



Office of the Commissioner for
Sustainability and the Environment

PEER REVIEW REPORT

ACT State of the Environment Report 2015

Contents

Purpose of the Review report.....3

Introduction3

Approach to review.....3

Review process3

Reviewers’ comments for each theme chapter with CSE responses4

 Chapter 2: Climate Change5

 Chapter 3: Human Needs.....8

 Chapter 4: Air15

 Chapter 5: Land19

 Chapter 6: Water.....25

 Chapter 7: Biodiversity.....26

 Chapter 8: Heritage46

 Chapter 9: What does the changing environment mean?.....51

APPENDIX 1 State of the Environment Report 2015: Guidelines for reviewers63

APPENDIX 2 Peer review template65

Purpose of the review report

The ACT State of Environment Report (SoER) 2015 was largely written by staff of the Commissioner for Sustainability and the Environment (CSE) who gathered and interpreted data provided by ACT Directorates; Commonwealth and State Departments and agencies; tertiary institutions and subject specialist organisations. As with past SoE reports a rigorous review process was undertaken on draft versions of the Report chapters. This review report outlines the principles and processes guiding the review and presents the substantive issues raised by each reviewer and how feedback was addressed in preparing the final report.

Introduction

Peer review, or refereeing, is the process by which a paper or report is examined by experts in given fields with a view to providing independent scrutiny, validating interpretations improving readability and strengthening its credibility and reliability. Reviews are typically conducted by highly qualified professionals with expertise in the subject matter of the report or report section, who are able to provide impartial feedback. An independent, transparent and rigorous peer review process allows readers to have greater confidence in the quality of a report.

Approach to review

The aim of the review process for the ACT SoER 2015 was to obtain constructive advice that validated and strengthened the content of the Report. External reviewers (that is, not employed within the CSE) for each of the 2015 ACT SoER chapters included ACT Government data holders, policy makers, land managers, researchers and other expert external reviewers (see Appendix 1 for explanation of this category) selected for their expertise in particular fields. To cover the broad scope of chapters multiple reviewers were appointed to each chapter. Chapter 10 was undertaken independently by experts in International Union for Conservation of Nature (IUCN) management effectiveness framework and the Commissioner accepted their report. The draft assessments and findings were reviewed by relevant agencies and comments considered in determining the final assessments.

Review process

Towards the end of September 2015, reviewers were sent a draft of their allocated chapter and a set of guidelines for examining the chapter (Appendix 1) including the following terms of reference:

- Assertions that contradict published data, general scientific understanding or other evidence;
- Unfounded assertions;
- Conclusions drawn from the selective use or representation of data, where more objective or balanced reporting of the data would show a different conclusion; and
- Omission of relevant data or important issues that would significantly improve the material.

Each reviewer was provided with a template (Appendix 2) in which to organise their feedback and asked to provide to the CSE the completed template with all comments addressing the terms of reference by the completion of the review period of one week.

As in most review processes, and particularly given the independence of the Commissioner, reviewers were made aware that while chapter authors would be required to give careful consideration to all reviewer feedback there was no obligation by the Commissioner to accept any recommendation for change. After the review period had elapsed, CSE staff followed up with reviewers by phone and email where additional information or clarification of reviewer comments was needed. They were also informed that a record would be kept of all comments and actions taken in relation to their feedback along with justification as appropriate. A completed set of their own comments and CSE responses to them was returned to each of the reviewers. Reviewers were also sent a copy of this review report. To maintain confidentiality, reviewers' comments have not been attributed to individuals, however all reviewers were acknowledged in the 2015 SoER.

Reviewers' comments for each theme chapter with CSE responses

The table below provides reviewer comments on substantive issues, by chapter, along with CSE responses for each of the theme chapters:

1. Introduction - one referencing comment; change made by CSE in the final version
2. Climate change
3. Human needs
4. Air
5. Land
6. Water
7. Biodiversity
8. Heritage
9. What does the changing environment mean?

The review guidelines explained that editorial comments on matters such as writing style, spelling and layout were not required as these would be addressed at the professional editing stage. Nevertheless, a number of reviewers made comments in relation to such matters. Suggestions included the need to audit all references, ensure appropriate and consistent protocols for capitalisation, and to check labelling of figures and tables for correctness. These comments were provided to the SoER editors (Biotext Pty Ltd) and necessary amendments made in the final version of the 2015 ACT SoE Report.

Chapter 2: Climate change

Reviewer comment	CSE Response
2.2.1 What is Climate Change?	
The Author uses the UNFCCC definition of climate change from 1994. While there is nothing factually wrong with using this definition, the author should be aware of the IPCC AR4 (2007) definition of climate change which does not assume an anthropogenic cause in the definition. https://www.ipcc.ch/publications_and_data/ar4/syr/en/mains1.html)	Added a sentence to explain this
“Some of the key changes noted are by the IPCC report are:” Are these direct quotes from IPCC AR5?	Reference added
Figure 2.1 - The image of The Greenhouse Effect could be improved.	Image quality was improved in final version
Climate Variability	
References to “the oscillation”, but should read “ENSO” The El Niño–Southern Oscillation (ENSO) refers to shifts in ocean and atmosphere conditions. El Niño represents the ocean conditions and the Southern Oscillation represents the atmospheric component. To mention “the oscillation” limits the analysis to the southern oscillation which is only the atmospheric aspect of ENSO.	Text amended
The reference to ENSO variability needs re-wording. It is unclear from this paragraph if ENSO varies on monthly, seasonal, or annual time scales The typical ENSO life cycle includes a gradual build of ENSO conditions beginning in late southern-hemisphere autumn or early southern hemisphere winter. ENSO typically peaks in late spring or early summer (near the end of the calendar year) followed by waning in late summer or early autumn. While every El Niño has behaved differently, generally the ENSO life cycle spans the course of a year with autumn being the transitional period. Historically, successive events can occur, these are more common with La Nina than with El Nino.	Text added
2.2.3 How do we measure Climate Change?	
Mean Temperatures – ACT region	
On page 26 you mention the average number of days each year above 35 °C in the ACT is “fewer than 10”. On page 38 you write the same average of 5 days. My calculation using ACORN SAT data at Canberra airport shows an average of 6.13 days per year with temperatures above 35°C http://www.bom.gov.au/climate/change/acorn/sat/data/acorn.sat.maxT.070351.daily.txt	Added this figure and reference
Text describes changes in temperatures as shown in figure 5. The fact that Figure 5 shows annual is omitted. The description of changes in spring need to be worded as seasonal averages.	Amended text and figure description

Reviewer comment	CSE Response
Use language such as “Annual mean daily maximum temperatures are projected to increase...” and “Spring will experience the greatest change in seasonal mean maximum temperatures...” This change allows for that fact that in spring, or any given year, there may still be cool days, but on average the season will be warmer.	
Climate Variables – ACT region	
Text describes rainfall as drier. Should describe rainfall as “lower”	Amended text to be more accurate
The sentence concerning the changes in rainfall and its relationship to catchments is confusing and needs some clarification. Can an example that shows the direction of change or amplification be provided? For example in terms of, for every percentage increase in rainfall there is an extra 2%-3% increase in the catchment if that is what is meant. Similarly, if there is a reduction in rainfall of 1% this results in a 2 to 3% reduction in the catchment. In addition a reference supporting this relationship would be useful.	Change made to include more detail from BOM/CSIRO State of Climate 2014
<p>To assist reader comprehension, can a sentence or two be added, that explains how figure 2.7 shows the results of (there appear to be) 11 models for the four seasons rainfall for the near future and far future?</p> <p>Also can a sentence be added indicating what the heavy line means within the seasonal bars for the near future and the far future bars in figure 2.7?</p> <p>Does the heavy line within the bars, indicate the mode /mean/median of the eleven models? If so this needs to be stated, to ensure the later implied reference to it on page 40 makes sense.</p>	Detailed notes added to explain the graph
Greenhouse Gas Emissions- ACT Region Total ACT Greenhouse Gas Emissions	
A new ACT Greenhouse Gas Inventory is due for release Sept/Oct 2015 for the reporting period 2014-15. This section may have to be re-written based on this new inventory.	<p>The period for this report is the 2011-15 financial years and has to be completed to meet a statutory timeframe.</p> <p>Even though the data pertain to that period they were not available in time to allow inclusion in the SoER.</p>
With regard to the ACT Inventory it may also be useful to explain that the ACT GHG Inventory includes emissions for electricity consumption where those associated emissions actually occur outside of the ACT. This is a scope 2 emission.	Included text
Figure 2.9 – The title of the graph indicates a time period from 1969 – our	Title amended

Reviewer comment	CSE Response
records don't go back that far.	
May also be useful to explain that the ACT GHG Inventory includes emissions for electricity consumption where those associated emissions actually occur outside of the ACT. This is a scope 2 emission.	Included text
2.3.2 Impact on Humans	
Water Supply	
<p>The justification for the statement 'there will be a decreased rainfall' is missing. Can a sentence be added that refers back to the models and figures on pages 10 and 11 and figure 7 for the near and far future modeling? This would assist reader understanding, by stating that most of the models or the average of the models for near and far future for most seasons show a reduced rainfall.</p> <p>For the first paragraph concerning water supply whilst the statement is correct it would be further improved by using references that support the relationships between water quality and quantity, and how they affect human health.</p> <p>For the second paragraph concerning human health there are potentially some very useful references that can further support the statements, this includes the work by Tony or Anthony Mc Michael and Liz Hanna, and it may be worth talking to ACT Health to see if they have any additional references or reports that would further support the reported number of deaths that result from extreme heat and extreme cold in the ACT.</p>	<p>Figure was changed</p> <p>Amendments made to reference section</p>
Human health	
The claim is made that climate change has both direct and indirect health impacts. While the indirect health impacts are clear (increased occurrence of heat waves, or very hot days) the direct impacts are arguable (is it the hot day or the overall increase in hot days that is the cause).	Those writing about health effects generally describe them as both direct and indirect
2.4.1 Mitigation	
ACT Response	
This 1,905 kt CO ₂ -e is likely to change in accordance with amendments to accounting methodologies changing the 1990 baseline. Current modeling shows the target to be 1,911. Prefer to leave this out and only refer to the 40% target.	Removed figure of 1,905 kt CO ₂ -e, left 40% target
How are we going?	
Australian Government target is for 5% reduction on 2000 levels (not 1990) by 2020.	Amended and clarified

Chapter 3: Human needs

Reviewer comment	CSE Response
3.3 Measuring human needs	
Data on population, employment and, industry are a good, accurate summary.	Comment received with thanks
Conclusions drawn from data on demographic and planning related matters are sound.	Comment received with thanks
It is highly desirable that the human needs chapter include a short discussion on housing, community facilities and retail – they are fundamental human needs.	Noted. SoER Chapter 9 <i>What does the changing environment mean?</i> includes data on housing. It also considers the <i>ACT Planning Strategy</i> which includes broad policies relating to community and retail facilities as well as housing. However no CSE discussion of retail and community facilities was included as these were considered less fundamental than housing as aspects of livability derived directly from the natural environment or management of it.
Population growth	
From reading figure 3.4, the contributions to ACT in Australian population growth, it is not clear why the age group 35 to 39 has not been included as another age group that the ACT differs in having a relatively high contribution to population growth when compared to Australia. It’s not clear what determines what is a relatively high contribution. However, when looking at the Figure 3.4 it appears that the difference between the ACT contribution compared to Australia, for this age group compared to the contribution for the 30 to 34 age group are very similar. If the 30-34 age group are considered to be a relatively high contribution to population growth, so too should the 35 to 39 age group.	Agreed. Edit made to include older age cohorts in the scope of the statement
3.3.3 Waste generation and management	
There are a few instances where the term waste generated is used, when really it would make more sense if it was written as generated waste.	Not agreed. Waste generated has been used consistently in final version

Reviewer comment	CSE Response
Regarding “Most recycled waste consists of garden wastes or demolition and excavation wastes, which are processed in the ACT prior to reuse or recycling in the ACT or interstate.”, note that C&D steel is sent interstate. Some Corkhills compost is bagged and sold in NSW.	Noted. The additional detail was not considered necessary
Waste sent to landfill	
Regarding the statement that “Some figures for years during 2011–15 are uncertain but the 2014–15 data is understood to be more reliable...”, the SoE report and OCSE have correctly noted the uncertainties in the ACT waste data presently. The accuracy of ACT waste data is currently being systematically audited as part of the ACT Waste Feasibility Study.	Noted. No change made as ACT Waste Feasibility Study was outside the timeframe of the SoER precluding inclusion of discussion of data from it.
Waste to landfill per person	
The first sentence under waste to landfill per person is unclear and extremely confusing it needs to be rewritten.	Sentence was revised
For the term controlled waste in the second paragraph can this be defined or an example given to aid reader comprehension, it does appear too late when it appears later under transport of controlled waste.	Noted, not agreed, no change made
Under the section waste to landfill per person in the second paragraph, the last sentence has a statement using ‘barely’, appears to contradict the figures.	Noted. Redrafting and corrections to figures done in the final version SoER
Sectoral waste generation	
There is a sentence under sectoral waste generation implying that the <i>Waste Minimisation Act 2001</i> regulates the waste management industry. This is misleading as the Waste Minimisation Act does not, per se, regulate the waste industry. It only does so through particular regulatory mechanisms (e.g. Industry Waste Reduction Plans) that must be implemented and enforced. There is only one such IWRP. This is arguably a deficiency in the current legislation and why regulatory reform is being considered. For example, new legislation could require the licensing of waste operators and provide for the tracking of waste through to final destination with mandatory reporting to the Territory. This would address deficiencies in the current voluntary reporting arrangement.	Agreed. Text altered to address reviewer comment
Greenhouse gas emissions from landfills	
Regarding the statement that “Organic waste in landfill decomposes under anaerobic conditions to produce a mixture of carbon dioxide and methane with trace amounts of volatile organic compounds, carbon monoxide, hydrogen and hydrogen sulphide” remove volatile fatty acids as VFAs are a subset of VOCs	Accepted. VFAs removed from text

