exemptions from the regulatory process should be limited to exceptional circumstances, such as emergency and safety operations. This would achieve a more appropriate balance between reduced regulatory burden and effective

management of State assets following introduction of the land category map (draft *Local Land Services Amendment Bill 2016,* Division 2, Section 60E-60L) which is expected to exclude 30-40% of NSW from clearing regulation. Simplification of clearing exemptions to focus only on emergency or safety circumstances would promote the ability of clearing regulations to meet scientific standards and public expectations for biodiversity protection.

iii.   Assessment of development impacts on native vegetation must incorporate global best practice elements of extinction risk for different vegetation types (i.e. decline, extent of restricted geographic distribution, degree and severity of both degradation and disruption of biological processes). Resources need to be provided to bring the existing dataset on NSW vegetation up to global standards.

iv.   A commitment to identify, map and provide protection for significant areas of non-woody vegetation, including grassland, some of which will occur in Category 1 land.

v.   New legislation should mandate scientifically rigorous annual publication of the area and location of vegetation clearing, including map data and statistics (as is current practice in Queensland), extended to include both woody and non-woody vegetation throughout NSW. Reporting deadlines should require annual publication within two years of clearing events (i.e. clearing that took place during the 2016-17 financial year should be reported no later than the end of the 2017-18 financial year). This change will enable effective reporting to fulfil state, national and international obligations, and will improve public confidence in outcomes of the regulatory process.

vi.   New legislation should mandate transparent, thorough testing, ground-truthing and annual update of the land category mapping. The internal review process allowing landholders to request review of the Native Vegetation Regulatory Map with supporting evidence should be extended to enable contributions from all other stakeholders including members of the public. Consistent with the Government's open data policy, all contributions of information and resulting amendments to land category maps should be published on an annual basis. Responsibility for reporting clearing rates should rest with the Minister for Environment, consistent with the expertise and other mapping responsibilities within that portfolio, and not with the Minister for Primary Industries, as proposed in the draft *Local Land Services Amendment Bill* (section 60UU).

vii.   The proposed provisions in section 60H of the draft *Local Land Services Amendment Bill 2016* should be revised to include land mapped as containing habitat for all listed threatened species, populations or ecological community in category 2-vulnerable regulated land. This will ensure that biodiversity is properly considered in assessment of applications to clear native vegetation.

viii.	The new legislation should contain emergency provisions to exclude conservation assets (such as threatened species and ecological communities) from Category 1 Land mapping as soon as their location is resolved.

ix.	Travelling Stock Reserves (TSRs) need to be included within Category 2 lands.

x.	There needs to be an assessment of any areas that appeared cleared in 1990, but have regrown to assess their biodiversity value prior to any inclusion into Category 1 Land.

xi.	There should be a process to allow stakeholders, other than landholders, to provide additional rigorously collected on-ground information for the mapping.

xii.	It would be helpful to publish the current areas for the different categories of land across the state and in different bioregions for the public to understand the scale of categories.

xiii.	There should be published measures of accuracy, compared to on-ground data, for mapping of different categories for each of the regions for the public to understand the uncertainty level for decision-making.

xiv.	Wetland mapping is likely to confound the seasonal cover disturbance index because of the importance of this type of vegetation responding to flooding. Mapping of such areas could be improved by using the wetland data layer which NSW Office of Environment and Heritage has access to (Kingsford et al. 2004).

xv.	Analyses of the performance of the seasonal disturbance index should be reported to allow for confidence by the public in its ability to discriminate developed pastures from native grasses.

xvi.	There is a need to specify how the Chief Executive of OEH determines that land "…contains low conservation value grasslands".

xvii.	The application of 'invasive native scrub' in the legislation is not scientifically valid and should be removed.

5. Offsets

Offsets are considered an opportunity to further biodiversity conservation through the substitution of developed areas with 'offset' areas. Critically, there are five key principles that must be adhered to for offset application (a. mitigation hierarchy, b. substitution of like for like, c. offset actions should be additional to what is in place, d. they must be in perpetuity and e. no net loss). Nine improvements can be made to the proposed legislation to ensure objectives are met.

5.1 Improvements

i.	There need to be explicit provisions in the legislation that require proponents to demonstrate how their proposals have avoided and minimised impacts on biodiversity values (Offset Principle (a)). These should require consideration of all plausible alternative locations, designs and management strategies for the development, against specified best-practice standards of evidence.

ii. The new legislation should explicitly adopt Offset Principle (b), 'like for like', as an operating principle. Details of how this is to be implemented may be outlined in Regulations, but the principle should be stated in the Legislation, not left to Regulation. In addition, the Legislation should specify obligations, accountabilities and standards of evidence required to demonstrate due diligence for identifying 'like for like' offsets.

iii. The new legislation should explicitly require development of plausible counterfactual scenarios as essential baselines for assessing offset gains and additionality. The Regulations should outline technical criteria and guidance for development of counterfactual scenarios relevant to the proposed development and its offset, addressing the technical challenges in defining a workable baseline for assessing additionality.

iv. The new legislation should address Offset Principle (d) more effectively by strengthening the future security of offsets, limiting the options for termination and increasing protection against mining and state developments. This should be balanced against a more rigorous risk assessment of candidate offset investments. Additionally, the legislation should define protections and an associated assessment process when offsets are affected by proposed mineral exploration, extraction or development of state significance.

v. The new legislation should commit to Offset Principle (e), as a means of arresting the erosion of NSW biodiversity. Applications for approvals under the Acts should be required to explicitly demonstrate how proposed offsets will achieve no net loss of biodiversity.

vi. The BAM should be subject to independent external peer review that is publically reported and adjusted accordingly prior to adoption in Regulations.

vii. To achieve global best practice, the BAM needs to be revised to include all risk indicators from international standards adopted in IUCN Red Lists to determine threat status groups for plant community types and species. Implementation of these standards is essential for protection of bioregional, state, national and global conservation assets (see also 4.2. and 4.3 above).

viii. Accountabilities and obligations for monitoring and reporting against management targets need to be substantially strengthened for agreed offsets and set asides. These changes are necessary to ensure return on investments and track outcomes against the baseline of no net loss.

ix. Part 6.2(h) should be modified to remove the exception for State significant development. This change provides a mechanism to promote consideration of alternative designs and locations for State significant development to avoid impact, and ensures protection of the State's most precarious biodiversity assets from potentially terminal threats associated with large developments.

6. Stewardship Agreements and Biodiversity Trust

Provision of funds to improve biodiversity outcomes on private land is welcomed but it is critical that the outcomes are maximised with sufficient efficiency and rigour. Five improvements to the legislation would assist in achieving this outcome.

6.1 Improvements

i. To maximise biodiversity benefits and minimise risks of Trust investments, the acquisition of land for inclusion in the public reserve estate should be the explicitly defined in the proposed legislation as the top priority for Trust investments. A statement of Trust priorities in the legislation should also acknowledge that risks of failure are highest for offsets that seek to restore the most degraded biodiversity assets – priorities should therefore focus on the least degraded assets and invest in restoration of moderately degraded assets only when these represent the best available options for their kind.

ii. There is a need to establish a clear adaptive management framework which articulates clear goals for biodiversity management towards a desired state, where there is demonstration of the success or otherwise of management for biodiversity. This should be underpinned by an understanding of key drivers of ecological processes.

iii. Resources need to be provided for monitoring biodiversity outcomes in perpetuity.

iv. Consolidation of private land agreements into a single category that provides for biodiversity conservation on private land in perpetuity.

v. There needs to be a rigorous environmental assessment process that takes into account the biodiversity assets protected under the private land agreements and the investment in their establishment and management.

7. Cross-cutting issues

There are four cross-cutting issues relevant to the two pieces of proposed associated legislation: legislative frameworks, implementation and definition; implementation of ecologically sustainable development; evidence based approach, monitoring and compliance and; resourcing. Twelve improvements can be made to ensure that the legislative instruments meet the objectives of the legislation.

7.1 Improvements

i. The implicit assumption is that there will be a monitoring component of some sort. There is plenty of wisdom available about how to construct an effective monitoring program that should deliver evidence on how well the draft *Biodiversity Conservation Bill 2016* is meeting its objectives.

ii. There needs to be a Biodiversity definition in the draft *Biodiversity Conservation Bill 2016*. This should be based on the one in the *Threatened Species Conservation Act 1995* and EPBC Act. The draft *Biodiversity Conservation Bill*

2016 should adopt the international definition in the Convention for Biological Diversity (https://www.cbd.int/), where biodiversity or 'biological diversity is defined as "…*the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems.*"

iii. There need to be standard, rigorous and repeatable assessment processes conducted by all 12 Land Services regions and staff with independent review by the Environment agency, NSW Office of Environment and Heritage.

iv. Similar professional standards misconduct penalties should be applied to environmental professionals required to meet to those employed as medical practitioners, lawyers, accountants, engineers, master builders and other professionals with public responsibilities. This ought to be a priority to ensure public good environmental outcomes, yet the proposed legislation is silent on the matter.

v. There should be specific adaptive management planning processes which define a vision and clear objectives, supported by appropriate monitoring and evaluation. Such monitoring needs to be targeted to responsive indicators which allow for changes in management when thresholds are exceeded.

vi. Accreditation should be mandatory for persons undertaking all biodiversity assessments under the proposed Act (not only those pertaining to the biodiversity assessment methodology), and should be extended to persons undertaking environmental assessments under the *Environmental Planning and Assessment Act 1979* and the draft *Local Land Services Amendment Bill 2016*. There need to be regular compliance checks and performance checked when accreditation is renewed.

vii. An independent scientific body should be established to assess applications and recommend to the Minister persons who have met the requirements for Accreditation. As part of the review process specified in section 6.9, this body should also be responsible for making recommendations to the Minister on the accreditation scheme and criteria therein.

viii. Appropriate scientific qualifications, evidence of scientific track record and the scientific integrity of authored biodiversity assessment reports should be a central principle in considering eligibility of persons for accreditation.

ix. Only individuals should be eligible for accreditation.

x. There needs to be additional resources provided for AOBV identification, listing and ongoing management.

xi. There needs to be ongoing resources to keep the schedules up to date.

xii. Oversight of self-assessment processes by NSW Office of Environment and Heritage to ensure biodiversity outcomes, under the draft *Biodiversity Conservation Bill 2016*.