Reviewer comment	CSE Response
3.3.3 Waste generation and management – waste impacts	
Waste impacts	
The section ‘waste impacts’ is unclear if this is still part of packaging or whether this is a new section. I’m finding the layout of this chapter very confusing with inconsistent use of headings for state and trend as there is no subheading for state and trend for waste.	Noted. The structure has been clarified in published version of the SoER.
For the first paragraph under waste impacts, data needs to be provided that supports the last sentence (that impacts are small and residual). No evidence has been provided that shows there has been or there is monitoring; of the water table and of water leaving waste management sites. There is no data provided concerning the area of land used for waste management, and there is no indication of how the soil quality has been monitored.	Agreed. The requirements for monitoring under environmental authorizations for waste management activities have been noted as well the absence of reports of any major lasting damage. Also, see note below on Mitchell fire.
Waste impacts - Damage to land, air or water	
This section appears to ignore air emissions associated with fires in waste stockpiles.	Agreed. More information has been added on fires at waste facilities.
Waste impacts - Damage to land, air or water	
It is inappropriate to conclude there is no significant impact on the environment just because the number of complaints has been relatively low. The scope is too narrow to make this statement. Damage to land air or water may be occurring even though people may not be complaining about that particular type of damage. It is just that they may not be able to physically see it to make a complaint. Unless we are physically measuring water, air and soil quality, damage could be occurring and we may not even know about it. For example the PCB fire at the Mitchell waste facility albeit one that wasn’t managed by the ACT Government; isn’t this is an example of damage to air quality as people were advised to stay indoors for many hours.	Agreed. More information on monitoring has been added. Words referring to the Mitchell fire have been added to Chapter 3 and the fire discussed in Chapter 4: Air.
The other statement stating therefore these impacts are small and residual then major is unclear	Agreed. Drafting error change made
Where do the impacts of illegal waste dumping fit into the idea that there is no significant impact on the environment?	Insufficient data is available to address this issue
Waste impacts: Human health	
The first paragraph concerns the use of the ACT Chief Health Officer’s report to make an inappropriate conclusion ‘that there is no evidence	Accepted. Edits were made to the conclusion

Reviewer comment	CSE Response
<p>of any significant health impacts from waste in 2011- 2015'. The problem with the above statement is that the chief health officer's report is only valid for a two-year period that ended in June 2012.</p> <p>My concern is the OCSE have not accessed any data for the years 2013 and 2014 to be able to say there is no evidence of any significant health impacts from waste in 2011- 2015. It is inappropriate to extrapolate from a 2011-2012 report for another two years. In fact there may be plenty of evidence of harm; it's just that the Chief health officer or other people haven't provided it yet.</p> <p>A more appropriate conclusion could be, given the 2011-2012 report indicating there were no significant health issues arising from waste or waste management, it is anticipated or it is likely this has continued for the period 2013 and 2014. However, this expected status will need to be confirmed once the Chief health Officer's report is released, presumably in 2016.</p>	<p>text as suggested.</p>
<p>A major omission (in relation to human health) is the PCB fire at Mitchell in 2011. Because this was such a major event for the people in North Canberra who were living and working in the fire's plume and because the ACT government conducted an enquiry into this fire it is important that this incident is at least referred to even if there were no ill effects found for human health on this occasion.</p> <p>This type of event is considered to be a critical incident and because of that it is so serious it does need to be included. It is important that we all learn from this critical incident and we need to know that the ACT government recognises; What went wrong, Why it happened, and What they have done or will do in the future to ensure this type of fire doesn't happen again.</p>	<p>Noted. Words referring to the Mitchell fire were added and it is discussed in Chapter 4: Air</p>
<p>Material composition of waste recycling and resource recovery</p>	
<p>For the section concerning material composition of waste recycling and resource recovery for the first dot point concerning demolition resource recovery it is not clear how this interpretation can be made from the figure concerning resource recovery from waste by material category. The text needs to demonstrate which types of materials relate to demolition resource recovery i.e. was it timber, ferrous metals glass or other.</p> <p>The second dot point concerning garden waste recycling is not supported by the figure concerning resource recovery from waste by material category. It appears the proportion of garden waste has been roughly similar throughout the entire reporting period and it's hard to understand how a statement can be made to say garden waste recycling has been high since 2011. It may be more useful to provide the actual figures as in the percentage of waste that is garden waste as a proportion of waste. Then make the interpretation as to how significant or not the garden waste recycling has been.</p>	<p>The version seen by the reviewer was a draft which included an incomplete key for the chart, making interpretation difficult. Corrections have been made in the final version.</p>
<p>Regarding the statement that "paper recycling declined from 2012–13 onwards but the reason for this is not known"; the reason is well known</p>	<p>Accepted. Words have been added recognising</p>

Reviewer comment	CSE Response
and relates to newspaper circulation in the ACT falling (published data available). This also shows up in the 2011 and 2014 recycling bin audits conducted by APC for ACT NOWaste.	declining newspaper circulation, but CSE was not able to quantify it
Movement of controlled waste	
Page 21- To improve reader understanding, under current monitoring status the last sentence needs to indicate which government is using the key legislative instruments is that the ACT government or the Federal government?	Agreed. Text edited to name ACT Government as the responsible government
<p>Page 22 - The second last paragraph needs a reference for the figures that are cited.</p> <p>The second half of that sentence is unclear when it says ‘an increase in and the quantity of controlled waste’. Maybe breaking this down into two sentences would be more useful to indicate that there was presumably an increase in the number of reports of moving controlled waste and an increase in the quantity of moving controlled waste.</p> <p>The last sentence needs an extra few words to indicate who or what the environment protection and water regulation is. Are they a department, an authority or a team? Is it Federal government ACT government or a non-government organisation</p>	Agreed. References have been added to the figures and the paragraph redrafted
Disposal of used packaging	
In the second dot point the term conserving virgin materials needs a bit more explanation or defining.	Agreed. Explanatory words added
Compliance with National Environment Protection (Used Packaging Materials) Measure	
<p>Under Compliance with National Environment Protection (Used Packaging Materials) Measure, the current monitoring status section, the originator of the used packaging materials industry waste reduction plan needs to be stated is this the ACT government or the Federal government.</p> <p>In the next sentence the ‘EPD’ needs to be in full as being in full on page 24 is too late for reader understanding. Similarly TAMS needs to be in full and a statement indicating that it is part of the ACT government is needed.</p>	Agreed. Text clarifying that it is ACT Government has been added
In the section under state and trend for the National Environment Protection (Used Packaging Materials) Measure, the reference to ‘effectiveness of the document in the ACT’ is too cryptic. It is unclear what exactly the document is but it is also unclear how a document by itself can be effective. Surely it is the actions that people do in implementing the presumed document’s content or the documents recommendations is what really determines effectiveness.	This paragraph has been redrafted
3.3.4 Ecological footprint	
The second paragraph concerning built land contributing only 2.5%	Noted. No change made

Reviewer comment	CSE Response
ecological footprint and the second half of that statement conflates two different things. Consider having the second half of that statement as a separate sentence and relate it to the other aspects of ecological footprint.	because CSE considers there is no problem with the wording
The final paragraph (on 'Ecological footprint by consumption' category) needs further explanation to show why it matters.	Agreed. A sentence was added to paragraph one of 'Ecological footprint by consumption' category that analysis of it can guide community action and government policy
3.3.5 Resilience to pressures	
The term liveability needs to be defined.	Noted but a definition is not needed here given statements about what livability includes and references Chapter 9 where livability is discussed
The paragraph beginning 'Some aspects of the relationship between human well being...', has a confusing first sentence as the second half of it needs clarification.	Corrections have been made to remove minor drafting errors that may have created confusion
The last sentence of the final paragraph is unclear and needs clarification. In addition it needs to show how an examination of social dimensions of environmental policy provides early feedback, in addition it needs to indicate feedback of what?	Accepted. Additional words added to improve clarity
3.4 Response	
3.4.1 Waste management strategy	
Progress against waste management strategy, including table 3.7	
Waste infrastructure \$2.8m feasibility study is noted several times – the description in the 2015 Budget papers was somewhat misleading in the sense that the feasibility study is technology neutral (i.e. Energy-from-waste may or may not be one of the recommended solutions) and outcome focused.	Noted. CSE maintained the wording consistent with the budget papers which are an official source of the appropriate words
Strategy 1.2 Community gardens and composting. "Many of Canberra's 22 community gardens operate under license on Territory land." Are you confident of the number 22?	Agreed. Table edited appropriately
Strategy 1.6 Bulky waste collection service , second sentence – I am unaware of what the reference "Plans are progressing towards introducing a permanent recycling system into the operations of the	The sentence was deleted as it was out of date

Reviewer comment	CSE Response
Mitchell waste transfer station” means. Could you clarify?	
Strategy 2.2, Recover organic and residual waste resources , second sentence – I am unaware of what the reference “A final decision on the residual MRF is to be made after 12-24 months of operation of the commercial MRF” means – I think this might be out of date.	The text of the chapter was updated
Strategy 2.2 Recover organic and residual waste resources Some progress” would be a fairer characterisation. Text just repeats the Waste Strategy commitment. Should say something like: “The Actsmart programs continue to recover organic wastes from schools, public events and businesses. The 2013 waste EOI identified requisite technologies and markets (residual MRF and EfW, with feed-in tariff entitlement) to recover organic waste. The 2015/16 budget allocated over \$2.8 million to progress business case development for new waste infrastructure to enable the Government to go to market for in 2017 if it so chooses.”	Agreed. Table edited appropriately
Strategy 2.3 Develop markets for organic and residual waste resources Replace Unknown with Limited Progress Actsmart Business waste and recycling program has resulted in a number of viable organics businesses in and around the ACT.	Agreed. Table edited appropriately
Strategy 2.10 Disincentives to use landfill Replace Unknown with Some Progress. The strategy states that aim of future charging will be to encourage resource recovery and discourage waste being dumped or going to landfill, and regulation can complement price signals. There are no references. Note: increase in landfill levy. Review of <i>Waste Minimisation Act 2001</i> started in 2014-15.	Agreed. Table edited appropriately. The review of the Waste Minimisation Act is noted in the text of the chapter adjacent to the table
Strategy 3.3, Develop Hume Resource Recovery Estate , first sentence – the management response to the audit recommendation mentions that an Estate Manager was to be employed to develop the estate management plan for the Hume RRE. To the best of my knowledge funding for this was not provided and so did not proceed.	The text of the Chapter was updated to reflect that implementation of the recommendation was not funded
Strategy 3.6 Increase soil reuse and rehabilitation. Progress is assessed as unknown on the basis no relevant information being available from public sources, but note the successful rehabilitation of a number of contaminated sites including petrol stations and Kingston foreshores. Large amounts of virgin excavated natural material (VENM) – soil has been used in Majura Parkway (probably some 450,000 m3 which could be confirmed with Roads ACT). Budget provided funds for Mugga 2 quarry to be opened up to take VENM and thus rehabilitate the site	Agreed. Table edited appropriately
Strategy 4.3 Expand bioenergy generation and investigate new energy from waste technologies . Replace ‘Very Slow’ with ‘Some Progress’	Agreed. Table edited appropriately

Chapter 4: Air

Reviewer comment	CSE Response
4.2.1 What is air and air quality?	
<p>The composition of air is stated to be 78% nitrogen and 21% oxygen with various trace gases including water vapour making up the rest. This is incorrect. Suggest amending as follows:</p> <p>“Various trace gases, including water vapour make up the rest. Water vapour is also present in variable amounts depending on atmospheric conditions.”</p>	Amended as suggested
4.2.2 Why is air quality important?	
<p>Table 4.1</p> <ul style="list-style-type: none"> Revise table title to also mention source and pathway e.g. “Specific air pollutants, source, exposure pathway and health effects”. Column 1, list PM10 and PM2.5 separately and provide separate information on source, exposure pathway and health effects. Column 2, provide information on natural sources of air pollutants for context. The NPI substance fact sheets are a good source of information. For example, PM10 and PM2.5 may also be produced by dust storms, bushfires, and pollen. Column 3 heading should be revised to “Exposure pathway”. Content of column 3 contains a mix of information that describes exposure pathways and health effects. Content should be revised to focus on exposure pathway only to avoid confusion with Column 4 information. Column 4 heading should be revised to “Effects on human health”. 	<ul style="list-style-type: none"> Addressed. Table title revised as suggested Not agreed . No change made to keep table concise. PM10 and PM2.5 discussed separately and in more detail in 4.3.1 Addressed . Natural pollutant sources added Addressed. Heading and content of column 3 revised Addressed. Heading revised
4.2.3 How do we measure air quality?	
<p>Should be revised as follows:</p> <ul style="list-style-type: none"> “The aim <u>desired environmental outcome</u> of the NEPM is to maintain national ambient air quality that allows...” “Each jurisdiction is in Australia reports annually against the NEPM targets standards and goals. Air quality in the ACT is assessed against concentrations in parts per million or micrograms per cubic metre. The goal is to achieve the standards <u>within 10 years from commencement, with less than</u> which are expressed as the maximum allowable number of exceedances for each pollutant.” 	<ul style="list-style-type: none"> Amended as suggested Amended as suggested
<p>Case Study 1: include the following text before Figure 2:</p> <ul style="list-style-type: none"> “The site Air Quality Index is taken to be the highest Air Quality Index of any individual pollutant.” 	Both points amended as suggested