Centre for Ecosystem Science, UNSW Australia

The CES (http://www.ecosystem.unsw.edu.au) is a research centre that has five major programs focused on biodiversity of ecosystems: wetlands and rivers; terrestrial ecosystems; marine ecosystems; remote sensing and GIS and conservation policy and management. It has 81 members (18 research staff, a centre manager, 12 research assistants, 11 postdoctoral fellows, and 39 associate researchers) as well as 32 postgraduate students. It has strong links with governments, providing research relevant to management and policy of ecosystems. It has considerable scientific experience in the management and understanding of biodiversity, including native vegetation management. It has a strong focus on applying world's best practice to the science and management of ecosystems.

Introduction

Biodiversity comprises biological diversity, defined as "…*the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems*" (Convention for Biological Diversity, https://www.cbd.int/). Management of biodiversity should consider the complex relationships among all these levels integrated with biological and non-biological processes. Biodiversity is also increasingly recognised as a critical requirement for humans, providing fertile and stable soils, clean air and water and assisting with pollination and pest management of agricultural crops. There are also strong non-use values and benefits, often linked to deep cultural values of society. The loss of species has global consequences because biodiversity promotes ecosystem functions and services that are essential for human well-being (Hooper et al. 2005, Cardinale et al. 2006).

There is currently large scale global loss of biodiversity (Butchart et al. 2010) resulting from major threatening processes directly or indirectly attributable to human impacts, including habitat loss and degradation, invasive species, pollution, overharvesting, climate change and disease (Kingsford et al. 2009). Of these, the most serious impacts relate to habitat loss and degradation, compounded by climate change. Between 1972 and 2014, more than 7.2 million ha of primary forest was cleared across Australia, about 7% of the available forest (Evans 2016). In 2015, Eastern Australia, including NSW, was identified as one of only 11 regions of the world undergoing high deforestation and the only one in a developed country (WWF 2015).

Such deforestation includes vegetation clearing or land clearing and destroys habitats contributing to serious declines in woodland birds and reptiles (Garnett et al. 2011, State of the Environment Committee 2011, Bradshaw 2012). For example, it was estimated that about 100 million native birds, reptiles and mammals were killed because of destruction of their habitat in NSW between 1998 and 2005 (Johnson et al. 2007). The loss of such habitat threatens the continent's biodiversity, affecting 60% of Australia's nearly 1700 threatened

species (Radford et al. 2005, Department of the Environment, Water, Heritage and the Arts 2009, Natural Resource Management Ministerial Council 2010, State of the Environment Committee 2011, http://www.environment.gov.au/cgi-bin/sprat/public/publicspeciessolrsearch.pl.) These are the ones that have been listed; many more have yet to be assessed. The protection of biodiversity which is not yet threatened is equally important, to avoid increasing New South Wales' lists of threatened species (Department of the Environment, Water, Heritage and the Arts 2009; Doherty et al. 2015, Niebuhr et al. 2015, Woinarski et al. 2015). The removal of habitat provided by native vegetation destroys the dependent plants and animals, increases risks to wildlife from introduced predators, impacts surface and groundwater-dependent ecosystems, and fragments habitat so that individuals are unable to move through the landscape. It reduces the resilience of biodiversity to cope with a climate change (Reside et al. 2012, Travis et al. 2013) and has a long-term legacy of ongoing adverse impacts on biodiversity, including extinction debt (Tilman 1999, Kuussaari et al. 2009).

There are also considerable impacts on agricultural productivity and costs resulting from removal of native vegetation. There is increased erosion and reductions in the fertility of Australia's ancient and fragile soils (Ludwig and Tongway 2002,State of the Environment Committee 2011), increasing salinity (Walker et al. 1993, Lambers 2003, Nulsen 2012), increasing drought (McAlpine et al. 2009, Martin and Watson 2016), reductions in animals that pollinate and control agricultural pests (Whelan et al. 2008, Isaacs et al. 2009, Kunz et al. 2011) and reducing condition of livestock (loss of shade and increased wind). Native vegetation also forms a major carbon sink, reducing Australia's emissions, with clearing of vegetation compromising the nation's delivery of commitments under four major international treaties: the Convention on Biological Diversity, the World Heritage Convention, the Convention to Combat Desertification, and the Framework Convention on Climate Change. For example, greenhouse emissions in the base year of the Kyoto Protocol (1990) were about 25% of the country's emissions (Macintosh 2012). Continued and increasing removal of forests, woodlands and grasslands increases the cost of restoring landscapes and reduces the chance of success. For example, the Australian Government has committed to plant 20 million trees by 2020 (http://www.nrm.gov.au/national/20-million-trees).

Biodiversity is declining in NSW, with almost 1000 species threatened with extinction (http://www.environment.nsw.gov.au/resources/threatenedspecies/150441sosbro.pdf). This represents only a small part of the problem, with many more non-threatened species also declining. This is regularly reported in the State's State of the Environment Reports, which continue to catalogue long-term biodiversity loss in the face of increasing direct and indirect human threats (State of the Environment Report, 2011). Much of the native vegetation in New South Wales is impacted with the New South Wales Office of Environment and Heritage (OEH), estimating that only 9% of native vegetation in NSW resembles natural conditions while soil degradation affects 87% of vegetation classes. NSW

has also suffered the highest documented modern extinction rate in the world. More than 40% of mammal fauna in western NSW alone has become extinct since European settlement (Dickman 1994, Lunney 2001, Pressey and Taffs 2001, Ford et al. 2009). Many birds, frogs and plants have also been lost (http://www.environment.nsw.gov.au/resources/threatenedspecies/TS20160422.pdf). Of even greater concern is the accelerating rate of development and degradation of natural ecosystems.

Legislation introduced into NSW in 2005 aimed to halt large scale land clearing (Taylor and Dickman 2014, Evans 2016), although some broadscale legal and illegal clearing has continued. Reform of legislation to increase protection would be timely. To respond effectively to the evidence on biodiversity loss, new legislation should establish a clear mandate to arrest biodiversity loss and ecosystem degradation over a specified time frame. Improvements to protection of biodiversity in NSW are urgently needed to arrest ongoing erosion of an irreplaceable public asset. Globally, there is a net imbalance between rates of erosion and replenishment of soil, resulting in a net soil loss (Montgomery 2007). In NSW, rates of soil formation are generally less than loss (Edwards and Zierholz 2001), raising concerns about the sustainability of soil resources (Montgomery 2007) and therefore the ability of the State to sustain productive agricultural enterprises. The new legislation provides a rare opportunity to improve the protection and maintenance of biodiversity. Such measures should be the minimum standard set for any new biodiversity legislation in NSW.

This submission provides comments on seven key issues that need to be urgently considered by the NSW Government in the *Biodiversity Conservation Bill 2016* and the *Local Land Services Amendment Bill 2016,* to achieve the aims of having legislation that both halts the decline in biodiversity in NSW and reflects the objectives of the proposed legislation. The key issues are: Threatened species and ecological communities; Areas of Outstanding Biodiversity Value; protecting biodiversity loss before it becomes threatened; vegetation clearing; offsets; stewardship and biodiversity fund and cross cutting issues. For each, strengths and weaknesses are identified in relation to objects of the legislation, followed by suggested improvements.

1. Threatened Species and Ecological Communities

Part 4 of the proposed Biodiversity Act provides for assessment and listing of threatened species, populations, ecological communities and key threatening processes. It carries over many strengths of the listing process from the *Threatened Species Conservation Act 1995*, but weakens provisions for protection.

1.1 Strengths

- NSW will be exhibiting world's best practice in its listing of species and ecological communities, one of the first jurisdictions in the world to do so, with an independent scientific committee.

- The proposed legislation carries over an independent and scientifically rigorous process with strong provisions for public participation and government input for nominating, assessing and listing threatened species and ecological communities, from the existing legislation (*Threatened Species Conservation Act 1995*).

- The *Threatened Species Conservation Act 1995* adopted global best practice for identifying risk of extinction for threatened species and ecological communities and we presume the draft *Biodiversity Conservation Bill 2016* (sections 4.3 – 4.7) [and any subsequent regulations referred to in 4.7] adopt international standards endorsed by the IUCN (International Union for Conservation of Nature) Red Listing criteria for listing of species and ecosystems (ecological communities).

- The draft *Biodiversity Conservation Bill 2016* legislation includes a provision (section 4.7(b)) to ensure that NSW conforms with the Common Assessment Methodology, agreed between the Commonwealth, states and territories. This will improve consistency between the processes and schedules at state and Commonwealth levels and will benefit all stakeholders in biodiversity conservation.

- The proposed legislation establishes a biodiversity conservation program under Division 6. This mandates the development of conservation strategies for threatened entities within two years of listing and the outcomes of strategies within the program must be evaluated in a published review every five years.

- Broadening of the capacity to list threatened populations from only endangered populations under the *Threatened Species Conservation Act 1995* to critically endangered, endangered and vulnerable under the draft *Biodiversity Conservation Bill 2016* is a valuable addition that will help identify those populations of plants and animals at risk on NSW.

1.2 Weaknesses

- The draft *Biodiversity Conservation Bill 2016* does not afford the same levels of protection to Vulnerable species and ecological communities as those listed in the Critically Endangered and Endangered categories (Sections 2.1(1)); and 2.2 (1); 2.5 (1); 11.35). Section 7.1 (and 221ZU) specifically excludes vulnerable ecological communities from the definition of a 'threatened ecological community' in assessments and approvals under Planning Act. This unduly focusses legislative protection on reactive efforts and crisis management because effective protections cannot be implemented until a species or ecological community has already declined to Endangered status (see Key Issue 4 – Protecting biodiversity loss before it becomes threatened). At the late stage of Endangered and Critically Endangered, declines are more likely to be irreversible or substantially more expensive to redress.