Reviewer comment	CSE Response
<ul style="list-style-type: none"> Sentence following the Heading: How can the community use it? Revise the sentence as follows: “The website describes the potential health effects <u>risks</u> associated with the...” 	
4.3.1 State and trends	
<p>Subsection titled “State and trends” should be revised to make an assessment against all NEPM standards.</p> <ul style="list-style-type: none"> No assessment of nitrogen dioxide levels has been made against the annual average NEPM standard. A relevant graph and text should be added. No assessment of ozone levels has been made against the 1-hour average NEPM standard. A relevant graph and text should be added. No assessment of PM2.5 levels has been made against the annual average NEPM advisory reporting standard. A relevant graph and text should be added. 	Amended. Graphs and text added to represent trends over time for each of these standards
<p>Revise Figures 4.3, 4.4, 4.5, 4.6 and 4.7.</p> <ul style="list-style-type: none"> Figures 4.3, 4.4 and 4.5 titles do not specify the averaging period of the data shown in the figures. The averaging period should be specified. Figures 4.3, 4.4, 4.5, 4.6 and 4.7 include 95th, 75th and 50th percentiles, but do not include maximums. These figures should be revised to include maximums. 	Noted. Figures are from the Air Quality Report and are referenced, further information can be obtained from reports if required
Issue of monitoring and reporting of indoor air quality should be resolved. Section, discusses the lack of indoor air quality monitoring data. However, the issue is not resolved in the report and should be.	Issue is addressed further in Section 4.3.1 Other air quality issues
Subsection titled “State and trends” should be revised to include details of the number of exceedances of the NEPM standard or advisory reporting standard that occurred in each reporting year.	Noted. Exceedances are discussed in text
Local ambient air quality – Carbon Monoxide	
Section states that there is a continued downward trend in carbon monoxide levels. A better description would be that carbon monoxide levels from 2011-2014 are steady.	Amended as suggested
Local ambient air quality – Particulate Matter	
Add that PMs are produced by a range of natural events bush fires and controlled burns bush-fire management	Text added
<ul style="list-style-type: none"> A graph should be included that shows the number of exceedances of the 24-hour average NEPM standard for PM10 per reporting year. A graph should be included that shows the number of exceedances of the 24-hour average NEPM advisory reporting standard for 	Noted. Exceedances are discussed in text

Reviewer comment	CSE Response
PM2.5 per reporting year.	
Revise to include data to support statements about seasonal levels of air pollutants. There is discussion about the seasonal trends in air pollutants, but no data is presented to support. Suggest adding relevant graphs to support discussion.	Graph added to illustrate winter peaks in PM levels
Please note the PM2.5 standard is an advisory reporting one only and should not be used for assessment purposes.	Noted and text added to clarify this distinction
Compliance with the National Environment Protection Measure standards	
Revise comments about proposed NEPM to include any new information from the following media release: (link provided)	Noted. However information is from outside the reporting period (1 July 2011- 30 June 2015) so was not used in 2015 ACT SoER
NEPM indicator in the State and Trends states that the ACT has met the NEPM with the exception of a short term incident. The ESI fire did not have any impact on the ambient air quality stations.	The text referring to a “short term incident” refers to NEPM monitoring equipment failure during the reporting period and not to the ESI fire. Text amended to clarify
Other air quality issues	
How does text around ESI Mitchell fire relate to the pollutants in the NEPM, this was a point source incident.	Text around the ESI fire has been moved to the <i>Other air quality issues</i> section to differentiate from NEPM monitored pollutants
Need to make point that NEPM standards are for ambient levels and are not for hot spots or extreme events such as ESI fire. All fires, both domestic and industrial, release pollutants that we do not monitor with our ambient network. These air toxics are not an issue any other time in the Canberra airshed.	Text included clarifying this point
State and trends Assessment Summaries	
Explanation for Confidence level in table needed	Explanation added
ACT Government is fully compliant with the NEPM standards but has only achieved a GOOD rating. This should be ‘very good’.	Noted. The indicator relating to compliance with NEPM standards receives a grade of <i>Very Good</i> ; <i>Good</i> rating refers to ambient air quality indicator

Reviewer comment	CSE Response
4.3.2 Pressures	
Emissions to airshed	
<p>Add to paragraph above table “by industry”</p> <p>“suggest rewording paragraph to include NPI NEPM in text including its purpose”</p> <p>Last Sentence same paragraph: regarding comment ‘well regulated’</p> <p>“what is basis of this comment, the data demonstrates that industry is operating efficiently, these emissions are not generally regulated directly so a bit misleading”</p>	<p>Comments noted and text amended to clarify</p>
Resilience to pressures	
<p>Regarding comment that greater investment is needed to monitor threats:</p> <ul style="list-style-type: none"> the NEPM is clear on what the triggers are for monitoring stations, the need for new stations is quite some time in future for ACT, and at that time to remain compliant with NEPM the monitoring station will be required. Re need for investment in research to identify threatening processes- on what basis, controlled burns or more generally due to climate change? 	<p>Text amended for clarification in line with reviewer comments</p>
4.4 Response	
Legal and policy framework	
<p>There is no mention of who regulates aspects of air quality such as the regulation of Fire Wood Merchants, and regulation of emissions by the EPA.</p>	<p>Text added to response section in line with reviewer comment</p>
Management of pressures	
<p>Regarding the Wood heater replacement program:</p> <ul style="list-style-type: none"> ActewAGL fund the scheme, the Environment and Planning Directorate administer the scheme. 	<p>Text amended in the online version of the report</p>

Chapter 5: Land

Reviewer comment	CSE Response
5.1 Main findings	
Main findings could indicate important role soil has in water quality and yield, as well as basic resource for plant growth. In relation to soil condition, suggest: 'There has been no recent systematic assessment of soil condition in the ACT. However, soil landscape mapping and development of a hydrogeological framework will provide baseline information on soil properties and constraints, and indicate where soil condition monitoring and amelioration of degradation would be most beneficial.	Main findings includes key points only, further detail on the points raised are provided in the soil condition section in 5.3.1
5.2 Introduction	
5.2.2 Why is land important?	
Native fauna relies on plants growing in soil, as well as people and livestock.	Implied through the word habitat
'Soil types' (or soil landscapes) are important in determining soil properties and constraints and land use within capability, but they are unlikely to change quickly (except through significant disturbance in urban environments) and should not be used directly as an indicator of soil condition. Changes in key properties (e.g. acidity, salinity, erosion) should be the indicators.	Soil properties included within indicator
Soil is important as it provides medium for green spaces that supports a range of amenity values. Amenity values requires further description (trees in urban environment etc, landscape in parks, water features) and why it's important (i.e. why are green spaces important and what benefits it brings to the environment and community, and that all these values are dependent on soil health/quality)	Text added as per comment
Case Study 5.1	
"Vegetation within gardens can also create wildlife habitat in the urban environment." This line should be rephrased as 'wildlife' is in the incorrect term to use for gardens and urban environment. Perhaps 'natural habitat in the urban environment'.	Amended as per comment
5.3.1 State and trends	
I note that soil condition and contamination has been included as separate indicators. Consideration should be made to integrate both as technically soil contamination is under soil. Or consider revising contamination to Land Contamination, which then includes soil, water and gas contamination of a site.	Mandatory requirement to report on NEPM categories including compliance with the Contaminated Sites NEPM
Land use	
<i>Text reads</i> "This is a decrease of around 600ha in areas zoned for these (urban and intensive use) purposes from the 2011 reporting period." I	Text amended to reflect

Reviewer comment	CSE Response
was unable to work out how this figure was derived. For example greenfield urban development = 1420ha and 816ha added to the reserve network which is a difference of 604ha in favour of greenfield urban development?	comment
Reference to 'Gungahlin' should be deleted as a number of the specifically listed suburbs are located in Gungahlin. Should Lawson be added to the list, as a greenfields suburb?	Text amended to reflect comment
Some conservation areas are identified as not managed by TAMS. Information should be provided on which organisation or body manages.	Added managed under private lease
Soil condition	
Soil conditions are described as including soil type and soil properties, which provide soil behavior and information on what they can be used for. This should include additional clarification that soil information allows the sustainable use and application of soil, (i.e. best use of resources or utilise the soil to its maximum potential) as well as identify limitations.	Suggested text added
Soil condition evaluates how well soil functions, as well as identifies its limitation to allow sufficient and appropriate land management.	Explanatory text added
The consolidated ACT soil landscape map will also provide information on soil limitation in designated areas, information on planning development for urban and intensive use based on soil suitability, landscape planning, the sustainable and strategic ways of developing a land based on its potential and available resources.	Text added
Soil condition or quality indicators evaluate how well soil functions ' RELATIVE TO ITS INHERENT PROPERTIES AND CONSTRAINTS. p. 12 second last paragraph – should say 'including the earlier mapping of EASTERN ACT'	Text amended to reflect comments
The ACT Government has no soil scientists, not 'a limited number of soil scientists'. Soil science expertise is contracted from NSW – there is a risk of loss of this expertise through NSW Government cuts and reduced staffing in soil areas.	Text amended to reflect comment
There is no soil strategy at present. The HGL Framework is separate to the Soil Landscapes Mapping project. These projects will inform a range of decisions including natural resource management planning. Suggest text should read: "the EPD has engaged the NSW Office of Environment and Heritage to develop a hydrogeological landscape (HGL) framework for the ACT and region (see Case study 1). The HGL framework will assist in determining the capability of rural, urban and conserved lands for a range of land uses and management objectives. Mapping will help identify key problems in each HGL and management area, and the options available to address them within land use capability. Soil landscape mapping and development of a hydrogeological framework	Text amended to reflect comment

Reviewer comment	CSE Response
will provide baseline information on soil properties and constraints, and indicate where soil condition monitoring and amelioration of degradation would be most beneficial”.	
Compliance with National Environment Protection Measure Standards	
Current Monitoring Status : NEPM only details with assessment not remediation, national remediation guidance is in process of being developed by CRC CARE with final guidance due to be considered by jurisdictions in 2016/17	Text amended to reflect comment
Need to mention that the EPA is the custodian of all data relating to known and potentially contaminated sites, service stations are recorded by the EPA and they are known contaminated sites	Sentence added to reflect comment
The EPA has regulatory provisions to deal with contaminated sites, generally all sites are voluntarily assessed and remediated by the person redeveloping the site	Text amended to reflect comment
Re auditors - assessment and validation by the consultants is audited by EPA auditors	Text amended to reflect comment
The plume is as a result of the leaching, the plume itself doesn't leach	Text amended to reflect comment
Table Number and type of contaminated sites in the ACT, 2015 The sites recorded includes those that are potentially contaminated i.e. operational sites such as active service stations, those sites known to be contaminated i.e. those where sampling and analysis data is available and those sites that have been remediated i.e. cleaned up and are suitable for the permitted land use i.e. redeveloped service station and sheep dip sites.	Text amended to reflect comment
Regarding reporting on the trend for contaminated sites – it is important to clarify that the increasing numbers of sites represent an increase in the number of sites reported not an increase in the actual number of contaminated sites that exist. Suggest text could read: Development can be a driver for the remediation of contaminated sites – once a site is uncovered due to development it is often able to be remediated, for example, contaminated land at the Kingston Foreshore was remediated so that the area could be developed.	Text added to reflect comment
Sites with fuel storage and history of volatile chemical use and contamination require ongoing monitoring due to presence of subsurface plume as well as hydrocarbons vapour or LNAPL	Text amended to reflect comment
Landfill sites should refer to illegal dumping sites or buried waste	Text amended to reflect comment
The identification of contaminated sites allows remediation to be conducted and appropriate land use to be considered. Comments should	Text added to reflect comment

Reviewer comment	CSE Response
include the objective of remediation is to remove contamination and its associated unacceptable human health risk as well as ecological risk, to ensure site is safe and suitable for development (p15)	
Site with fuel storage and history of volatile chemical use : (volatile compounds or chlorinated hydrocarbons etc) and contamination require ongoing monitoring due to presence of volatile vapours or compounds or LNAPL (p16).	Text included
There is an inconsistency between the reference to one sheep dip site being found in Kenny in the text and Table 3 which indicates that 10 sheep dips were identified in the reporting period.	Text amended to reflect comment
5.3.2 Pressures	
Land–use change	
Change of land use on developed sites does not necessarily guarantee or indicate the effects on land condition are likely to be less. This could be dependent on few factors including what the previous developed land use was, or is there a more sensitive land use change involved, or that the contamination status may require significant remediation or amelioration, i.e. on groundwater or severely eroded soil.	Qualification added to text
Urban infill development does not necessarily pose less direct impact on ecological values just because it has a lesser development scale. If the development involves a development to a less sensitive land use, the land conditions or pressure on the environment can be increased (i.e. development of landfill or industrial activities) (p23).	Qualification added
Greenfield development places pressure on land and environment due to likelihood of vegetation clearance, permanent changes, and the potential management of contaminated sites as Greenfield sites are also associated with former sheep deeps, illegal dumping and cut and fill activity with unknown material. Greenfield development generally includes a sensitive change of land use from rural to residential (i.e.) and there is pressure to clean up to remove unacceptable human health and ecological risks (vegetation clearance)	Text added to reflect comment
There is reference to development applications and to a significant decrease trend in the number lodged. It is unclear whether the lodged number of DAs including building applications? If a dwelling complies with the rules etc, building certifies can approve, thus no DA required. May need to elaborate. Also through legislative change etc, certain developments may now be exempt from requiring approval may also be a contributing factor to the reduced number of DAs.	Comment followed up and text and figures added for completeness and clarification
Table showing development applications lodged is useful, however is it possible to split out the developments in greenfield areas v urban infill v renovations to existing structures that require development approvals.	Table 5.6 shows split between Greenfield and infill development.
The zones also increase the development footprint.... ecological	Text amended to reflect