- It needs to be recognised that many species that are currently listed as threatened are actually threatened may actually be threatened and eligible for listing on the schedules if assessed.
- The tests for significant impacts no longer include reference to KTPs. The new proposed test is a 4- point test (with several points having sub points) and will be implemented under the draft *Biodiversity Conservation Bill 2016*. The old 7-point test resided in the planning legislation where it had a certain amount of independence in its implementation. Key Threatening Processes are to be identified, assessed and listed under the draft *Biodiversity Conservation Bill 2016*, but provisions enabling proactive treatment are substantially weakened by exemptions and other omissions. For example, Key Threatening Processes are no longer to be considered in tests of the significance of impacts, as currently provided in the 7-part test under the *Threatened Species Conservation Act 1995*.
- The draft *Biodiversity Conservation Bill 2016* and draft *Local Land Services Amendment Bill 2016* legislation identify 'serious and irreversible impacts on biodiversity values' which are proposed to be detailed in regulation (see draft *Biodiversity Conservation Bill 2016*, 6.5). No details are available on how this process is to occur, or what criteria will be used to identify serious and irreversible impacts on biodiversity values. That is unacceptable as these measures need to be subject to public scrutiny and peer- review. Further, there is no evidence that draft *Local Land Services Amendment Bill 2016* currently have staff with the requisite qualifications and training to identify such impacts (see also Section 7.3.2 below).
- The protection provisions of the draft *Biodiversity Conservation Bill 2016* are overridden and substantially weakened by many broadly defined Defences (sections 2.8, 2.9), Certification provisions (section 8), exemptions under proposed Land Services legislation, Ministerial discretions, Regional Forest Agreements, other legislation and any code of practice adopted in Regulations. These defences, certifications and exemptions are substantially broader than in existing legislation (*Threatened Species Conservation Act 1995*) and will increase chronic biodiversity loss by severely curtailing the applicability of protection provisions.
- The draft *Biodiversity Conservation Bill 2016* also provides for inflexible certifications and agreements (e.g. Biodiversity certification in Division 5, 8.16ff) that are unable to incorporate new information about the status of biodiversity into decision making.
- The extensive exemptions that deregulate loss of biodiversity associated with land use change, prevent transparent and complete reporting of changes in the status of biodiversity.
- The responsibility for establishing whether an animal or plant is native is not explicitly identified in the proposed legislation. This potentially relaxes regulation of invasive species, one of the most serious issues affecting biodiversity loss, water management, agriculture and forestry. An example is the current Invasive Native

Species legislation, which effectively treats native woody plants as exotic species, with little or no defensible, peer review science to justify their broadscale removal.

- There is regulation of individuals who introduce exotic animals but no similar provision for exotic plants which is clearly inconsistent. For example *Coreopsis lanceolata* is an exotic plant species deliberately introduced into the Blue Mountains with potentially significant impacts.
- The Scientific Committee is required to produce an annual priority work list (Section 4.12) which will be on the Government website but the public can make nominations at any time. A pre-emptive list may be counterproductive for the public nomination process and objective decision making by the Scientific Committee.

1.3 Improvements

i. Vulnerable species and ecological communities should be afforded the same levels of protection as those listed in the Critically Endangered and Endangered categories throughout the draft *Biodiversity Conservation Bill 2016*.

ii. The draft *Biodiversity Conservation Bill 2016* (sections 4.3 – 4.7) needs to ensure that any associated regulations referred to in 4.7 must adopt international standards endorsed by the IUCN (International Union for Conservation of Nature) Red List criteria for listing of species and ecosystems (ecological communities) (IUCN 2012, Keith et al. 2013, Bland et al. 2016, Subcommittee 2016).

iii. Exemptions, defences, certifications, ministerial discretions and other exclusions from protective provisions for the protection of threatened species and ecological communities should be limited by legislation to exceptional circumstances. To achieve a proper balance between conservation and development, there should be fewer and more explicitly defined exemptions.

iv. The legislation should require documented justification of any exempt actions. These should be made available on a public website for transparency.

v. The regulations need to, at a minimum, provide a transparent evidence-based framework for identifying 'serious and irreversible impacts on biodiversity values' for both species and ecological communities. These should take into account key elements of extinction risk as identified under the IUCN Red Listing criteria for both Species and Ecosystems.

vi. The legislation must outline minimum qualifications, training or certification for draft *Biodiversity Conservation Bill 2016* and Local Government staff involved in the determination of 'serious and irreversible impacts on biodiversity values'.

vii. Section 4.3(2) should be amended to "An animal or plant is native to New South Wales, if in the opinion of the Scientific Committee it was established before European settlement." This small change resolves ambiguity about the responsibility of the Scientific Committee for the listing process (stated in section 4.9). It avoids unnecessary costs of expert witnesses to establish the fact in Court and makes wording consistent

with that in section 4.4. In reaching an opinion on this matter, the Scientific Committee should consult with relevant taxonomic authorities.

viii. Individuals who introduce exotic plant species into NSW should be similarly regulated to those that introduce exotic animals. Section 1.6 needs to be altered to make release of plants or animals an offence.

2. Areas of Outstanding Biodiversity Value

There is increasing recognition that loss of biodiversity is occurring across all of the world's ecosystems and a predominant focus on conservation of species is not sufficiently effective in protecting the world's most important areas of biodiversity (Butchart et al. 2010). This has meant more attention by legislators on larger habitats or ecosystems, including threatened ecological communities. There is also an understanding that protecting the highest conservation assets is particularly important. Identifying and protecting Areas of Outstanding Biodiversity Value recognises the critical importance of this approach. Some of these may not be currently threatened but a proactive approach of protection means that such risks may be avoided if these areas are afforded such protection.

Part 3 of the draft *Biodiversity Conservation Bill 2016* enables declaration of Areas of Outstanding Biodiversity Value that include critical habitat as well as areas that make other contributions to persistence of species, ecological communities, irreplaceable biological distinctiveness, ecological processes, integrity and biodiversity values for research and education.

2.1 Strengths
- This initiative is the first of its kind and reflects world's best practice, with the principles for identifying Areas of Outstanding Biodiversity Value consistent with internationally endorsed criteria for listing Key Biodiversity Areas developed by the IUCN.
- This is an important initiative enabling identification and protection of significant biodiversity assets in NSW, as well as a range of other important biodiversity assets that currently have no such means of protection.
- To support this objective, there are explicit listing criteria to be included in Regulations.
- The new provisions can improve on critical habitat provisions.

2.2 Weaknesses
- The draft *Biodiversity Conservation Bill 2016* provides no listing process for how these areas will be identified. The assessment process is opaque and divorced from the established listing process for threatened species, populations, ecological communities and key threatening processes.
- The draft *Biodiversity Conservation Bill 2016* includes no provisions for public involvement through nominations and submissions of such areas.

- No resources are dedicated in the proposed legislation for the assessment, listing and conservation management of these areas.
- Responsibility for listing rests with the Head of the Environment Agency, rather than the independent NSW Scientific Committee and allows (part 3.5) for the amendment or revocation of a listing of an Area of Outstanding Biodiversity Value by the Minister for the Environment without any independent scientific review. This potentially weakens public involvement and rigour of the process, without allowing an independent approach.
- It is similar in its approach to the listing of Critical Habitat under the *Threatened Species Conservation Act 1995*. In more than 20 years since this previous legislation was enacted, only four Critical Habitats were listed, including three already protected under National Parks, Wilderness and World Heritage legislation. A similar track record, guaranteed without improved processes, will not be sufficient to protect areas of outstanding biodiversity value in New South Wales.

2.3 Improvements

i.   The listing process for Areas of Outstanding Biodiversity Value should replicate the existing process for listing threatened species, populations, ecological communities and key threatening processes laid down in sections 4.8 – 4.20 of the draft *Biodiversity Conservation Bill 2016*.

ii.   By analogy with section 4.9, the Scientific Committee should be responsible for listing and declaration of Areas of Outstanding Biodiversity Value. This would subject the assessment and listing of Areas of Outstanding Biodiversity Value to the same independent, scientifically rigorous process as other biodiversity assets, signalling the Government's intention for effective implementation. It would also boost public confidence in the decision making process by mandating an open public engagement process, including the ability to receive public nominations.

iii.   The provisions should be extended to marine areas within NSW, as the Fisheries Act has no provisions for declaring Areas of Outstanding Biodiversity Value.

iv.   The bill needs to clearly identify resources to support the assessment, listing of and subsequent protection of Areas of Outstanding Biodiversity Value (as has currently been identified for Private land conservation and the Save Our Species program).

3. Protecting biodiversity loss before it becomes threatened

Most biodiversity, at the animal and plant species level, do not yet fall into the risk prone (threatened) categories defined by the draft *Biodiversity Conservation Bill 2016* but at the same time are increasingly affected by threatening processes across New South Wales. Most native plants, animals, other organisms and ecosystem services are highly dependent on biological and natural resource processes for their viability and resilience. The stronger these linkages, the more likely that ecosystems retain ecological integrity (a key objective of

the draft *Biodiversity Conservation Bill 2016*). Minimising, ameliorating and managing threats to biodiversity and ecological integrity should be a major focus of the proposed legislation. It is these threats that cause species and ecological communities to be listed as threatened, cause ongoing decline of non-threatened species and ecological communities and disrupt the ecological processes necessary for the survival of native plants and animals in NSW.

3.1 Strengths

- The draft *Biodiversity Conservation Bill 2016* identifies ecological integrity as a critical component of biodiversity.
- There is an implicit commitment in the objectives (Section 1.3) that the draft *Biodiversity Conservation Bill 2016* protects all biodiversity.
- The proposed legislation expands provisions in existing legislation for listing the critical habitat of a species to address other biodiversity values (Areas of Outstanding Biodiversity Value). This is an important initiative.
- The object of the Biodiversity Conservation Program is to "minimise the impacts of key threatening processes on biodiversity values".
- There are incentives to protect biodiversity on private lands but this is tempered by weakening of protection to biodiversity, including native vegetation (see 3.2).
- The draft *Biodiversity Conservation Bill 2016* mirrors the current Thre*atened Species Conservation Act 1995* in having the NSW Scientific Committee list Key Threatening Processes (KTP).

3.2 Weaknesses

- The draft *Biodiversity Conservation Bill 2016* poorly defines biodiversity. It primarily focuses on species most at risk and does not adequately protect species currently not listed (but may be declining) or those for which there are insufficient data. Australia is a signatory to the Convention of Biological Diversity and yet the draft *Biodiversity Conservation Bill 2016* poorly represents all biodiversity.
- There is relatively too strong a focus on threatened species and ecological communities, largely ignoring other species and other important communities. This is clearly contrary to the objectives of the Biodiversity Conservation Program as biodiversity values include all of biodiversity and not just threatened species and ecological communities.
- There is no significant commitment to amelioration of threats across NSW, even though key threatening processes can be identified. There is the option to focus on such key threatening processes in the draft *Biodiversity Conservation Bill 2016*: "Strategies to minimise the impacts of key threatening processes may but are not required to be included in the Program (Part 4 Division 6, 4.36 (2)". However, this statement is clearly equivocal in relation to investing in amelioration of key threatening processes.

- The records for actions on some other major threats or Key Threatening Processes (KTPs) is generally poor (e.g. goats, rabbits, other weeds, pathogens, water resource developments).

- Land clearing is identified as a KTP under NSW and Commonwealth legislation. Over the life of the *Threatened Species Conservation Act 1995* Act, the major threat of clearing and fragmentation of habitat was the major threat to biodiversity and ecological integrity in NSW. Reductions in the protection of native vegetation in the draft *Biodiversity Conservation Bill 2016* and draft *Local Land Services Amendment Bill 2016* will only exacerbate this threat.

- There has been insufficient resourcing under the *Threatened Species Conservation Act 1995* for the purpose of ameliorating KTPs and as a consequence limited conservation actions to limit threats to biodiversity, impacting at bioregional and state scales.

- Climate change is the most pervasive threat to biodiversity and ecological integrity, yet no consideration is provided within the draft *Biodiversity Conservation Bill 2016* and draft *Local Land Services Amendment Bill 2016* of how this threat is to be managed, except for the inclusion of Areas of Outstanding Biodiversity Value. This is an extraordinary omission as climate change will not only place biodiversity and ecological integrity under stress (by elevated temperatures, increased aridity, increased sea levels and increased acidification of the oceans), but also exacerbate existing threats such as fire and invasive species, and lead to novel threats such as widespread tree mortality (Allen et al. 2010, Allen et al. 2015). A failure to address these issues in the draft *Biodiversity Conservation Bill 2016* and the draft *Local Land Services Amendment Bill 2016* will undermine the ability of the proposed legislation to meet its objectives.

- The draft *Biodiversity Conservation Bill 2016* provides a disincentive to nominators to address potentially vulnerable species and ecological communities because there are no explicit reporting requirements for these species. This biases the reporting functions of the listings towards the most threatened categories. This does not represent world's best practice.

- A substantial amount of biodiversity in NSW is threatened, but not yet on the schedule because it has not been assessed or nominated.

- There is no provision for focussing on species that have a disproportionate effect on ecosystems processes and function (e.g. umbrella species, ecosystem engineers, keystone species).

- There is poor specification of non-woody vegetation, including grasslands, in the draft *Biodiversity Conservation Bill 2016*, representing a serious problem for this component of biodiversity.

- Plant and animal species require supporting biological and abiotic processes including air, water, nutrients and food webs. These components of biodiversity are identified as important in the objects of the draft *Biodiversity Conservation Bill 2016*

but are not identified anywhere else in the implementation of either the draft *Biodiversity Conservation Bill 2016* or draft *Local Land Services Amendment Bill 2016*. Without supporting these ecological processes, detrimental outcomes for biodiversity and the ecosystem services on which many humans depend are increased.

- In the draft *Biodiversity Conservation Bill 2016*, there is poor specification of how ecological integrity is assessed, monitored or protected, despite its importance and acknowledgment in the objects.
- There is no protection of ecosystem services.

3.3 Improvements

i.   The definition of biodiversity needs to be within the definitions of the draft *Biodiversity Conservation Bill 2016*, reflecting the name of the legislation, adopting the accepted definition of biodiversity from the Convention of Biological Diversity (https://www.cbd.int/), which explicitly states: that biodiversity or 'biological diversity is defined as "…*the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems.*"

ii. There is a need for a more proactive and cost-effective approach to conserve all biodiversity in NSW by affording full protection to Vulnerable species and other species and ecological communities not currently identified at risk of extinction. This represents world's best practice.

iii. There needs to be a funding commitment to deal with key threats to biodiversity (i.e. identified key threatening processes) and not solely focussed on the impacts of threats on threatened species – the current focus of the draft *Biodiversity Conservation Bill 2016*.

iv. The legislation should focus on ameliorating the effects of key threatening processes. There are some examples where KTPs have been partly addressed, including actions for bitou bush and foxes (although in the latter case, actions are only to protect a few threatened species and the threat remains unabated across much of NSW) and the Adaptation Hubs for climate change.

v.   The following statement "Strategies to minimise the impacts of key threatening processes may but are not required to be included in the Program (Part 4 Division 6, 4.36 (2)" needs to be removed.

vi. There needs to be further development of strategies and onground actions for all listed KTPs, with appropriate prioritisation of those with the most impacts on all biodiversity.

vii. This includes specific measures to protect biodiversity and ecological integrity of native vegetation which are inadequately protected by the draft *Biodiversity Conservation Bill 2016* and draft *Local Land Services Amendment Bill 2016*.

viii. There needs to be resources provided to carry out a comprehensive assessment of those species and ecological communities that are considered threatened in NSW, rather than relying on the current incomplete listings for regulation and conservation measures.

ix. Native grasslands and other non-woody vegetation need to be defined specifically as biodiversity and identified in the draft *Local Land Services Amendment Bill 2016*.

x. There should also be clear articulation and measurement of impacts and outcomes of conservation measures to maintain key ecological processes and key functions of existing native vegetation. This should be added to both the Biodiversity Conservation Program and any assessment methodology used to assess impact of development on biodiversity.

xi. There is a need to define ecological integrity within the draft *Biodiversity Conservation Bill 2016* and processes that protect and measure this ecological integrity.

4. Vegetation clearing

Vegetation clearing is widely acknowledged as the most severe and immediate threat to biodiversity in NSW, nationally and globally (Bradshaw 2012, Hansen et al. 2013). In the two decades since enactment of threatened species and vegetation management legislation, the NSW government has reported clearing of one million hectares of native woody vegetation, representing more than 5% of the remaining forests and woodlands (OEH 2014). The clearing of non-woody vegetation is not reported by government, but likely to be substantially greater than losses of woody vegetation (defined as >20% projective foliage cover), because most of the undeveloped land perceived to be suitable for cropping or intensive grazing is vegetated by native open woodlands, grasslands and shrublands that naturally have less than 20% woody cover.

The high ongoing rates of loss are not so much a failing of existing legislation, but rather ineffective implementation of its provisions and inadequate resourcing of compliance. Rather than improving efforts to arrest ongoing rates of vegetation clearing, the draft *Biodiversity Conservation Bill 2016* removes a number of the protective measures in existing legislation, expands opportunities for unreported self-assessment, introduces more exemptions for activities that result in vegetation clearing and narrows the scope of biodiversity assets that qualify for meaningful regulatory protection. Consequently, even at the State scale, it is difficult to see how the proposed legislation can achieve its stated purpose and objects for biodiversity conservation (section 1.3).

One of the objectives of the draft *Biodiversity Conservation Bill 2016* is "to conserve biodiversity and ecological integrity at bioregional and State scales" (see Part 1, 1.3a). This can only be achieved by implementing protective measures at particular sites that make a

contribution to bioregional and State objectives (i.e. the proposed legislation needs to protect biodiversity and ecological integrity at all scales from local to the state scale).

This is critical for three reasons:

i.   many elements of biodiversity are very restricted in their geographic extent or distribution, found only at a few locations or small areas of habitat (only some of these are currently listed on the Schedules, while most have not been assessed);

ii.   there are high levels of species' endemism in NSW (species and ecological communities only occur in NSW); and

iii. disruption of ecological processes at key locations can dramatically impact on entire landscapes (e.g. best remaining patches, dams and weirs, fires, key breeding sites for animals).

Clearing of vegetation at a very small local scale can have global, national, state and bioregional consequences for biodiversity and ecological integrity, for example, by causing range contractions and fragmentation of populations. For example, numerous native plants found only in NSW (many currently listed as threatened but many not) are only found in a few sites. Loss of any one of these sites can dramatically increase extinction risk for the species, with consequent bioregional losses of biodiversity and likely reductions in ecosystem services (e.g. by reducing food for pollinators of food crops).

The proposed draft *Biodiversity Conservation Bill 2016* and draft *Local Land Services Amendment Bill 2016* will designate areas for regulation on a Native Vegetation Regulatory Map (Division 2, draft *Local Land Services Amendment Bill 2016*) currently in preparation by NSW Office of Environment and Heritage. It will designate categories of land (Category 1 exempt; Category 2 regulated land; Category 2 vulnerable regulated land and Category 3 land).

Assessment of risk to vegetation communities is proposed to use global best practice in the listing of threatened ecological communities). However, the different components of risk used in IUCN were not fully addressed in considering risks to vegetation in the *Native Vegetation Act 2003*. Assessment of clearing impacts on native vegetation under the proposed draft *Biodiversity Conservation Bill 2016* rests on a 70% loss threshold to identify overcleared plant community types. This is at odds with Part 4 of the draft Bill and associated Regulations. These adopt international best-practice listing criteria for ecological communities (Keith et al. 2013, Bland et al. 2016), which identify communities at high levels of risk when their distribution has declined by more than 50%. Furthermore, other key indicators of risk, incorporated in the international standard and proposed legislation (Part 4 and associated Regulations) are not comprehensively addressed in the assessment of clearing impacts. These indicators include restricted geographic distribution combined with decline, environmental (abiotic) degradation, critical placement in terms of regional

hydrology, and disruption of biological processes or interactions that support the vegetation.