Reviewer comment	CSE Response
community.’ Evidence to support this statement should be provided. Because in some instances, the developable area is reduced due to the need to provide inner asset protection areas.	comment
Resilience to pressures	
Healthy soil also includes soil that can be rehabilitated within reasonable period, returning essential elements to the soil (natural environment) and improving the overall soil condition, limiting damage to infrastructures from salinity, acid sulphate conditions, and soil that returns benefits to the environment and urban environment.	Explanatory text added
5.4 Response	
Solution should be provided on how to curb or resolve lack of specific standards to ACT soil types (i.e. soil studies, current standards review or development of new standards, mandatory soil assessment, etc).	Not considered feasible within the capacity and resources of such a small jurisdiction as the ACT
Solution should be provided to resolve and improve the identification of contaminated sites that requires remediation rather than waiting for development or soil disturbance to occur. For example, site assessment for change of land use or based on historical/available information site condition or due diligence assessment for end of lease or land purchase (pg25). There is also lack of incentive for others to conduct the assessment due to cost and time restrictions, and the lack of benefit of conducting the assessment in returns.	Not considered feasible within the capacity and resources of such as small jurisdiction as the ACT
The lack of regular monitoring requires government incentive or programs to develop more soil or soil landscape data to allow the maximum potential of land and soil to be utilised	Such monitoring is currently in place
Solution or suggestion should be provided to curb the lack of regular soil monitoring, soil information, post development monitoring, follow up monitoring, and limited mapping on rural lands. Suggestion to include soil scientists or experts in major development and public consultation as independent expert.	Not considered feasible within the capacity and resources of such as small jurisdiction as the ACT
5.4.1 Legal and policy framework	
ACT Planning Strategy 2012 recognises the need to use land more efficiently and reduce the amount of land use per capita. This dot point should include the sustainable use of land resources, and reduction in waste generation.	Text amended to address comment
A reference to EPBC should be added to ‘strategic assessment’. In relation to ‘currently lack of...monitoring’, this should be clarified as under strategic assessments there are specific commitments made and (amongst other matters) annual report are required.	Text added to address comment
5.4.2 Management of pressures	
Site assessment for LMA should be conducted on a before and after basis	Text added to reflect

Reviewer comment	CSE Response
of the land being leased, rather than a set 5 year cycle. The period of environmental audit should be an agreed cycle, based on the type of rural land use and areas of environmental concern within the land, based on the activities.	comment
LMAs are not regularly monitored for compliance and enforcement purposes; this requires further explanation as to why it's not. If it's not monitored, why is it being implemented and how is the system being evaluated as effective?	Text added in relation to similar comment as above
Strategy number eight (conservation strategy) should also include 'the sustainable usage of available resources and management of land to provide for urban growth'. It is essential to achieve a balance between managing land use, land condition while providing for urban growth and ensuring the natural system is protected.	This section reports on existing provisions which are outside the capacity of CSE to change and which are considered appropriate
Soil Strategy will not only identify key limitations and provide information on the best management option, but also provide information to maximise the potential of land with its specific soil conditions (i.e. select crop or development based on soil condition)	Text included regarding benefits of a soil strategy

Chapter 6: Water

Reviewer comment	CSE Response
6.2.1 What are the ACT's water resources	
<p>The Horse park wetlands, Gungahlin are also natural wetlands and are of significance. See ACT Heritage Register: http://www.environment.act.gov.au/_data/assets/pdf_file/0009/348687/273.pdf</p>	<p>Horse Park wetlands added to text</p>
6.3.1 State and trends	
Total nitrogen	
<p>The report uses the ANZECC guideline for Total Nitrogen in the absence of a regulation limit in the ACT.</p> <ul style="list-style-type: none"> • The Nitrogen paragraph should make a statement about the use of a generic upland region guideline value from the <i>ANZECC National water quality management strategy: Australian and New Zealand Guidelines for Fresh and Marine Water Quality</i>. The application of an upland guideline to a transition zone where the ACT has both upland and lowland regions will result in a high level of samples outside the ANZECC guideline simply as an artefact of guideline choice rather than indicating any processes that are causing nitrogen to be higher than it otherwise would be. • Suggest that ACT Government develop its own regulation limit. 	<ul style="list-style-type: none"> • Paragraph amended to include clarification as suggested • Thank you for suggestion but this is not considered practical at this stage
6.3.2 Pressures	
What does this indicator tell us?	
<p>The slight improvement in water quality parameters for total nitrogen, turbidity and chlorophyll-a for this reporting period does not necessarily suggest an easing of land use pressures, rather reflecting variability in the data. Also, the report indicates elsewhere increasing pressure from land use on freshwater ecological conditions.</p>	<p>Text amended to address comment</p>

Chapter 7: Biodiversity

Reviewer comment	CSE Response
Main Findings 7.1	
Summary – the Hooded Robin can't be said to have increased on the basis of one year's increase – long-term trend is what matters	CSE notes this is a fair and valid point. CSE removed the Hooded Robin from the list of species whose numbers appear to be increasing, in the Main Findings section.
Introduction 7.2	
Reference 9 is on non-marine invertebrates so does not seem an appropriate reference here, even if useful to the previous sentence. My understanding is that the number of native vascular plants in Australia is more like 20,000 species (Chapman 2009 gives an estimate of accepted names of species of vascular plants of 19,324 (http://155.187.2.69/biodiversity/abrs/publications/other/species-numbers/2009/pubs/nlsaw-2nd-complete.pdf))	The reference relates to the entire paragraph.
Species Diversity	
The Majura Spider Orchid (<i>Arachnorchis armata</i>), and Black Mountain Leopold Orchid (<i>Diuris nigromontana</i>) are also endemic to the ACT. There are several endemic plant sub species and likely to be other endemics in other kingdoms e.g. Invertebrates. The Murrumbidgee Bossia (<i>Bossiaea grayi</i>) a listed endangered species is also endemic.	Additions and corrections made. Agree that there are likely to be other endemic species, including sub-species however the aim of this section is to provide a summary of "What is biodiversity"? Also worth noting here that the geographical jurisdiction of the SoER is the ACT. The report does not cover Commonwealth land within the ACT's boundary; notwithstanding that there may be endemic species on this Commonwealth land.
Ecosystem processes and functions	
Definition of orchids as epiphytes is imprecise. Approximately 73% globally are epiphytes but most in south-eastern Australian ecosystems are terrestrial ground species. Indeed, all orchids in the ACT grow as terrestrial (ground) species (see field Guide to the Orchids of the ACT). The detail about epiphytes seems strange here too given that the Brindabella Midge Orchid is a terrestrial orchid (http://www.environment.act.gov.au/cpr/conservation_and_ecological_communities/threatened_species_action_plans/threatened-species-action-plans-downloads/downloads/brindabella-midge-orchid-corunastylis-ectopa). I'm not sure about the food and shelter for invertebrates as a key attribute either – would be better to state that they have complex ecological interactions with	Agreed and amended

Reviewer comment	CSE Response
pollinators, mycorrhizal fungi and some animals (Roberts & Dixon 2008).	
Biodiversity in the ACT	
Reference on non-marine invertebrates so does not seem an appropriate reference here, even if useful to the previous sentence. My understanding is that the number of native vascular plants in Australia is more like 20,000 species (Chapman 2009 gives an estimate of accepted names of species of vascular plants of 19,324 - http://155.187.2.69/biodiversity/abrs/publications/other/species-numbers/2009/pubs/nlsaw-2nd-complete.pdf).	The reference relates to the entire paragraph
The number of records is interesting but the number of species is more valuable and should be mentioned first; also the distinction between these numbers should be made (i.e. details on the time span and reliability of records). Why is the number of plants in the ACT as indicated in the ALA not mentioned, but another references used two paragraphs later?	Corrected with ALA data and ALA reference included
In terms of using the atlas of Wildlife Data to determine species that occur in the ACT, there are two matters to be cautious about 1. The data can include specimens housed with the area of request, but which were actually collected elsewhere. 2. The data includes historic records, some of these species may be now locally extinct, or the precision of describing the original location is such that the collection may have occurred outside of the ACT	Agreed and amended (including reference added)
Chris Davey indicated that seeing more birds about did not necessarily mean an increase in numbers nationally. It may indicate their distribution had changed because of climate change or other factors ... (suggest addition word of clarification)	Noted with thanks however reporting is confined to ACT sightings and SoER does not claim any national increase or extrapolation
7.2.2 Why is Biodiversity Important?	
Ecosystems and resilience	
I think the third paragraph would be better attached to the end of the first sentence. In the section “How do we measure biodiversity?” the first sentence seems vague – estimates of the proportion of described species of the total extant vary widely – references to relevant sources of such estimates would be useful here. Also in this section, why is not the number of species being used? This has varied also and provides necessary context for changes in other estimates (see also Burgman 2002 Are listed threatened plant species actually at risk? Australian Journal of Botany 50(1) 1 – 13).	Section rewritten in accordance with comment and new reference inserted

Reviewer comment	CSE Response
7.2.3 How do we measure biodiversity?	
Definitions of biodiversity mention species, not Families, yet the text goes on to talk about endemic Families. This could be confusing to the reader.	Noted. Commentary on definitions of biodiversity was reviewed in light of this comment. The outcome of secondary review was that no change necessary
It would be good to include some trends for non-endangered birds (and other animals) – they are probably more meaningful in terms of biodiversity and general state of the environment because their monitoring is not hampered by rarity.	CSE agrees with this comment and notes that this is, and historically has been, an exclusion in ACT SOE reports. The exclusion is primarily due to a lack of data. It also allows consistency with previous reports. However, there is some assessment made of non-endangered ecological communities as data recently became available.
I suggest including some examples of disruptions to biodiversity, ecosystems, etc; e.g. carp making water muddy etc excluding native species	<p>Noted. The OCSCE adopted a technical approach to the presentation of data through the use of the ANZECC structure of indicators. This approach, while providing rigor and a clear structure, did not accord with the inclusion of additional interpretive text.</p> <p>The CSE notes the problems with this approach – there are limitations with all environmental reporting methodologies - however limits had to be set in order to report on the state of the environment.</p>
7.3 Indicators	
7.3.1 State and trends – Threatened flora and fauna species	
Sentence “Species that may be threatened for which we have little information are covered under Rare and insufficiently known species.” What does “covered” mean? The relevant statutory mechanism should be clarified.	Statutory mechanism explained and included as a footnote
I suggest putting the lists and details on endangered species before that of the vulnerable species as in the classification categories in section 7.3.1	Agreed and amended
Vulnerable Species	
I think it is important to point out that surveys for some species are targeted (e.g. Superb Parrot) whereas, for others, the surveys are more random and generalised (for most of the birds the surveys are for all woodland birds, or similar).	Noted. However each species is dealt with individually in the SoER. The ACT SoER 2015 has been restricted to reporting on listed threatened species.

Reviewer comment	CSE Response
	The CSE does not claim this is necessarily the best approach. It was adopted to ensure consistency with previous reports and so that population trends can be established over time.
The treatment of the birds is very uneven. For some species long term trends are documented, for others individual years are highlighted. For some, e.g. Superb Parrot, a guess is made about the reason for the trend, which could equally apply to any of the birds (or other animals for that matter)	Noted and agreed. The SoER is limited by the data available to the CSE for the reporting period.
<i>Little eagle</i> - it is asserted that it is an 'enormous problem' keeping this species in the ACT, which is fine, but that also applies to Hooded Robin, for example, Regent Honeyeater too.	'enormous' deleted from final report
<i>Little eagle</i> requires consideration of other factors: There is a working theory that rabbits (which form the main contemporary diet of little eagle) baited with Pindone may disable or be fatal to little eagle. Retaining foraging habitat without this control may be important or the survival of this species. Olsen J, Debus SJS and Judge D (2013) Declining little eagles <i>Hieraaetus morphnoides</i> and increasing rabbit numbers near Canberra: is secondary poisoning by Pindone the problem? <i>Corella</i> 37 : 33-35	Comment included (with reference)
<i>Glossy Black-Cockatoos</i> show no long-term trend towards decline	Included and cited to the reviewer
<i>Glossy Black Cockatoo</i> regularly breeds on Mt Majura	This information included in a way to be consistent with COG data
<i>Brown Treecreepers</i> - ' <u>possibly</u> ' in decline	Included and cited to the reviewer
<i>Pink-Tailed Worm Lizard</i> - A 2013 study on a 28 ha rural lease in Pialligo found live lizards, evidence of skins and extensive areas of ideal habitat (The habitat is heavily invaded by African Love Grass)	Agreed and amended
<i>Scarlet Robin</i> - is <i>Petroica boodang</i>	Agreed and amended
<i>Scarlet Robin</i> - Taxonomy for scarlet robin is incorrect. The accepted scientific name for scarlet robin is <i>Petroica boodang</i> (<i>P. multicolor</i> represents outdated taxonomy for mainland specimens and is retained only by the Pacific robin occurring from Norfolk Is. to Samoa). Although <i>P. multicolor</i> is the name listed in the ACT acknowledgement of this would also reflect consistency with other Australian jurisdictions	The taxonomy for this species is not settled (ref. IUCN website). The ACT SoER adopts the scientific name prescribed by ACT legislation