4.1 Strengths

- There is a commitment to use of a rigorous mapping base, using available satellite imagery and aerial photography.
- There is commitment to a public reporting of applications for vegetation clearing on an annual basis.
- There is an internal review process allowing landholders to provide additional onground information.
- There is "high spatial precision, to a level of detail that enables individual trees to be identified'; down to a 5m resolution, using SPOT imagery (OEH 2016).
- The seasonal cover disturbance index potentially represents a useful technique for separating non-woody natural areas from developed areas but requires further intensive testing with rigorous ground-truthing, followed by critical review.
- The inclusion of land in Category 2 which contains native vegetation that was regrown or preserved with assistance of public funds.

4.2 Weaknesses

- Protecting native vegetation is the cornerstone of biodiversity conservation and should be the responsibility of the NSW Minister for the Environment. However, the current legislation seeks to place control of vegetation management under draft *Local Land Services Amendment Bill 2016* and with the Minister for Primary Industries. This enshrines a lack of independence, confounding responsibilities for regulation with responsibilities to promote development of primary industries. It also creates an anomaly with the responsibility for Native Vegetation Regulatory Map, resting with the Minister for Environment, but not the responsibility for regulatory operations to which the map applies.
- The proposed authorisations, allowable activities, certifications and exemptions under codes are too numerous, too broad and too vaguely defined for effective compliance. For example, section 60N of the draft *Local Land Services Amendment Bill 2016* lists 24 authorisations for vegetation clearing. Part 2 of Schedule 5A sets out a further 16 categories of clearing for allowable activities and Part 3 sets out numerous categories of rural infrastructure for which clearing is allowable. Existing Land Management (native vegetation) Codes list many more exemptions and new Codes with further exemptions may be adopted without parliamentary review. Collectively, these preclude application of protective provisions, mitigate the effectiveness of the legislation and narrow its scope to the extent that it is unlikely to achieve its stated purpose.
- Of particular concern is the continuation of the Code exemptions for clearing 'invasive native scrub' which override protective provisions of both existing and proposed biodiversity legislation. For example, a number of tree and shrub species,

keystone dominants of listed Ecological Communities, are also listed as invasive native scrub, and therefore exempt from clearing regulations. Most of these species depend on natural disturbances such as floods or fires to regenerate and maintain their populations. As a consequence, even-aged cohorts of shrubs and trees, often at initially high densities that thin naturally over time, are typical symptoms of ecological repair and play a critical role in maintaining landscape function and productivity (Eldridge & Solivares 2015). Characterisation of these regenerating stands as 'invasive' scrub, and their exemption from protective regulation, is counter to established scientific understanding and evidence-based policy.

- Some areas that appear cleared using 1990 satellite imagery may have subsequently regrown and may have important biodiversity value and so should not automatically be placed into Category 1 lands.

- Responsibility for reporting of clearing rates is weak, vague, incomplete and rests with the Minister for Primary Industries, under sections 60UU and 60VV of the draft *Local Land Services Amendment Bill 2016.* However, current reporting responsibilities, satellite mapping expertise and other mapping responsibilities reside within the Environment portfolio. The proposed draft *Local Land Services Amendment Bill 2016* requires only an estimate of the overall rate of clearing in regulated rural areas. It is silent on reporting of spatially explicit (map) data, and evidently ignores clearing that is not defined as allowable or authorised under Divisions 4 and 5 and Schedule 5A. There appears to be no requirement for reporting approved clearing, unauthorised clearing or clearing outside regulated rural areas. In the past reporting has been limited, retrospective and irregular, with the most recent in 2013 (OEH 2014). These reports exclude clearing of non-woody vegetation (defined as <20% foliage projective cover of woody vegetation), such as native open woodlands, grasslands and shrublands where much of the NSW clearing activity is likely to occur. In contrast, the Queensland Government mandates regular publication of spatially explicit map-based reports on clearing rates and historical archives based on a consistent method of satellite image analysis.

- The Native Vegetation Regulatory Map was unavailable for public comment at the time the draft *Biodiversity Conservation Bill 2016* and draft *Local Land Services Amendment Bill 2016* were on public exhibition. The information provided in the Methods document was insufficient to evaluate the efficacy of the scientific methods employed in its development or the adequacy of validation activities. Inevitably, the map is likely to include some unavoidable errors of various types. The legislation includes an internal review process that may only be requested by a landholder for re-categorisation on category 2 land to category 1. Similarly, only landholders are granted right of appeal to re-categorisation decisions (section 60K). These arrangements fail to recognise that mapping errors are likely to occur for both categories 1 and 2 lands and that persons other than landholders are likely to hold relevant information and expertise on native vegetation that could assist in

improving the accuracy of the map. There is a need for greater public involvement in this aspect of the regulatory framework, given public expectations for protection of native vegetation and its biodiversity as an asset to all of NSW.

- Further to the previous point, accurate mapping of native non-woody vegetation can be particularly challenging unless there is intensive time series ground-truthing of the type demonstrated by Schultz et al. (2014) and Burrows (2004). Native grasslands, and shrublands or and open woodlands with low canopy cover may be incorrectly assumed to have been cleared and designated as cleared category 1 lands under the methodology being used to create the maps. For example, the Australian Land Use and Management (ALUM) classification which is the starting point for the vegetation map under Grazing modified pastures has pasture legume/ grass mixture which may include abundant native grasses. Generally grasslands may contain native vegetation of bioregional or state significance. Hence, intensive time-series ground-truthing of putative native and non-native grasslands should be mandated in the mapping method.

- Generally grasslands may contain native vegetation of bioregional or state significance. These grasslands must be mapped and identified separately, similar to the former SEPP (No. 46) legislation.

- Major inputs for the vegetation regulatory map are highly dependent on interpretation of Landsat 5 TM and Landsat 7 ETM+ with a 30m resolution. This makes it difficult to identify small areas of native vegetation or areas of native vegetation with sparse tree cover.

- The mapping ignores the distributions of threatened species and threatened ecological communities. A number of these may occur in Category 1 areas, with a high likelihood that some Category 1 areas will be of regional or state significance and should not be cleared. Some Category 1 land may be critical for recharge and regional hydrology.

- Areas that support occurrences or habitat of Critically Endangered, Endangered or Vulnerable species or ecological communities may be included in category 1 land and therefore excluded from any regulation of vegetation clearing. Only critically endangered plants and ecological communities may be included in category 2 lands if they have been mapped (sections 60H(m) and 60H(n), draft *Local Land Services Amendment Bill 2016*). Fauna are omitted.

- There is no testing of the mapping to validate the categories to ensure no conservation assets are included in category 1 lands.

- There are significant and widespread errors in the geo-referencing of known locations for threatened species and ecological communities in available databases, making overlays of georeferenced distributions unsuitable as a tool to flag the known locations of threatened species or ecological communities.

- There is strong scientific evidence indicating that isolated trees have important value for biodiversity, holding together soils and providing connectivity for biodiversity

(e.g. woodland birds) to move across the landscape, providing a 'bridge' between patches of landscape vegetation landscape vegetation (Gibbons and Boak 2002, Eldridge and Wong 2005, Manning et al. 2006, Gibbons et al. 2008, Fischer et al. 2009, Fischer et al. 2010, Manning et al. 2013).

- There is an implicit assumption that Category 1 land has no conservation assets at the regional or state scale but this is invalid with scientific evidence showing that such areas may hold significant biodiversity value. Indeed, under the current definitions of land categories, Category 1 could include important occurrences and habitat for Critically Endangered, Endangered and Vulnerable species and ecological communities. Areas of predominantly non-native vegetation also have a range of other biodiversity values, particularly for fauna habitat.

- The bioregions are referred to in the draft *Biodiversity Conservation Bill 2016* and draft *Local Land Services Amendment Bill 2016* but not defined. This is critical because there are different version of IBRA: specifically version 7 is the most recent, but future updates are likely. This makes implementation difficult without specification of the version.

- Travelling Stock Reserves (TSRs) are not mentioned, despite their importance for biodiversity.

- The seasonal cover disturbance is used to identify non-woody vegetation, using Landsat imagery. It is not clear how adequate this process is in identifying grasslands and other areas which are not categorised as woody. There are critical confounding natural factors including fire, flooding for wetlands and rainfall. The regulatory functions of the proposed legislation rely heavily on this technique, yet is no published rigorous analyses of its effectiveness of this technique despite its importance. The method should be subject to independent peer review in a scientific journal prior to implementation in law. The documentation alludes only to "a range of cultivated, improved and native pasture sites" selected and patterns that were analysed over time (OEH 2016) but there is no available rigorous analyses and details are unavailable for the public to view and assess confidence in this technique. Further, there is no specification of what type of accuracy assessment was performed and comparing different satellite data to independently classified ground data is unspecified and unavailable for independent review.

- There is no opportunity for other stakeholders to provide data on the mapping, particularly where they may have on-ground information (e.g. scientific research).

- The major classification scheme used is the ALUM classification. There is limited clarity on the uncertainty and error of this classification scheme with a resolution of 2ha (OEH 2016). The documentation claims 'extensive field verification' although there is no detail provided on where and when this was done or what features were recorded, and there is no reporting of the extent or the accuracy of the mapping based on this verification. It is not clear what scale of this classification is developed and the effects of temporal changes.

- The necessity for 'analyst interpretation' of satellite imagery which potentially weakens the reproducibility of the mapping, given reliance on subjective decision-making.
- Category 1 data can include "Land the Chief Executive of OEH reasonably believes"…"contains low conservation value grasslands…" It is not clear what rigorous scientific criteria are used to make this decision.
- There may be limited data to identify land where public funds have been invested to regrow native vegetation, given the limited geographic data available.

4.3 Improvements

i. To ensure independence of process, the Minister for the Environment should have responsibility for approving clearing applications and other actions to deal with ameliorating the threat of 'Clearing of native vegetation' as a listed Key Threatening Process under the *Threatened Species Conservation Act 1995*, to maintain biodiversity and ecological integrity. This change would ensure a similar level of probity and accountability that led the Government to re-establish the Environmental Protection Authority as an independent regulator. It would also resolve the anomaly of the Environment Minister being responsible for the Native Vegetation Regulatory Map, but not the regulatory operations to which it applies (Division 2, draft *Local Land Services Amendment Bill 2016*).

ii. Exemptions from the regulatory process should be limited to exceptional circumstances, such as emergency and safety operations. This would achieve a more appropriate balance between reduced regulatory burden and effective management of State assets following introduction of the land category map (draft *Local Land Services Amendment Bill 2016,* Division 2, Section 60E-60L) which is expected to exclude 30-40% of NSW from clearing regulation. Simplification of clearing exemptions to focus only on emergency or safety circumstances would promote the ability of clearing regulations to meet scientific standards and public expectations for biodiversity protection.

iii. Assessment of development impacts on native vegetation must incorporate global best practice elements of extinction risk for different vegetation types (i.e. decline, extent of restricted geographic distribution, degree and severity of both degradation and disruption of biological processes). Resources need to be provided to bring the existing dataset on NSW vegetation up to global standards.

iv. A commitment to identify, map and provide protection for significant areas of non-woody vegetation, including grassland, some of which will occur in Category 1 land.

v. New legislation should mandate scientifically rigorous annual publication of the area and location of vegetation clearing, including map data and statistics (as is current practice in Queensland), extended to include both woody and non-woody vegetation throughout NSW. Reporting deadlines should require annual publication within two years of clearing events (i.e. clearing that took place during the 2016-17 financial

year should be reported no later than the end of the 2017-18 financial year). This change will enable effective reporting to fulfil state, national and international obligations, and will improve public confidence in outcomes of the regulatory process.

vi. New legislation should mandate transparent, thorough testing, ground-truthing and annual update of the land category mapping. The internal review process allowing landholders to request review of the Native Vegetation Regulatory Map with supporting evidence should be extended to enable contributions from all other stakeholders including members of the public. Consistent with the Government's open data policy, all contributions of information and resulting amendments to land category maps should be published on an annual basis. Responsibility for reporting clearing rates should rest with the Minister for Environment, consistent with the expertise and other mapping responsibilities within that portfolio, and not with the Minister for Primary Industries, as proposed in the draft *Local Land Services Amendment Bill* (section 60UU).

vii. The proposed provisions in section 60H of the draft *Local Land Services Amendment Bill 2016* should be revised to include land mapped as containing habitat for all listed threatened species, populations or ecological community in category 2-vulnerable regulated land. This will ensure that biodiversity is properly considered in assessment of applications to clear native vegetation.

viii. The new legislation should contain emergency provisions to exclude conservation assets (such as threatened species and ecological communities) from Category 1 Land mapping as soon as their location is resolved.

ix. Travelling Stock Reserves (TSRs) need to be included within Category 2 lands.

x. There needs to be an assessment of any areas that appeared cleared in 1990, but have regrown to assess their biodiversity value prior to any inclusion into Category 1 Land.

xi. There should be a process to allow stakeholders, other than landholders, to provide additional rigorously collected on-ground information for the mapping.

xii. It would be helpful to publish the current areas for the different categories of land across the state and in different bioregions for the public to understand the scale of categories.

xiii. There should be published measures of accuracy, compared to on-ground data, for mapping of different categories for each of the regions for the public to understand the uncertainty level for decision-making.

xiv. Wetland mapping is likely to confound the seasonal cover disturbance index because of the importance of this type of vegetation responding to flooding. Mapping of such areas could be improved by using the wetland data layer which NSW Office of Environment and Heritage has access to (Kingsford et al. 2004).

xv. Analyses of the performance of the seasonal disturbance index should be reported to allow for confidence by the public in its ability to discriminate developed pastures from native grasses.

xvi. There is a need to specify how the Chief Executive of OEH determines that land "…contains low conservation value grasslands".

xvii. The application of 'invasive native scrub' in the legislation is not scientifically valid and should be removed.

5. Offsets

The draft *Biodiversity Conservation Bill 2016* and draft *Local Land Services Amendment Bill 2016* provide opportunities to 'offset' loss of biodiversity that results from approved clearing of native vegetation with the aim of providing a benefit for biodiversity conservation. The Panel report (Byron et al. 2014) recommended offset measures that reflect "international best practice". There is little scientific evidence that shows that offsets protect biodiversity in the long-term. A key starting point are the fundamental best-practice principles of offsets which include (Maron et al. 2012, Maron et al. 2015a, Maron et al. 2015b, Maron et al. 2015c, Maron et al. 2016):

a. the mitigation hierarchy, in which impacts are first avoided or minimised to the fullest extent possible, and offsets are implemented to compensate for residual impacts only after avoidance and minimisation has been demonstrated;

b. substitution of 'like for like', whereby offsets must be for the same type, composition and structure of vegetation lost;

c. offset actions and their outcomes must be additional to those that would have occurred if the development had not taken place;

d. offsets must be maintained in perpetuity, ensuring that offset gains are secure for the future; and

e. no net loss, ensuring the gains from offsets must at least balance the losses of biodiversity caused by the development

Examination of the draft *Biodiversity Conservation Bill 2016* shows that it does not implement any of these principles effectively (see below for details). Claims of international best-practice therefore appear to be unjustified, as do claims that recommendations of the Panel (Byron et al. 2014) have been adopted. Other deficiencies include reliance on an untested biodiversity assessment method to calculate offset credits and failure to incorporate a forward-planning mechanism to reduce investment risks in offsets that become inviable under future climates.

5.1 Strengths

- In principle, offsets may benefit biodiversity conservation as long as losses are compensated for by equivalent or greater gains, and take into account the five principles listed above, as well as the risks of offset failure (due to limited

restoration technologies) and multi-decadal lags typically experienced in realisation of ecological function, structure and composition in restored ecosystems.

- The draft legislation and putative regulations explicitly recognises two of the five offset principles (mitigation hierarchy and like-for-like), although provisions fail to implement them effectively (see below for details). The draft legislation fails to meet the three remaining principles.

5.2 Weaknesses

- The draft *Biodiversity Conservation Bill 2016* refers to Offset Principle (i), the mitigation hierarchy, in section 6.2(d) which states "measures… required to offset the residual impact on biodiversity values after action that is required to be taken to avoid or minimise impact," and section 6.4(1) which states "measures to offset or compensate for impacts on biodiversity values after the steps taken to avoid or minimise those impacts". However, the proposed legislation includes no provisions to ensure due implementation of impact avoidance and minimisation, prior to consideration of offsetting. Furthermore, the draft legislation makes no reference to impact avoidance in the event that an offset cannot be found. A conspicuous flaw is to be found in section 1.3 (e) which states that the purpose of the Act will be achieved by avoiding, minimising or offsetting biodiversity impacts as if they were alternatives, rather than hierarchical rules. Without such provisions, there is no explicit requirement or incentive for proponents to implement the essential pre-requisite steps to offsetting.

- The draft *Biodiversity Conservation Bill 2016* makes no explicit reference to Offset Principle (ii), 'like for like', however, section 6.8 provides for unspecified offset rules and guidelines in Regulations. The Submission Guide describes Government intentions for Regulations that specify offset rules relevant to the like-for-like principle. The Guide refers to "international best-practice principles", including one that "offsets are targeted to… like for like or better." However, subsequent text outlines a series of definitional guidelines, variations and alternative actions and monetary payment options that signal substantial departure from 'like for like' outcomes, and hence departure from international best-practice. The 'like for like' guidelines at the top of this hierarchy include requirements for offset vegetation to be located in the same local areas as losses based on adjacent IBRA subregions (not the same subregion), of a plant community type in the same broad statewide class (not the same plant community type).

- For species, offsets are not constrained by locality, and thus may be located hundreds of kilometres from the location of losses. These set an extremely low standard for likeness, and provide for substantial losses of local and regional biodiversity, and hence losses at bioregional and state scales, contrary to stated objectives. The draft Bill (section 6.8(2)) provides for regulations to set out circumstances for variation of ordinary [offset] rules. The proposed guidelines

provide for further departure from 'like for like' outcomes, initially through variation rules that specify likeness only at the Formation level for vegetation or Order level for species, and then for "any biodiversity conservation action" known to improve biodiversity values. No standards of evidence are defined for meeting any level of the guideline hierarchy, and there are proposed provisions that allow upper levels of the hierarchy to be by-passed. Finally, the draft legislation provides for a monetary contribution to be made to the Biodiversity Conservation Fund in lieu of an offset. Such major departures from 'like for like' principle fail the claim of meeting international best-practice for offsets.

- The draft *Biodiversity Conservation Bill 2016* makes no explicit reference to Offset Principle (c), additionality. The Submission Guidelines state a principle that offsets are additional to other legal instruments, however, this fails to recognise that the additionality principle extends beyond legal instruments and no subsequent details are given in the documentation. Neither the draft legislation nor its supporting documentation recognise the need for counterfactual scenarios as essential baselines for evaluating additionality or the significant technical challenges that must be overcome to develop them (Maron et al. 2015a, Maron et al. 2016).

- The draft *Biodiversity Conservation Bill 2016* does not adequately address Offset Principle (d), offset security. Although the Submission Guidelines state that offsets must be enduring, enforceable and transparent, the proposed accountabilities and provisions for ensuring such outcomes are weak. The proposed legislation allows for offsets themselves to be offset if proposed for subsequent development (e.g. section 5.16(2)(b). The proposed legislation Section 5.10 lists a number of provisions that may limit the duration of Biodiversity Stewardship Agreements, which are the principle mechanism for securing offsets into the future. These instruments provide no protection against threats to biodiversity associated with mineral exploration or extraction (sections 5.18 and 5.19) or designated developments of state significance (section 5.16). This is despite a requirement for the Minister for Industry, Minerals and Energy and the Minister for Planning to be consulted before entering into any Biodiversity Stewardship Agreement (section 5.5(3)). The provisions for both biodiversity and monetary compensation is limited (or in some circumstances waived) when offsets are terminated.

- The draft *Biodiversity Conservation Bill 2016* does not adequately address Offset Principle (v), no net loss. This is to be addressed by an offset calculator in the Biodiversity Assessment Method (BAM) in Regulations, which was unavailable for comment. The Submission Guide indicated that the BAM offset calculator will be based on metrics used previously the *Native Vegetation Act*. These fail to provide a comprehensive evaluation of biodiversity beyond a few taxonomic groups and suffer from systematic bias in estimating biodiversity value (Gorrod et al. 2013).