Reviewer comment	CSE Response
<p>including NSW where scarlet robin (<i>P. boodang</i>) is also listed as Vulnerable.</p> <p>Reference: Schodde R, Mason IJ (1999). <i>The Directory of Australian Birds: Passerines. A Taxonomic and Zoogeographic Atlas of the Biodiversity of Birds in Australia and its Territories.</i> Collingwood, Australia: CSIRO Publishing</p> <p>http://www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=20133</p>	
<p><i>Superb Parrot</i> - section indicates two breeding locations – a third location has been confirmed at Spring Valley Farm south of the Molonglo River. Amend to confirm third location.</p> <p>Umwelt (2015) Monitoring of the 2014 Superb Parrot Breeding Event, Australian capital Territory. Throsby, Central Molonglo and Spring Valley Farm. Final Report to ACT Government, July 2015.</p>	Comment included (with reference)
<p><i>White Winged Triller</i> - Check spelling of Gigerline reserve.</p> <p><i>Silver Perch</i>- Burrunjuck Reservoir occurs in NSW not the ACT.</p> <p><i>Macquarie Perch</i> – refers to Googong National Park and Googong Nature Reserve – these should refer to Googong Foreshores.</p>	Agreed and addressed
<p><i>Striped Legless Lizard</i> - section focuses solely on Gungahlin populations.</p> <p>Within the ACT there are lesser populations in the Majura and Jerrabomberra valleys. Survey reports may be sourced from ACT Government (Land Development Agency and Environment and Planning Directorate) in order to add reference to these populations.</p>	Comment included (with reference)
Endangered species	
<p><i>Regent Honeyeater</i> - in the summary is said to have <u>declined</u> over the recording period but the graph shows it at the same level as in the 1980s (with an increase some years between) – the long term trend doesn't appear to be towards decline. Rather, it suggests infrequent, unpredictable use of ACT habitat. Indeed the text referring to Fig. 7 suggests that there are too few records to detect a trend.</p>	This comment included and cited to reviewer
<p><i>Brindabella midge orchid</i> - the first two sentences about the annual monitoring are confusing. Does this mean that prior to 2013, the surveys were not following a formal, repeatable method? The explanation in the subtext to Figure 9 indicates minimum numbers of emerged plants – how were they formerly estimated if not emergent? What do these data indicate about the likely population size prior to 2013?</p>	<p>Prior to 2013 the surveys were possibly not following a formal repeatable method. This was checked with CPR.</p> <p>Text amended to clarify these statements.</p>

Reviewer comment	CSE Response
<i>Button Wrinklewort</i> - Explanation should be given for the reason/s that the estimates can be so imprecise	Noted -however this is the case with all ecological surveys
<i>Button Wrinklewort</i> - The last five sites do not give any population size estimate. Would be preferable to include a statement such as “No estimate of population size available.	Agreed and amended
<i>Button Wrinklewort</i> - Provide dates or more precise timeframe for records in Campbell and Aranda. Are all plants of the species counted or a sample used to estimate the population as in the previous species? While the text says that plants were counted, along with other information, and the caption for the Button Wrinklewort figure says number of plants, the y-axis actually says only fertile, flowering individuals. Can the total population size at each site be stated in the text?	Noted but data unavailable
<i>Button Wrinklewort</i> - Regarding the statement “Habitat conditions are monitored annually and are maintained or improved by management actions” might be better rephrased as “Habitat conditions are monitored annually and threatening processes are addressed through management actions.” Unless the habitat requirements of the species are known, it is difficult to say whether the habitat itself is improving or not whereas threats may be more obvious.	Agreed and amended
<i>Button Wrinklewort</i> - It appears that the Table should be relabelled to reflect 2012 only? It has 2013 actions, and the citation is from a 2012-13 report. Remove 2015 from table heading.	Graph renamed
<i>Button Wrinklewort</i> - Suggest adding a sentence at the end of paragraph 3 (after ‘Seedlings were observed and many plants were carrying seed’): It is apparent from the variance n survey results across years at both sites that the number of individuals may vary greatly depending on site conditions.	Agreed and amended
<i>Gininderra peppercress</i> - Suggest adding a sentence at the end of paragraph 3 (after ‘Seedlings were observed and many plants were carrying seed’): <i>It is apparent from the variance n survey results across years at both sites that the number of individuals may vary greatly depending on site conditions.</i> In the first paragraph, the sentence should read: <i>In October 2013, a small population was located by Nicki Taws in an area of Special Purpose Reserve in Mitchell.</i>	Agreed and amended
<i>Canberra Spider Orchid</i> – (Cwth) should be inserted after	(Cwth) inserted after EPBC Act

Reviewer comment	CSE Response
EPBC Act text to indicate national rather than territory legislation.	
<i>Canberra Spider Orchid</i> – Why is translocation the preferred option rather than threat management? How likely is it to be effective given past difficulties with establishment of other threatened plant populations?	Translocation is used in conjunction with management to increase resilience.
<i>Gininderra Peppercress</i> - text “but has not been since there since that time”, delete the first occurrences of “since”. “Creek” in “Ginninderra creek” should be capitalised. In paragraph three, insert “Commonwealth” before “Department of Defence”, and replace “low” with “minimum” and “high” with “maximum”. In paragraph four, delete “the” from “Over the 2013–14”, and replace “some of who” with “some of whom”. The text “fragmented by areas of unsuitable habitat” suggests that they were not formerly fragmented – is this the case or are they only “separated”?	Agreed and amended (There are 5 separate populations)
<i>Murrumbidgee Bossiaea</i> - I suggest the sentence “Murrumbidgee bossiaea was first described in 2009 when four new species were taxonomically split from <i>B. bracteosa</i> ” would be better as “Murrumbidgee bossiaea (<i>B. grayi</i>) was first described in 2009 when <i>B. bracteosa</i> was taxonomically divided into four new species”. (if this is the case rather than there remaining <i>B. bracteosa</i> and four new species). Also, the third sentence refers to “the population” whereas the fourth sentence refers to “populations at a number of ACT locations”. What are “critical habitat parameters”?	Agreed and amended (The term “critical habitat parameters” is interpreted as native habitat. The species habitat is described in the SoER)
<i>Murrumbidgee Bossiaea</i> - “so disjunct” would be better either as “disjunct” or “disjunct by xx km”. And “on” rather than “within” reserved land, and “outside a reserve” or “not reserved” rather than “outside of reserve”. What is the relevance of land being “land designated as <i>mountains</i> and <i>bushland</i> under the ACT Territory Plan”?	Agreed and amended. The issue of land designation under the Territory Plan was addressed through a cross reference with the land zoning section of the SoER Land chapter.
<i>Golden Sun Moth</i> - suggest the following change: There are 73 habitat sites identified in the ACT, most sites are fragmented and isolated. This is important for the long-term protection and conservation of the species; given the moth’s poor flying ability.	Change made
<i>Golden Sun Moth</i> - The map (Figure 7.10) was produced by David Hogg and should be cited as in this original report	The citation (source) in final SoER is correct
<i>Tarengo Leek Orchid</i> - here surveys by ACT Government, previously mentioned surveys were by CPR. Were the Tarengo leek orchid surveys also by CPR?	Yes. Amended
<i>Grassland earless dragon</i> - Table is sourced from survey data	Agreed and amended

Reviewer comment	CSE Response
at Jerrabomberra only – suggest refining text to clarify this as it appears as data from across all sites. Refine text to assert that data is only from the Jerrabomberra surveys.	
Add the following to the Grassland Earless Dragon section. With the breaking of the drought, numbers appear to have stabilised and may be recovering.	Agreed and amended
Grassland earless dragon did not decline in the reporting period (2011 – 15). Low numbers were found in 2011 and 2012 however have increased at most sites in 2013 and 2014. This trend may change your final assessment/s– data was provided but happy to supply again.	Additional data sourced from a presentation given to Friends of Grasslands and included
<i>Small Purple Pea</i> – was the 68% a decline of the remaining plants in 2011 or 68% relative to 2001?	Phrase reworded
<i>Small Purple Pea</i> - graphic label should reflect that this information is only from the Mount Taylor population. Add 'Mount Taylor' to table heading.	Agreed and amended
<i>Small Purple Pea</i> - “The Caswell Drive population saw a thorough search” could be better phrased and formatted consistently e.g. “The Caswell Drive population was thoroughly searched”.	Agreed and amended
<i>Small Purple Pea</i> - here surveys by ACT Government, previously mentioned surveys were by CPR. Were the Tarengo leek orchid surveys also by CPR?	Yes . Amended
<i>Small Purple Pea</i> - The Caswell Drive area was surveyed by ecological consultants Biosis in 2013 who located two plants with developed flowers and pods.	Agreed and amended
<i>Small Purple Pea</i> - was the 68% a decline of the remaining plants in 2011 or 68% relative to 2001?	Phrase reworded
Smoky mouse is a very cryptic species and hard to survey – suggest wording is changed to “and could possibly be extinct in the ACT”.	Suggested change made
Threatened ecological communities	
References some key vegetation classifications for the ACT, but does not include the most recent and comprehensive which supersedes the classifications cited. Refer to and add the following reference: Armstrong R, Turner K, McDougall K, Rehwinkel R & Crooks J (2013) <i>Plant communities of the upper Murrumbidgee catchment in New South Wales and the Australian Capital Territory</i> . <i>Cunninghamia</i> 13 : 125-266.	Classifications used are the current versions. ACT vegetation is in process of being comprehensively mapped

Reviewer comment	CSE Response
<p>Table 7.7 states that, based on 2011 mapping, the ACT contains 5,614 hectares more of the ACT-listed box-gum woodland compared to EPBC listed box-gum woodland. This is surprising as while the criteria are slightly different, correct interpretation of listing advice under both legislation broadly aligns(i.e. under the ACT lowland woodlands strategy anything moderately modified or better is likely to meet EPBC criteria under the right conditions with a skilled assessor). It is likely that either EPBC listed box-gum woodland is under-estimated, or ACT-listed box-gum woodland over-estimated.</p> <p>Add two footnotes to Table 7.7 stating:</p> <ul style="list-style-type: none"> • ‘Determination of the extend of NC Act and EPBC Act listed box-gum woodland requires ground validation by skilled ecologists in many cases, and it is likely that the actual figure varies from that shown in this table.’ • ‘The difference between NC Act and EPBC Act listed box-gum woodland is likely to be considerably less than shown in this Table. Under the ACT lowland woodland strategy, most remnants considered moderately modified or better are likely to meet EPBC criteria under the right conditions with a skilled assessor’. 	<p>Amended, including updated mapping</p>
<p><i>Box-Gum Woodland in Gungahlin</i> - the SOEACT report correctly states the notable feature of Kenny regarding tree age and landscape position. However, the tree age requires citation as the size of the trees is also likely to be related to site quality rather than just age as Kenny contains deeper soils and increased water supply compared to most box-gum remnants due to its lower position in the catchment. There are also unique sub-soil conditions that affect the availability of moisture.</p> <p>Amend sentence at top of page 36 where tree age is the sole factor , and add commentary on the soil depth and likely water availability due to Kenny’s position in the catchment and sub-soil characteristics.</p> <p>Additionally, add text outlining that small areas of ribbon gum occur in Kenny adjacent to exotic grassland which was formerly part of the natural temperate grassland zone. As such, it represents a rare and complete example of a lowland woodland to natural temperate grassland catenary sequence (noting that the natural temperate grassland area is now largely exotic).</p> <p>Citation: Umwelt (2014) Vegetation Survey of Box-Gum Woodland at Kenny, ACT. Final Report to ACT Government, August 2014</p>	<p>Agreed and amended</p>
<p>Figures 7.15 and 7.16 - ACT woodland condition class maps for 2001-04 and 2012-13 is very selective and misses large</p>	<p>Mapping reviewed however no other data available at time of reporting</p>

Reviewer comment	CSE Response
<p>areas of high quality box-gum woodland.</p> <p>Review existing mapping from ACT Government sources and amend. If data is unavailable, clarify the limited scope or selective mapping as presented.</p>	<p>Data availability and limitations are noted in 'Current monitoring status and interpretation issues' section of each indicator</p>
<p>The source of these maps (Figures 7.15 and 7.16) are not clear. The ACTSoER states it is reference 83 (Uncommon Plant Survey from Canberra Nature Park), but this is likely to be incorrect.</p>	<p>Reference checked and confirmed as correct</p>
<p>Table 7.8 – reference is likely to be incorrectly attributed, as these condition classes are from the ACT Lowland Woodland strategy rather than Rehwinkel 2007.</p> <p>Review numerical referencing in text with corresponding reference list. <i>Further review has noted that a number of these do not correlate (refer to general comment '7')</i></p>	<p>Reviewed and amended</p>
<p>Figure 7.20 - It is unclear what the apparently random dots represent. Remove dots or add legend item to explain meaning.</p>	<p>Legend added</p>
<p>Natural Temperate Grassland - The statement 'natural temperate grassland is the most threatened plant community in Australia' may require consideration as other more highly restricted communities such as those associated with Artesian mound springs may be at least as threatened as natural temperate grassland. Amend to 'Natural temperate grassland is one of the most threatened plant community in Australia'.</p>	<p>Fair point, amended noting however that the citation was checked and does state that NTG is the "most" threatened plant community in Australia.</p>
Connectivity of terrestrial native vegetation	
<p>Re connectivity: The research paper at below link (we received recently) maybe of interest. Please note Box 3, page 40 which refers to some work EPD have been doing in the ACT. EPD could provide more specific information on restoration effort (locations, partners etc) if you wanted to include as a case study. See Box 3, page 40.</p> <p>AdaptNRM's Helping Biodiversity Adapt (with case study of ACT Connectivity)...</p>	<p>Addressed in SoER and referenced as Prober SM, Williams KJ, Harwood TD, Doerr VAJ, Jeanneret T, Manion G, Ferrier S (2015) Helping Biodiversity Adapt: Supporting climate-adaptation planning using a community-level modelling approach. CSIRO Land and Water Flagship, Canberra.</p>
<p>The connectivity chapter needs to make use of the latest comprehensive connectivity information. A summary of this information is available on the ACTMAPi site http://www.actmapi.act.gov.au/dd/spa.html</p>	<p>Agreed and amended</p>
Protected areas	
<p>Table 7.12 states that 54,131 hectares of the Australian Alps bioregion occurs in the ACT with the same amount being reserved. If this is the case, the percentage protected would equal 100%.</p>	<p>These apparent anomalies are due to reporting discrepancies between ACT and Commonwealth data; mainly to do with scale and descriptors of</p>