- The BAM builds on existing mechanisms under the *Native Vegetation Act 2003*. However, the conservation value of native vegetation assessment made in this tool

fails global best practice methodologies. For example, the proposed method for determining current risk to 'plant community types' (referred to as threat status groups in the submission guide) has serious omissions of risk factors, with % cleared the only basis for assessment based on different thresholds to the international standard. Global best practice (Keith et al. 2013, Bland et al. 2016) requires consideration of multiple indicators of risk, including decline, degree of restriction of geographic distribution, abiotic and biotic threats (extent and severity).

- The draft legislation contains no accountability or compliance mechanisms for offsets and restricted opportunities for public involvement in the offset planning and design process. The draft *Biodiversity Conservation Bill 2016* (Part 6.2(h)) allows state significant development to override serious or irreversible impacts. These projects are among the largest developments in NSW, potentially with large impacts on the state's most sensitive biodiversity assets, and yet excluded from the provisions of the proposed legislation. This is not international best practice and fails to adhere to the recommendations of Byron et al. (2014). There is no legal mechanism or policy for offsetting such impacts, if this proves to be feasible and viable.

5.3 Improvements

i.   There needs to be explicit provisions in the legislation that require proponents to demonstrate how their proposals have avoided and minimised impacts on biodiversity values (Offset Principle (a)). These should require consideration of all plausible alternative locations, designs and management strategies for the development, against specified best-practice standards of evidence.

ii. The new legislation should explicitly adopt Offset Principle (b), 'like for like', as an operating principle. Details of how this is to be implemented may be outlined in Regulations, but the principle should be stated in the Legislation, not left to Regulation. In addition, the Legislation should specify obligations, accountabilities and standards of evidence required to demonstrate due diligence for identifying 'like for like' offsets.

iii. The new legislation should explicitly require development of plausible counterfactual scenarios as essential baselines for assessing offset gains and additionality. The Regulations should outline technical criteria and guidance for development of counterfactual scenarios relevant to the proposed development and its offset, addressing the technical challenges in defining a workable baseline for assessing additionality.

iv. The new legislation should address Offset Principle (d) more effectively by strengthening the future security of offsets, limiting the options for termination and increasing protection against mining and state developments. This should be balanced against a more rigorous risk

assessment of candidate offset investments. Additionally, the legislation should define protections and an associated assessment process when offsets are affected by proposed mineral exploration, extraction or development of state significance.

v. The new legislation should commit to Offset Principle (e), as a means of arresting the erosion of NSW biodiversity. Applications for approvals under the Acts should be required to explicitly demonstrate how proposed offsets will achieve no net loss of biodiversity.

vi. The BAM should be subject to independent external peer review that is publically reported and adjusted accordingly prior to adoption in Regulations.

vii. To achieve global best practice, the BAM needs to be revised to include all risk indicators from international standards adopted in IUCN Red Lists to determine threat status groups for plant community types and species. Implementation of these standards is essential for protection of bioregional, state, national and global conservation assets (see also 4.2. and 4.3 above).

viii. Accountabilities and obligations for monitoring and reporting against management targets need to be substantially strengthened for agreed offsets and set asides. These changes are necessary to ensure return on investments and track outcomes against the baseline of no net loss.

ix. Part 6.2(h) should be modified to remove the exception for State significant development. This change provides a mechanism to promote consideration of alternative designs and locations for State significant development to avoid impact, and ensures protection of the State's most precarious biodiversity assets from potentially terminal threats associated with large developments.

6. Stewardship Agreements and Biodiversity Trust

The draft *Biodiversity Conservation Bill 2016* and draft *Local Land Services Amendment Bill 2016* propose providing incentives for conservation on private and leasehold land through funds for setting aside areas and providing resources for management.

6.1 Strengths

- The establishment of a Biodiversity Trust is a significant initiative that enables biodiversity conservation benefits that may not otherwise be achieved.
- There is considerable value in providing incentive funding for the management and setting aside of areas for biodiversity conservation, especially if biodiversity benefits are secured in perpetuity.

6.2 Weaknesses

- Trust investments are not adequately protected against risks posed by pressures for land use change. Furthermore, ecological risks of investment failure are not adequately recognised in the draft Bill.

- Implementation of Agreements does not necessarily recognise the need to identify the major driving processes of ecological communities so that management can target appropriately and ensure that public funds are best used.

- There is no clear process of monitoring and public reporting of biodiversity outcomes to measure effectiveness of management under Stewardship Agreements.

- The proposed legislation promotes a proliferation of loosely related private land agreements (Stewardship agreements Section 5.5, Conservation Agreements, 5.20, Wildlife Refuge Agreements 5.25, Set Asides 60Z, Offsets 6.1). These have varying levels of protection and conservation support and it is not clear why the weaker agreements are required.

- These private land agreements can be overridden by other legislation (e.g. mineral extraction, state significant).

6.3 Improvements

i. To maximise biodiversity benefits and minimise risks of Trust investments, the acquisition of land for inclusion in the public reserve estate should be explicitly defined in the proposed legislation as the top priority for Trust investments. A statement of Trust priorities in the legislation should also acknowledge that risks of failure are highest for offsets that seek to restore the most degraded biodiversity assets – priorities should therefore focus on the least degraded assets and invest in restoration of moderately degraded assets only when these represent the best available options for their kind.

ii. There is a need to establish a clear adaptive management framework which articulates clear goals for biodiversity management towards a desired state, where there is demonstration of the success or otherwise of management for biodiversity. This should be underpinned by an understanding of key drivers of ecological processes.

iii. Resources need to be provided for monitoring biodiversity outcomes in perpetuity.

iv. Consolidation of private land agreements into a single category that provides for biodiversity conservation on private land in perpetuity.

v. There needs to be a rigorous environmental assessment process that takes into account the biodiversity assets protected under the private land agreements and the investment in their establishment and management.

7. Cross-cutting issues

There are four cross-cutting issues which are relevant across the draft *Biodiversity Conservation Bill 2016* and draft *Local Land Services Amendment Bill 2016* including: the objects and definitions of the draft *Biodiversity Conservation Bill 2016*; implementation of Ecologically Sustainable Development; evidence base for decision-making and resourcing. Strengths and weaknesses are outlined followed by a consolidated section on improvements.

7.1 Legislative frameworks, implementation and definition

7.1.1 Strengths

- The title of the draft *Biodiversity Conservation Bill 2016* focuses on the conservation of biodiversity.
- There is considerable information provided on the different draft pieces of legislation and the methodology used for implementation (e.g. mapping) although some critical details are not clear.

7.1.2 Weaknesses

- There is only a commitment to slowing the rate of biodiversity loss, not halting biodiversity loss (Section 1.3).
- There is no mention of the actual rate of biodiversity loss to be slowed or over what time frame, making it impossible to test the effectiveness of the legislation in future years. It also primarily focuses on threatened species in certain categories of risk of extinction (see key issue 3).
- There is a fragmented legislative framework and responsibilities across different agencies for biodiversity conservation. In particular, there is separate *Fisheries Management Act 1994* dealing with threatened species, communities and key threatening processes as they relate to fisheries but divorced from the BCA process. There are also different implementation agencies with differing responsibilities and some potential conflicts of interest including the Department of Planning and Environment, Office of Environment and Heritage, Department of Primary Industries (Fisheries) and NSW Local Land Services.
- The purpose of the draft *Biodiversity Conservation Bill 2016* is weak, incomplete and inappropriate. It is difficult to understand why the fundamental purpose of a Biodiversity Conservation Act should encompass development. Ecologically Sustainable Development is relevant to how the Act interacts with other legislation with different goals, but not to the central purpose of a draft *Biodiversity Conservation Bill 2016*, which should be stated unambiguously as the conservation of biodiversity in perpetuity.
- The objects of the draft *Biodiversity Conservation Bill 2016* can be overridden by exemptions in other legislation.

- There is no definition of biodiversity in the current legislation, only a definition of "biodiversity value" which is very narrow and does not conform to international standards. All protective provisions within the proposed legislation rest on this erroneously narrow definition of biodiversity value. For consistency with the *Environment Protection Biodiversity Conservation Act 1999*, the proposed legislation needs to adopt the definition of biodiversity in the Convention of Biological Diversity (https://www.cbd.int/), to conform with international standards, specifically biodiversity or 'biological diversity is defined as "…*the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems.*"
- Inconsistencies in implementation of assessments and regulation across the 12 Land Services regions with their independent boards and staff, with limited resourcing.
- There will be inevitable inconsistencies in self-assessment, given different skills and backgrounds, requiring objective oversight.
- There are considerable parts of proposed legislation which require additional material to understand the consequences of implementation. For example, it is not clear in which circumstances other legislative instruments might override the draft *Biodiversity Conservation Bill 2016* and draft *Local Land Services Amendment Bill 2016*.
- It is not clear what the proposed SEPP for urban areas will cover and adequately protect.

7.2 Ecologically sustainable development

The draft *Biodiversity Conservation Bill 2016* and draft *Local Land Services Amendment Bill 2016* use the definition of ecologically sustainable development in the *Protection of the Environment Administration Act 1991* to underpin implementation. This Act specifies the operational definition: "….ecologically sustainable development requires the effective integration of economic and environmental considerations in decision-making processes. The draft *Biodiversity Conservation Bill 2016* amends this legislation to include 'social' as a consideration. Ecologically sustainable development can be achieved through the implementation of the following principles and programs:

(a) The precautionary principle—namely, that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.

(b) Inter-generational equity—namely, that the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations.

(c) Conservation of biological diversity and ecological integrity.

(d) Improved valuation and pricing of environmental resources."

Ecological sustainable development remains one of the most important principles of modern management of natural resources in New South Wales and highly relevant to international best practice. On the 17th September 2015, 193 United Nations Countries, including Australia, signed up to the 17 Sustainable Development Goals http://www.un.org/sustainabledevelopment/sustainable-development-goals/). Two goals are particularly relevant to draft *Biodiversity Conservation Bill 2016* and draft *Local Land Services Amendment Bill 2016*.