Reviewer comment	CSE Response
Similarly, the mention of a total area of 235,813 hectares is confusing. Clarify - it may be that small areas are dedicated to other uses, and less than 54,131 hectares is protected? Confirm the area of ACT – it is 235,524 or 235,813 (also in Table 7.13 below)?	geographical jurisdiction.
Rare and insufficiently known species and ecological communities	
In relation to the sentence “Species that may be threatened for which we have little information are covered under Rare and insufficiently known species.”, what does “covered” mean? The relevant statutory mechanism should be clarified.	Statutory mechanism explained and included as a footnote
<i>Powerful Owl</i> was also recorded as taking up residence in Haig Park adjacent to Turner Bowls Club. Amend to reflect this recent record, there are also current powerful owl observations being reported by COG at present (29 Sept 2015). Numerous news articles including: http://www.abc.net.au/news/2015-03-03/powerful-owl-spotted-in-suburban-canberra-park/6277744	Agreed and amended
The draft supplied refers to rare and insufficiently know species as a working list. The Nature Conservation Act 2014 includes provisions to list species in a rare category and data deficient category. Criteria and guidelines are currently under development, and no species are currently listed in those categories. Once species are listed they are given statutory protection as ‘protected species’.	Agreed and amended
<i>Eastern Bent-Wing Bat</i> - Could note that Wee Jasper (breeding habitat of the bat) is in NSW.	Amended
Assessment Summaries	
Symbols used for confidence levels should be explained in table caption or subtext	Agreed and amended
The increasing trend in the extent and condition of threatened ecological communities is likely to be more related to differences in interpretations across studies rather than any real increase. Reduce the confidence in trend further to a thin circle. Also note that condition in threatened communities varies between years according to prevailing conditions and a series of good seasons may lead to an artificial trend based on short term factors as opposed to an underlying trend that would indicate quality/resilience	Agreed and amended including additional explanatory comments
Clarification is required regarding how the ‘confidence in grade’ (state?) and ‘confidence in trend’ is derived. Provide clarification if possible.	Clarification (and a full description) provided in SoER Introductory chapter

Reviewer comment	CSE Response
<p>The increasing trend in the extent and condition of threatened ecological communities is likely to be more related to differences in interpretations across studies rather than any real increase.</p> <p>Reduce the confidence in trend further to a thin circle. Also note that condition in threatened communities varies between years according to prevailing conditions and a series of good seasons may lead to an artificial trend based on short term factors as opposed to an underlying trend that would indicate quality/resilience</p>	<p>Agreed and amended, including additional explanatory comments.</p>
<p>The ACT wide connectivity mapping and analysis which is being used in restoration, planning and development decisions across the ACT. The report card trend is probably stable as suggested but the wording reflects ignorance of some important information (see earlier comments)</p>	<p>The commentary supporting the trend assessment of stable was reworded to include this information. Including that connectivity and linkages have been mapped across the ACT. This mapping provides a benchmark for determining future changes in connectivity.</p>
7.3.2 Pressures	
Pest species	
<p>Query whether the Pest Animals and Weeds strategies are prescribed in legislation.</p>	<p>Neither of these strategies is prescribed in legislation. Text amended to reflect this fact</p>
<p>There are major inconsistencies in the data ranges provided in this section. The reporting period is 2011 – 2015, however the majority of data is from either before this period, or just for 2014 – 15. This does not provide a good understanding of the whole period.</p>	<p>Agreed however the 2015 SoER contains all available data for the reporting period</p>
<p>Remove St Johns Wort and blackberry as separate categories and include in plant pests broader categories</p>	<p>TAMS reports on St Johns Wort and blackberry as separate categories. CSE maintained these categories in SoER to ensure data were correctly represented</p>
<p>Report card for pests - agree with assessment but commentary only discusses cats and Indian mynas and could be seen as disproportionate to other pest threats</p>	<p>Commentary amended and reference to specific pests i.e. cats and Indian Mynas removed</p>
<p><i>Cats (stray and feral)</i> – Figure 7.29 is misleading and does not represent ‘hotspots’ of predation.</p> <p>Figure does not present the data described in the text. It shows only threatened species habitat, and not where predation is greatest, as implied, nor does it show where cat containment applies. The figure more likely gives an indication of where there is the potential for cat predation to</p>	<p>CSE agrees with this comment however the mapping data were the best available at time of reporting</p>

Reviewer comment	CSE Response
<p>do greater 'damage' (assuming threatened species predation is a greater threat than general biodiversity loss) however this needs to be correlated with other factors as noted.</p> <p>It also over represents the extent of urban areas – the footprint of suburbs as per the Territory Plan does not represent the actual extent of urban areas.</p> <p>Suggest modifying figure to represent the discussion.</p>	
<p><i>Cats (stray and feral)</i> - While recent and old information has been used, limitations of old studies from the late 1990s should be acknowledged. Limitations should be discussed if data is to be utilised.</p>	Agreed and amended
<p><i>Dogs (Feral)</i> - Figure 7.30 Text refers to baiting activities undertaken in 2013-14, however Figure 26 suggests that data provided is for 2010-11. Suggest an updated figure is provided, or explained in text. Currently the discussion and the map do not correlate.</p>	Discrepancy between dates and figures was corrected noting however that no updated mapping data were available
<p><i>Pigs (Feral)</i> - Data is for 1985 – 2000, not 2009 as figure title states. The data presented in Figure 29 does not correlate to the discussion, or reporting period.</p>	Agreed and amended
<p><i>Indian Myna</i> - No source of data or indication of trapping success provided.</p> <p>The source of data in Table 7.16 should be clarified. The comment on myna being the 18th most reported species does not provide context to the trapping numbers. It would be preferable if reporting rates of mynas could be plotted against trapping rates.</p>	<p>Agreed and source clarified</p> <p>It is not possible for reporting rates to be plotted against trapping rates as the data sets displayed are from different areas and insufficient data to rectify this</p>
<p><i>Deer (feral)</i> - ACT Government commissions a State of Knowledge Report.</p> <p>It would be worth noting that the ACT Government (CPR) commissioned Umwelt to prepare a State of Knowledge Report on Feral Deer prior to the conduct of the 2013-14 trial. This is an indicator of gathering the best available data on the pest species.</p>	Noted however "gathering the best available data on the pest species" does not address the indicator
<p>Deer (feral) – section refers to a marked increase in the last two years. (in Sambar deer)</p> <p>Introduction and citation for ACT Government deer sighting register at an earlier point in the section would assist in verifying the source of this and other comments relating to feral deer assuming all information pertaining to deer is derived from this source. Note that Umwelt prepared a report for CPR on the state of knowledge of feral deer in the ACT in 2013; it included analysis of the feral deer sighting register and consideration of other jurisdictions and pressures on ACT.</p>	Agreed and amended noting the appropriate citation is TAMS Annual Report rather than the Deer Sighting Register

Reviewer comment	CSE Response
Mention Feral Horse Management Strategy in Pests pressure indicator.	This strategy is a response therefore not applicable to the Pest indicator. It is known as the Namadgi National Park Feral Horse Management Plan. It is also outside the reporting period for the response section (it was made in 2007)
Pest plants	
Table 7.18 - and associated text. It is not apparent whether these areas are overlapping (i.e. multiple weeds targeted in single areas). The text implies that all weed control areas are independent of each other. It is possible that some areas contain multiple weeds; if this is the case this should be clarified to avoid over-reporting of effort.	Agreed and amended
Altered Fire Regimes	
Check data and commentary on ecological burns	Checked and rewritten. Data not collected
It is not clear based on the Table (7.19) heading whether the table represents the number of fires or overall area affected by fires.	Table heading corrected
In 2011 SoER report, knowledge gaps surrounding fire were highlighted, and the 2007-08 report proposed 'improving the scientific knowledge of managers and custodians about fire fuel management'. The development of the '2012-13 Ecological Guidelines for Fuel and Fire Management Operations' would demonstrate that the government has attempted to fill this knowledge gap, and the number of pre-burn assessments would also demonstrate improvement over 2011, when only 10% were monitored.	Agreed and amended
Direct environmental offsets	
<i>Policy framework</i> - EPBC Act – protection is not given effect through Part 9 and Part 10. These are the mechanisms to gain approval for impacts on MNES. Protection is afforded through Part 3 which requires environmental approvals for actions that might result in significant impacts to MNES. The Biosecurity Strategy 2015-2025 would also be relevant in the Policy Framework Section.	Agreed and amended
Table 7.21. Data is available on the size of Block 2227 Hume, Watson, and UC Offsets. Approximate sizes are on the ACTMAPi Offsets map.	ACTMAPi reference included

Reviewer comment	CSE Response
Table 7.21. Although being alluded to, there is no information provided for the West Macgregor Offset (adjacent to Jarramlee). Provide information for this offset for completeness.	Agreed and amended
Definition of Direct Offsets should be taken from the ACT offsets policy. Offsets are not necessarily added to reserves.	Corrected in accordance with policy
Direct (environmental) offsets section – Offsets register is now available. This could be used to update Table 7.21.	Register used to update and check table
<i>Jarramlee Offset</i> - Offset values Jarramlee does not offset the loss of 96 hectares of golden sun moth habitat and 6.5 hectares of natural temperate grassland (these were the offset targets). The values on the previous page were correct. Also check the investment amount – the EPBC Approval states \$972,000.	These figures were reviewed and subsequently amended. The investment amount does not appear in the final published ACT SoER 2015. The impact areas were replaced with the approved offset area(s)
<i>Jarramlee Offset</i> - Cost of implementation of the management plan was not an 'indirect offset'. Refer to comments on preceding pages (above) in relation to indirect offsets.	Agreed and amended
<i>Gungahlin Strategic Assessment</i> - The source of Table 24 (in the SoER draft provided) is not clear; it does not accurately reflect the Gungahlin Strategic Assessment commitments. Table 24 (in the SoER draft provided) does not reflect the MNES offset (refer Table 4.3 of the Program Report). BGW = 440 ha offset. GSM = 148 ha. SLL = 112 ha. Superb parrot = All nesting trees protected in Throsby. This area was excised from the development footprint because of superb parrot.	Agreed and amended
<i>Gungahlin Strategic Assessment</i> - Many of the requirements identified against the Gungahlin Strategic Assessment are not indirect offsets – they are conditions of approval that mitigate the impacts of development or set up long-term monitoring of the offset areas.	This is a contentious and arguable point. An explanatory footnote (as follows) was inserted to clarify. The Australian Government approval for the taking of actions in accordance with the Gungahlin Strategic Assessment Biodiversity Plan can be found at www.environment.gov.au/system/files/pages/b58dc6ac-a4f2-4a9e-9dad-4f0752e0f050/files/gungahlin-approval-notice_0.pdf . The Gungahlin Strategic Assessment Biodiversity Plan (www.environment.gov.au/system/fil

Reviewer comment	CSE Response
	<p>es/pages/b58dc6ac-a4f2-4a9e-9dad-4f0752e0f050/files/gungahlin-biodiversity-plan_0.pdf) refers to 'indirect offsets'.</p> <p>Note that the <i>Environment Protection and Biodiversity Conservation Act 1999</i> (Cwlth) Environmental Offsets Policy (October 2012) no longer refers to indirect offsets. The term 'other compensatory measures' is used for 'actions that do not directly offset the impacts on the protected matter' (see www.environment.gov.au/epbc/publications/epbc-act-environmental-offsets-policy)</p>
<p><i>Molonglo Strategic Assessment</i> - Offset values not discussed. Not consistent with data provided for Gungahlin Strategic Assessment. Figure 39 does not show the Molonglo Offsets as discussed in the text.</p> <p>The Molonglo Adaptive Management Strategy has a map which shows all offsets.</p> <p>This section does not contain any details on offsets provided, or results of ongoing implementation. This data is available in annual reports.</p>	Agreed and amended
Indirect environmental offsets	
Indirect offsets are not defined correctly. See the ACT policy.	Agreed and amended
<p>...an additional indirect offset investment of \$968 940 was approved ...</p> <p>The financial component of the Jarramlee offset package is not an 'indirect offset'. It is money committed by the ACT Government in order to ensure delivery of the offset as proposed. This financial commitment was required in order to demonstrate the predicted outcomes could be achieved.</p> <p>An example of an 'indirect offset' is condition 2(h) of the approval for EPBC 2010/5520 – Macgregor West Stage 2. This condition required a minimum of \$200,000 to be committed to research into the rehabilitation of Chilean needlegrass with native species.</p> <p>It is also noted that the current EPBC offset policy does not use the term 'indirect offsets'. The term 'other compensatory measures' is now applied and is defined through the EPBC offset policy.</p>	Disagree. The Jarramlee offset package is referred to as an 'indirect offset' in the Lawson Offset Strategy June 2013 (LDA for the ACT Government) and was necessary because the direct offset area was not sufficient
Section states that <i>indirect environmental offsets are a measure of last resort</i> .	Noted (EPBC Offsets Policy is referred to in the SoER)