Goal 13 commits nations to "take urgent action to combat climate change and its impacts".

Goal 15 commits nations to "sustainably manage forests, combat desertification, halt and reverse land degradation, halt biodiversity loss". It has 12 relevant targets to the draft *Biodiversity Conservation Bill 2016* and draft *Local Land Services Amendment Bill 2016*.

Relevant targets of Sustainable Development Goal 15

- "By 2020, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements";

- "By 2020, promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally;"

- By 2030, combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land degradation-neutral world

- By 2030, ensure the conservation of mountain ecosystems, including their biodiversity, in order to enhance their capacity to provide benefits that are essential for sustainable development

- Take urgent and significant action to reduce the degradation of natural habitats, halt the loss of biodiversity and, by 2020, protect and prevent the extinction of threatened species

- By 2020, introduce measures to prevent the introduction and significantly reduce the impact of invasive alien species on land and water ecosystems and control or eradicate the priority species

- By 2020, integrate ecosystem and biodiversity values into national and local planning, development processes, poverty reduction strategies and accounts

- Mobilize and significantly increase financial resources from all sources to conserve and sustainably use biodiversity and ecosystems

- Mobilize significant resources from all sources and at all levels to finance sustainable forest management and provide adequate incentives to developing countries to advance such management, including for conservation and reforestation

- Deforestation and desertification – caused by human activities and climate change – pose major challenges to sustainable development and have affected the lives and livelihoods of millions of people in the fight against poverty. Efforts are being made to manage forests and combat desertification. Micro-organisms and invertebrates are key to ecosystem services, but their contributions are still poorly known and rarely acknowledged."

7.2.1 Strengths
- There is clear acknowledgment in the draft *Biodiversity Conservation Bill 2016* and draft *Local Land Services Amendment Bill 2016* of the importance and operational value of ecologically sustainable development for implementation.

7.2.2 Weaknesses
- There is little regard for the key principles of ecologically sustainable development, specifically including the precautionary principle, intergenerational equity and effective conservation of biodiversity and ecological integrity, given the weaknesses outlined in this submission.
- There is no reference to the Millennium goals to which Australia is a signatory and many of the weaknesses of the draft *Biodiversity Conservation Bill 2016* and draft *Local Land Services Amendment Bill 2016* will mean that NSW will actually erode national progress towards meeting the clear targets identified for signatory countries by 2020.

7.3 Evidence based approach, monitoring and compliance
There is broad scale acceptance that decision-making in natural resource management needs to be based on the best available evidence of science. Increasingly, widely available mapping tools and remote sensing have allowed for increasing information available for the management of biodiversity, including native vegetation management. Much of the proposed implementation of the draft *Biodiversity Conservation Bill 2016* and draft *Local Land Services Amendment Bill 2016* requires different levels of environmental assessment.

Historically, very low scientific standards of evidence and poor accountability requirements have prevailed for environmental assessments for regulated activities, including vegetation clearing, species' impact statements and development applications. The NSW Land and Environment Court has increasingly become the only means of quality control, but it is unwieldy and expensive, and routinely reveals substandard environmental assessments.

7.3.1 Strengths
- There is an implicit commitment to using the best available information to underpin decision-making.

7.3.2 Weaknesses
- Monitoring is not referenced in the draft legislation beyond a reference to regulatory powers.
- The draft *Biodiversity Conservation Bill 2016* and draft *Local Land Services Amendment Bill 2016* do little to redress the deficiency of poor environmental assessment. Furthermore, the legislation identifies no accountabilities for the standard of biodiversity and environmental assessments, and there are no truly effective means of quality control or audit of assessments.
- The proposed provisions for accreditation in the draft *Biodiversity Conservation Bill 2016* include no essential requirements, only a list of eleven matters (section 6.10(4)), which "may" be included in the scheme. Similar provisions to those proposed in new legislation exist in the Threatened Species Conservation Act 1995, but have not been acted by successive governments.
- The provisions for accreditation in the draft *Biodiversity Conservation Bill 2016* apply only to persons undertaking activities specified in sections 6.11, 6.12 and 6.13. A separate, and seemingly unconnected provision for species' impact statements (section 7.21). However, professional services are required for many other activities required under the proposed legislation, and these lack appropriate checks and balances on the persons engaged to undertake such work.

7.4 Resourcing

7.4.1 Strengths
- There is funding provided for the Biodiversity Trust and Saving our Species Programs.

7.4.2 Weaknesses
- Funding under the OEH Saving our Species program has focussed on threatened species conservation and negating threats to threatened species. Hence dealing with threats that impact on biodiversity and ecological integrity at the bioregional and state scales has been neglected and under resourced.
- There are limited resources for monitoring and compliance.
- There are no resources provided for the identification and listing of Areas of Outstanding Biodiversity Value and the conservation management of these areas.

7.5 Improvements
i. The implicit assumption is that there will be a monitoring component of some sort. There is plenty of wisdom available about how to construct an effective monitoring

program that should deliver evidence on how well the draft *Biodiversity Conservation Bill 2016* is meeting its objectives.

ii. There needs to be a Biodiversity definition in the draft *Biodiversity Conservation Bill 2016*. This should be based on the one in the *Threatened Species Conservation Act 1995* and EPBC Act. The draft *Biodiversity Conservation Bill 2016* should adopt the international definition in the Convention for Biological Diversity (https://www.cbd.int/), where biodiversity or 'biological diversity is defined as "…*the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems.*"

iii. There need to be standard, rigorous and repeatable assessment processes conducted by all 12 Land Services regions and staff with independent review by the Environment agency, NSW Office of Environment and Heritage.

iv. Similar professional standards misconduct penalties should be applied to environmental professionals to those employed as medical practitioners, lawyers, accountants, engineers, master builders and other professionals with public responsibilities. This ought to be a priority to ensure good environmental outcomes, yet the proposed legislation is silent on the matter.

v. There should be specific adaptive management planning processes which define a vision and clear objectives, supported by appropriate monitoring and evaluation. Such monitoring needs to be targeted to responsive indicators which allow for changes in management when thresholds are exceeded.

vi. Accreditation should be mandatory for persons undertaking all biodiversity assessments under the proposed Act (not only those pertaining to the biodiversity assessment methodology), and should be extended to persons undertaking environmental assessments under the *Environmental Planning and Assessment Act 1979* and the draft *Local Land Services Amendment Bill 2016*. There need to be regular compliance checks and performance checked when accreditation is renewed.

vii. An independent scientific body should be established to assess applications and recommend to the Minister persons who have met the requirements for Accreditation. As part of the review process specified in section 6.9, this body should also be responsible for making recommendations to the Minister on the accreditation scheme and criteria therein.

viii. Appropriate scientific qualifications, evidence of scientific track record and the scientific integrity of authored biodiversity assessment reports should be a central principle in considering eligibility of persons for accreditation.

ix. Only individuals should be eligible for accreditation.

x. There needs to be additional resources provided for AOBV identification, listing and ongoing management.

xi. There needs to be ongoing resources to keep the schedules up to date.

xii. Oversight of self-assessment processes by NSW Office of Environment and Heritage to ensure biodiversity outcomes, under the draft *Biodiversity Conservation Bill 2016*.

8. Specific revisions to draft legislation
8.1 draft *Biodiversity Conservation Bill 2016*

There are errors or meanings which are not consistent within the draft *Biodiversity Conservation Bill 2016* and require revision to ensure they represent the objects of the legislation.

1. 1.5 a. Consider replacement of 'function of vegetation' with 'ecological functions that maintain vegetation'
2. 1.5b should include 'or ecological community' after 'threatened species'
3. 1.6 (1) definitions
   o Habitat – currently assumes only animals have habitat. This is not correct. Plants and ecological communities must be added here to ensure consistency with other parts of the proposed legislation. For example, the criteria for listing species, based on IUCN Red list includes decline in 'habitat quality' for both plants and animals.
4. 4.1 definition needs to include 'addition of species, ecological communities or KTPs'
5. 4.29 should be schedule 1,2, or 3 and per 4.28
6. 4.35 2b has as an objective to "to minimise the impacts of key threatening processes on biodiversity values" This should be changed to "to minimise the impacts of key threatening processes on biodiversity and ecological integrity" to better reflect the object of the proposed legislation.
7. 4.36 1a (Biodiversity Conservation program) - need to add KTP amelioration as a priority here (including ameliorating KTPs at the bioregional and state scales)
8. 4.36 (2) delete (see dot point above and comments above under Managing Key threatening processes.
9. There are errors in Schedules 1, 2 and 3 which do not reflect the most up to date listings under the *Threatened Species Conservation Act 1995*.
   o Schedule 1.
     ▪ Critically Endangered- Add the following: *Potorous longipes* Seebeck & Johnston, 1980 (long footed potoroo), *Banksia vincentia, Glycine latrobeana* (Meisn.) Benth., *Wollemia nobilis*;
     ▪ Endangered. remove *Wollemia nobilis* (it should be on CR list).
   o Schedule 2,
     ▪ Part 1 Critically endangered ecological communities- add windswept field mark;
     ▪ Part 2 Endangered ecological communities- add Pilliga outwash
10. 7.3 1(b)(i) and (ii) use collapse instead of extinction

8.2 **draft** *Local Land Services Amendment Bill 2016*

1. 60B The native vegetation definition needs to include seeds, seed banks and underground bulbs and tubers.
2. 60H(2) needs to include: "The land is habitat/location for a threatened spp or ecological community".
3. It is understood that there is currently no mapping by the Environmental Agency Head of 'land containing critically endangered plants" (part m) or 'land containing a critically endangered ecological community" (part n). Significant and widespread errors in the geo-referencing of known locations for threatened species and ecological communities in available databases make using overlays of georeferenced distributions unsuitable as a tool to flag the known locations of threatened species or ecological communities. While (m) and (n) include Critically Endangered plants and Critically Endangered Threatened Ecological Communities, no Critically Endangered animals are included. Many Endangered and Vulnerable plants also occur over very small areas and no losses can be tolerated for these geographically restricted species.

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