Reviewer comment		CSE Response
<p>Generally, offsets are the last resort in the hierarchy of ‘avoid, mitigate, offset’. Other compensatory measures are utilised to enhance direct offsets and are a key component in the offsets policy however under the current policy can only comprise 10% of the total value of the package. Refer to the EPBC offset policy for further information and a definition for other compensatory measures</p> <p>http://www.environment.gov.au/system/files/resources/12630bb4-2c10-4c8e-815f-2d7862bf87e7/files/offsets-policy_2.pdf</p>		
<p>Section states that there is no way of establishing to which approved impact the indirect offsets apply.</p> <p>Where an approved offset package includes an ‘indirect offset’ component this will be identified in approval documents and the associated outcomes defined. The approval documents will identify what the other compensatory measures are and the matter to which the measure applies.</p> <p>It should also be noted that where the SoER relies on strategic assessments, strict compliance with the offset policy/guide is not required. In these projects, the complexity and uncertainty in timing and nature of future development requires a more flexible approach to offsets that what is taken for Part 9 approvals. It is common that the offset packages for strategic assessments rely to a greater on indirect measures in order to achieve strategically beneficial outcomes that respond not only to MNES but to the objects of the Act as well.</p>		Comment noted however the SoER is factually correct
<p>‘The plan does not contain a methodology for conducting such a cost–benefit analysis.’ The Gungahlin Strategic Assessment committed to ‘indirect offsets’ to the value of 5% of the total expenditure on all offsets for the first three years and 10% for the remaining term of the Plan. The subject of funding to be determined by the Plan Implementation Team (PIT) through the adaptive management process. Table 5.2 of the Gungahlin Plan report identifies indirect actions and Table 5.4 identifies the funding model. The governance model for the PIT provides the basis for cost benefit analysis and the assessment of appropriate research projects.</p>		<p>The SoER claim that the Gungahlin Strategic Assessment has no provision for a cost benefit analysis is factually correct.</p> <p>The reviewer’s statement that: “The governance model for the PIT provides the basis for cost benefit analysis and the assessment of appropriate research projects” is not the same as a methodology for a cost benefit analysis.</p>
<p>The indicator for indirect offsets is not appropriate or measureable. Conservation outcomes cannot be demonstrated without assessing whether offsets have been implemented. Indicators for indirect offsets such as implementation or delivery of</p>	<p>These comments are noted with thanks. However the CSE disagrees. The comment that the indicator is “inappropriate” is a matter of opinion. The comment that the indicator is “not measurable” is incorrect. The indicator does not claim to measure the implementation of indirect offsets nor whether they achieve any conservation outcomes. The metrics used to measure the indicator are the amount and type of indirect offset in the reporting period. The indicator is one of a number of</p>	

Reviewer comment	CSE Response
<p>actions as committed or scheduled in Offset Management Plans may be more appropriate. This data is available in annual reports prepared for offset areas.</p>	<p>proxies used to assess pressure on biodiversity.</p> <p>At this time the conservation outcomes or benefits to biodiversity from indirect offsets are unknown. Should such a measure become available the SoER would be able to report on these outcomes using indirect offsets as a state/trend indicator rather than a (proxy) pressure indicator.</p> <p>Further, in deciding to include direct and indirect offsets as pressure indicators for biodiversity the CSE was keenly aware of the possible contentions and arguments against such an approach. However the CSE believes these indicators are very important for ACT State of the Environment reporting for the following reasons:</p> <p>Direct Offset Indicator</p> <ul style="list-style-type: none"> • If development is allowed, regardless of whether there is an offset, then the loss of that habitat should be reported. • Similarly, if an offset is allowed, then the addition of that area to the reserve network should be reported. <p>This raises a problem that bedevils all SoE reports: how to help readers interpret changes in areas of habitat and the extent of the reserve network? In the offsets scheme in the ACT it seems it is assumed that if you put a certain area of equivalent habitat in protection and manage it to enhance its ecological value then the overall impact on biodiversity will be zero or positive. If that is true then the loss of habitat really does not mean anything much in terms of species biodiversity (although it might in terms of landscape diversity, but arguably this is not taken into account in the offsets process).</p> <p>For these reasons the CSE was careful to only report facts and not make any interpretative comment i.e. the SoER reports on:</p> <ul style="list-style-type: none"> • areas of habitat lost in the reporting period • areas of habitat given increased protection and managed with the intention of improving ecological value • the mechanism used to seek a balance between these process such that the impact on species biodiversity if zero or positive, is the offsets policy. <p>The CSE notes that there may be scope, in future ACT State of the Environment Reports to gather evidence and make an assessment about whether the offsets policy has achieved its objectives.</p> <p>Indirect Offset Indicator</p> <p>This is an important indicator of a process likely to affect biodiversity (although the presumption is that it is two processes that cancel one another out). It is also an indicator of how much of the ACT's biodiversity is subject to assumptions that are as yet untested and uncertain. It is therefore a measure of a risk/</p>

Reviewer comment	CSE Response
	<p>uncertainty related to the state of biodiversity and should be recorded.</p> <p>The CSE notes the following analogy which provides a useful way of thinking about indirect offsets:</p> <ul style="list-style-type: none"> • Imagine you own some shares that someone else wants • They take your shares but compensate you by paying for a university course in investment planning that they say will ultimately make you a lot richer (they might or might not be right) • How do you now assess the current state of your finances? You might say they have declined in the short term but are potentially better in the long term (with some uncertainty) • How happy would most people be with this situation? <p>Applying this analogy to the state of biodiversity, we would have to say that the short-term state of biodiversity has declined but it might be better in the long term (with some uncertainty).</p> <p>In relation to the reviewer's comments about the Commonwealth and ACT Offset Policies, the final published ACT SoER 2015 includes these details.</p>
7.4 Response	
7.4.1 Legal and Policy Framework	
<p>The Nature Conservation Act 2014 includes a range of measures to protect biodiversity rather than just threatened species. This includes provisions for the Nature Conservation Strategy (chapter 3), protection of native species (Chapters 5 and 6); Reserve management (chapters 8-10). The management occurs through implementation of a range of strategies and plans.</p>	<p>Noted. No change considered necessary. The SoER does not claim that the <i>Nature Conservation Act 2014</i> only protects threatened species. The SoER also states the objects of the Act.</p>
<p>The Nature Conservation Strategy provides for proactive management of biodiversity and is not primarily focused on threatened species. Significant resources have been provided for restoration of habitat. The resilience assessment in the Biodiversity Chapter does not seem to include consideration of the investment in reserve management, weed and feral animal program and restoration programs all of which are components of building resilience. Implementation of the Kangaroo management Plan is also improving the resilience of the ecosystems through reduced grazing pressure.</p>	<p>Noted - The question is what can be said about reserve management, and control of feral animals and weeds? The Management Effectiveness assessment in the SoER looks at how reserve management etc is planned for and resourced and what measures of effectiveness are evident. The assessment suggests there are good plans in place but that monitoring and evaluation of the outcomes of those plans is not yet in place. The assessment also indicates that there is a risk when so much of the ACT is under government management that there might not be enough funds to go around. So while it is fair to</p>

Reviewer comment	CSE Response
	acknowledge that plans to manage habitat quality, including fire plans, and pests and weeds are in place, how well they are contributing to resilience is unclear.
<ul style="list-style-type: none"> • Policy framework does not include offsets policy; and • Legislation section does not include the Planning and Development Act which contains environmental assessment processes and the offsets policy. 	Both points agreed and amended accordingly
Case Studies	
<p>Community case study – 7.1 There are many groups across the range of ecosystems in the region. The Parks and Conservation Service support 46 ParkCare groups including groups in urban areas such as Friends of Black Mountain, Friends of Majura and Mount Taylor. There are also groups in the reserves outside urban areas such as the Gudgenby Bush Regeneration Group in Namadgi and Friends of Tidbinbilla.</p> <p>There are also catchment groups which are umbrella groups for local land care groups. The three catchment groups in the region are the Molonglo Catchment Group, the Ginninderra Catchment Group and the Southern ACT Catchment Group. Land care groups are also represented by the ACT Region Catchment and Landcare Association and Landcare ACT</p>	Agreed and amended

Chapter 8: Heritage

Reviewer comment	CSE Response
8.1 Main Findings	
<p>Main findings section states that ‘overall, heritage listings have decreased since the last SoE report’.</p> <ul style="list-style-type: none"> • The number of listed places has increased. • The backlog of nominations awaiting assessment has decreased, due to the removal of a large number of duplicated nominations, and the decision not to provisionally register places on National and Commonwealth land. 	<p>Noted. Text corrected to say that nominations have decreased and that number of registrations has increased</p>
<p>Paragraph on Aboriginal artefacts</p> <p>This paragraph does not reflect the in situ conservation of Aboriginal sites which occurs as part of development– not all Aboriginal artefacts are removed. Another comment is that policy referred to will be an ACT Heritage Council policy, not an ACT Government policy. Suggested amendments to the paragraph include:</p> <p>“Development can lead to impacts to Aboriginal heritage places, however, efforts are made in many cases to protect significant Aboriginal places from development impacts. Where such impacts cannot be reasonably avoided, measures are taken to protect Aboriginal objects prior to development, by removing them from the impact area. Representative Aboriginal Organisations have sought to have many removed objects returned to Country following development, and the ACT Heritage Council is developing a ‘Return to Country’ policy to provide these outcomes.”</p>	<p>Noted. Text amended to reflect development of policy by ACT Heritage Council rather than ACT Heritage</p>
8.2 Introduction	
<p>The introduction omits to mention at the start whether or not the chapter excludes national and Commonwealth heritage places. The chapter could exclude national and Commonwealth heritage places in the ACT since they listed under the Environment Protection and Biodiversity Conservation Act 1999 and are a matter for consideration under the Australian SoER.</p>	<p>Noted. Text added to introduction to provide clarification of this</p>
8.2.1 What is heritage?	
<p>This section includes Heritage Act 2004 definitions for place and object, but does not include Aboriginal place and Aboriginal object – which are key definitions as they are afforded statutory protection. These additional terms should be included in this section.</p>	<p>Aboriginal Heritage as defined in the ACT Heritage Act is included in the section of the chapter on Aboriginal Heritage. To avoid duplication reference has been made in the section <i>What is Heritage?</i> to the definition in the Act and that it is included in a later section of the chapter.</p>

Reviewer comment	CSE Response
How do we measure heritage?	
Refers to the ACT Heritage Register giving an indication of the state of the heritage of the ACT – however, as approximately 3000 Aboriginal heritage sites are also afforded protection by the Heritage Act 2004, irrespective of their registration status – this paragraph should be amended to identify this significant body of heritage sites protected within the ACT.	Amended to clarify
8.3.1 State and Trends	
Overall heritage registrations	
This section states that the Heritage Act 2004 has no statutory effect on places on national land. The provisions of the Heritage Act 2004 do apply in some circumstances, for example, it would be an offence for a non-Commonwealth agency/representative to impact an Aboriginal place on national land – however, it is not an offence for Commonwealth agencies and their representatives as they are operating under the 1988 Self Government Act and Legislation Act 2001. The broad statement in this section does not reflect the complexity of application of our Act.	Amended to clarify that the ACT Heritage Act may be applied on national land in certain circumstances
The chapter omits to mention that between the years 2011-15, a large number of notable decisions were made about the registration of numerous heritage sites/items and what the reasons were. (Reviewer provided a list of decisions)	Noted. Reference made in chapter to where details of decisions are available. The sheer volume of data on decisions necessitated a summary in the SoER.
Historic heritage places	
The chapter omits to mention that in 2013, specific heritage guidelines were issued under the Act for the Swinger Hill Cluster housing. The ACT SoER 2015 represents an opportunity to remind the ACT community that the Swinger Hill Cluster Housing is of heritage significance as important evidence of a distinctive design of exceptional interest, for its strong and special associations with a development and cultural phase in local ACT history, for showing qualities of innovation, as a rare example of medium density stepped housing and as a notable example of medium density cluster housing in the ACT.	Accepted. Text has been added to the chapter as an example of historic heritage listing in the ACT during the reporting period.
Natural Heritage Places	
The Chapter omits to mention that under the EPBC Act there are at least 4 natural heritage places in the ACT in addition to those listed on the ACT Heritage Register. Commonwealth listed heritage places of natural value in the ACT include: the Australian National Botanic Gardens; the Jervis Bay Botanic Gardens; the Jervis Bay Territory; and the Synemon plana Moth Habitat.	Noted but no change made as the chapter does not report on EPBC/national/Commonwealth listed heritage
The section states that ‘there are 31 places nominated for listing’.	Amended as suggested

Reviewer comment	CSE Response
Change to 'there are 28 natural places nominated for listing'.	
Aboriginal heritage places and objects	
<p>List of Aboriginal site types in the ACT:</p> <ul style="list-style-type: none"> • Should be amended to also include: stone arrangements, ceremonial places and post contact sites. • The 'sacred landscapes' text should be removed, and 'ceremonial places' used as it is the preferred term. 	<ul style="list-style-type: none"> • List amended as suggested • Text amended as suggested
<p>'Why is this indicator important?' paragraph:</p> <p>This paragraph refers, twice, to the registration of Aboriginal heritage places – although reported Aboriginal sites have equal protection under the Heritage Act 2004. This statement should be revised to refer simply to 'protection of Aboriginal heritage'.</p> <p>This paragraph should be revised to also state: "All Aboriginal places and objects.....as part of their history and heritage, and also as these sites are of heritage and archaeological significance for their ability to contribute to our understanding of the Aboriginal history of the ACT, and how this has changed over time".</p>	Amended as suggested
<p>'Interpretation and monitoring issues' section:</p> <ul style="list-style-type: none"> • Interpretation of Aboriginal heritage sites and the monitoring of Aboriginal heritage sites, are two very distinct matters – and the heading of this section does not reflect the nature of text below, which is about the management of Aboriginal heritage during development processes and curation of Aboriginal objects. Recommend that the heading is suitably amended. • Several comments in this paragraph do not reflect ACT Heritage assessment and management processes, for example: Aboriginal sites are infrequently uncovered during development works, but are instead found in preceding stages of assessment and management; RAOs do not represent the broader Aboriginal community - recommend amending this paragraph to: • "While approximately 3000 Aboriginal sites heritage are known in the ACT, many more occur in the area and additional heritage sites are commonly found during heritage assessments preceding development. In some cases, additional heritage sites may also be found during development works, and in these instances, works must cease to allow for heritage assessment and management. Where development cannot reasonably avoid heritage impacts, Aboriginal objects are salvaged and moved off site for their protection. This can only occur when authorised under Section 76 of the Heritage Act 2004, which is issued following consultation with Representative Aboriginal Organisations. Salvaged Aboriginal objects are stored and maintained by the ACT Government, until such time as a long term decision about their 	<ul style="list-style-type: none"> • Noted. Heading not amended as this is a standard heading used for all indicators • Text was amended to clarify meaning. • Noted. Changes made to text to clarify this issue

Reviewer comment	CSE Response
management is made in consultation with Representative Aboriginal Organisations”.	
State and Trends Assessment Summaries	
Approach underlying assessment unclear, as different rationale seems to be employed for historic/natural heritage versus Aboriginal heritage – specifically, the first two categories are ranked as ‘good’ solely on the additions of heritage sites to the ACT Heritage Register, while the Aboriginal heritage category is ranked as fair based on additions to the ACT Heritage Register and RAO concerns over development impacts. Heritage places in all categories are at times impacted by development, as an outcome of the heritage assessment, management and approval process prior to development – unclear why Aboriginal heritage impacts only are discussed.	Noted. However report cards not amended. The assessment summaries provide a score based on information provided and assessed for each indicator. The scores provided are a reflection of the individual issues identified in each of the state and trend indicators.
8.3.2 Pressures	
Current monitoring status and interpretation issues	
Total number of DA heritage advice cited as 193 per year on average This should be revised to 180, reflecting updated advice provided by ACT – based on data presented in Table 8.5	Text amended to 180 as advised
<ul style="list-style-type: none"> The text below Table 8.5 refers to the ACT planning and land authority approving all ‘heritage applications’ – this should be amended to state ‘development applications’. This text should also be revised to state: “In 2011-15, most development applications referred to the ACT Heritage Council were not objected to (60%) or development applications were not objected to on the basis that heritage conditions were identified (25%). Of the applications where additional information was requested, most were not objected to after the provision of the additional information. Advice objected to development applications, or required changes to the proposed activity, in 11% of development applications referred.” Further, ACT Heritage does not maintain records on development applications approved by the ACT planning and land authority, and if this statement is to be included, advice should be sought from the ACT planning and land authority on this matter. 	<ul style="list-style-type: none"> Amended as suggested Amended section and text added to clarify role of Council as a referral entity giving advice not as the approver
The chapter mentions that in 2011-15, 23-39% of heritage applications have been approved with conditions provided by council. Why is there a range of percentages (which suggests some uncertainty) about what proportion of heritage were approved? More importantly, what were the various conditions that were set by council during 2011-15 and secondly, what evidence is there to prove that the all conditions were complied with? Where there any breaches of conditions? If so, what are the details of the breach?	The range of percentages mentioned is a summary. Details, including numbers and percentages for each year in the reporting period are provided in Table 6. Compliance is discussed in Chapter 10 of the SoER as a

Reviewer comment	CSE Response
	management response.
8.4.1 Legal and policy framework	
<p>States that ‘the ACT Heritage Act provides specific protection for local and regional heritage assets...’</p> <p>The Heritage Act 2004 only has a statutory role in the identification and protection of heritage places and objects of significance in the ACT, not ‘regional heritage assets’.</p>	‘Regional heritage’ removed from text
<p>This section does not reflect the statutory protection of Aboriginal places and objects not listed on the ACT Heritage Register, and should be revised in the following way: “ACT heritage is protected by....., by listing on the ACT Heritage Register and by the provisions of the Heritage Act 2004.”</p>	Amended to reflect protection under the Act other than through the listing process
8.4.2 Management of pressures	
<p>The chapter states that the ACT Government manages pressures affecting heritage in the ACT in a variety of ways.</p> <p>The chapter omits to detail to the extent to the number or type entities or persons who were cautioned or committed an offence under Part 13 of the Heritage Act 2004 or the number or details of heritage orders that were issued under Part 12 of the Act between the years 2011 to 2015.</p>	<p>Noted. The 2015 SoER does not include specific response indicators within the theme chapters so data were not collected on compliance matters. Compliance is discussed further in Chapter 10 of the SoER as a management response.</p>

Chapter 9: What does the changing environment mean?

Reviewer comment	OCSE Response
General comments	
<ul style="list-style-type: none"> In the chapter contents before 9.3 Ecosystem services, some parts of the text are listing facts but there isn't enough interpretation or application of these facts. Some extra statements are needed in addition to or in response to these facts that help answer: So what?, Why does it matter?, What is its implication?, What does it mean?, How is it relevant for the ACT, and the ACT population? Links can be made to other themes when needed. A useful example is at the bottom of page 31 where it cites the 2011 State of the Environment Report. Generally more work is needed for consistent formatting of tables and the graphs in the quality of this chapter is variable with some assertions that contradict the chapter and the literature, and several instances concerning the omission of important data or issues. The chapter contents before 9.3 Ecosystem Services. The chapter seems to be missing some 'glue' or a thread to hold it together. As it reads it is a smattering of data and graphs but needs more text to tell the story of what about the data matters? Rather than just restating what the data is, the next step of interpretation is needed of why it matters and how it relates to liveability. 	<ul style="list-style-type: none"> The reviewer was sent a draft version of the chapter and one other draft chapter. This did not permit a reading within the context of all other chapters Information and interpretation in this chapter was updated and edited in the final Report Errors in tables and charts were corrected and formatting made consistent
9.2.4 Built Environment	
Housing Affordability Consumer Price Index	
The last sentence in the last paragraph may be missing the phrase 'in the ACT' as currently it doesn't make sense.	Text amended
In Figure 9.4 it appears the data for 2005 and 2012 is missing. The first sentence in the last paragraph needs a minor edit, maybe use 'but the changes are relative with prices in the other....'	Edits made
<ul style="list-style-type: none"> In Table 9.11 Affordable housing in Canberra and Queanbeyan for low income households 2015: The column headings for 'Number of affordable and appropriate', and 'Percentage affordable and appropriate'. Both column headings need a few more words to indicate what it is a number of? and what it is a percentage of? In the minimum wage descriptions under payment time there is a + FTB Au and FTB A & B which need explaining as it is unclear that they mean. 	<ul style="list-style-type: none"> No change made. Text referring to the table answers these questions Edits made as suggested Edits made as suggested

Reviewer comment	OCSE Response
9.2.5 Connectivity, transport and congestion	
Transport assets	
Data on transport assets for 2014-15 can be sourced from Territory and Municipal Services Directorate.	Data updated to 2014-15 where possible
A graph of Table 9.13 would better illustrate the data, specifically the on and off road cycle lanes and community paths.	No change made as the table was deemed sufficient
Roads and paths	
For the statement under roads and paths it is not clear from Table 9.13 how this conclusion can be drawn as the data does not show kilometres per head of population.	Agreed. Growth rates have been added to text noting that these are greater than the population growth rate over the SoER period
The statement regarding 'a Parliamentary agreement item' needs a bit more explanation it's unclear what that actually means. Is it referring to an agreement with the Federal government?	Reference to Parliamentary agreement has been removed.
Buses	
The ACT bus fleet size has been decreasing. The new buses being added are mainly replacing retiring buses, so "further increase the fleet" may not be entirely correct and may need to be reworded.	Agreed. The relevant sentence has been redrafted.
<p>Under Buses:</p> <ul style="list-style-type: none"> The third paragraph makes the statement 'reduce the harmful emissions' but it's not clear how or why the delivery of rigid buses would do this. A reference is needed for the statement that the number of public buses has declined. In the reported time period there's been a big increase in the provision of wheelchair accessible buses, it is worth pointing out and linking this to liveability and connectivity especially with our aging population. 	<ul style="list-style-type: none"> Edited to clarify meaning No change made. Decline in bus numbers is evident in Table 9.14 Suggestion not accepted to avoid lengthening text
Taxis	
Under taxis, the first paragraph needs an example for the phrases 'new digital technologies' and 'emerging alternative business models' so people have a better understanding of what is being referred to.	Agreed. Clarification added (Uber)
<p>Regarding Table 9.15 Private vehicle registrations:</p> <ul style="list-style-type: none"> The column headings, need the years added. Use of three decimal points for vehicle registrations seems to be unnecessary - can these figures be rounded up to either one or two decimal points? The sentence under Table 9.15 needs to indicate the timeframe 	Edits made to address these issues

Reviewer comment	OCSE Response
that motor vehicle use is increasing which in this case is five years.	
<p>For Table 9.16 Increase in vehicle use ACT and Australia:</p> <p>The use of percentages in this table currently doesn't make sense because it's not clear what they are percentages of. What is the bigger unit or the broader context that they are coming from? For example in terms of the total kilometres travelled it is showing 19.8% of ACT but how can it be a percentage what's the bigger unit that it is coming from? Similarly for Australia it has 8% of total kilometres travelled. Presumably what it is meaning is the total travel that people do is the bigger unit (planes, bikes, ships, buses) and of that people's use of cars in this case is the percentage that is being referred to. If this is the correct interpretation then this needs to be stated in the table heading and in the sentence above the table.</p> <p>Has a negative average kilometre per vehicle, is this a typo?</p>	This table has updated and re-titled to clarify what the data show
Parking	
<p>Under parking:</p> <ul style="list-style-type: none"> Can an example be provided that shows how technology can better manage the supply of parking? The use of the phrase 'targeting them at people' seems too violent can another verb be used instead such as designing or catering for? 	<ul style="list-style-type: none"> Clarification added (smart phone app) Edit made to remove "targeting"
Transport modes and use	
Under Transport modes and use, the mention of Canberra's dependence on car based passenger travel needs a reference to support it as it's only later in the document that it's explained.	Not agreed
Under Transport modes and use, In the last two sentences adding the word Australia may help improve clarity.	Edit made as suggested
Buses	
<p>Table 9.18 and ABS published data on journey to work (2001 and 2006) may appear be contradicting. It may be worthwhile clarifying that ABS data is based on employed population.</p> <p>In Table 9.18, it will be useful to identify the source of information. If the source is ACTION bus ticketing system, there was a period of time the system was malfunctioning and the data was not reliable.</p> <p>It is not clear how the transferring passengers are counted in the boarding data. This means, if the ACTION's network reduced the need for transfer, the bus boardings are not the right measure for patronage.</p>	Noted. No change made as CSE was not able to ascertain the full implications for the data
The statements concerning the gap between revenue and expenses for ACTION buses whilst technically correct, its relationship to the concept of liveability is unclear and it risks contradicting the earlier	Noted. No change made. Data on bus use back to 1983-84 available (Table 9.18) so it was

Reviewer comment	OCSE Response
<p>reports of Canberra's liveability and connectivity.</p> <p>My understanding is that public buses help reduce traffic congestion and that the liveability of Canberra was based on the good public transport system it currently has.</p> <p>Do you have similar graphs concerning the provision of pedestrian paths, roads, and cycleways? If not then why is this graph being provided?</p>	<p>important to provide long term data on revenue and costs which are crucial to the ability of the ACT Government to provide a bus service.</p>
Cycling	
<p>Below Figure 9.9 Bicycle use in Canberra areas 2012 -2014:</p> <ul style="list-style-type: none"> the text is repetitive and needs to be edited down and the words ACT government needs to be included if the strategic active travel network is an ACT government document. 	<ul style="list-style-type: none"> Edit made This was clarified in the on-line version of the SoER.
<p>The name of the strategic cycle network plan has been changed (p 27)</p> <p>Suggested change to section wording - 'The Strategic Active Travel Network sets out the preferred strategy for the development of the walking and cycling network over the next 10-15 years. The Network links with future land development and urban growth, and identifies infrastructure projects and non infrastructure initiatives to increase active travel in the ACT'.</p>	<p>Agreed. Suggested words inserted</p>
Walking	
<p>Under walking, the concept of mode share needs to be explained e.g. combination of walking and bus, or walking and car, or walking and cycle.</p>	<p>Not agreed. Analysis referred to share of walking among possible travel modes, not combination of walking with other modes</p>
Congestion	
<p>For better clarity, under the Tom Tom traffic index the context for the rankings needs to be provided. Are they Australian or global ranking systems? For the first sentence, consider re writing this In the positive along the lines of Canberra is amongst some of the least congested cities within Australia and the world e.g. is in the lowest 30% of congestion rankings. Table 9.19 Tom Tom traffic index for Australian Cities the column heading for congestion level needs to indicate whether this is the overall or average of the other column headings. It is not clear how that particular figure was calculated and what it is based on.</p>	<p>Edits made as suggested</p>
<p>Table 20 Cost of road congestion 2011 and projected 2031:</p> <ul style="list-style-type: none"> In the column heading it needs to indicate that 2011 is current costs and that 2031 is the projected costs. The concept of a delay cost just needs a short explanation. 	<ul style="list-style-type: none"> Edit made Not accepted

Reviewer comment	OCSE Response
Infrastructure Australia data on congestion and costs	
Under Infrastructure Australia data on congestion and costs, the last sentence states ‘confirms the importance of the ACT government’s focus on the corridor’, however there is no indication of what the ACT government’s focus on the corridor is actually doing apart from looking at the corridor. What is proposed? Can more information be provided to support this statement?	Agreed. Clarification provided that the ‘Government’s focus’ refers to plans for Capital Metro has been added to paragraph
<p>Table 9.21 Top 10 road corridors in greater Canberra by delay cost:</p> <ul style="list-style-type: none"> • The column headings concerning 2011 and 2031 need to show current and projected costs as does the table heading. • The column heading for ‘direct economic contribution’ needs to be explained in the text as it is not clear what that actually means. Does it mean the construction costs or is it something else? • Can an explanation be provided to explain why volume capacity for 2011 and 2031 remains the same even though there is an expected increase in population? • In addition, the implications of what this means for congestion and liveability and the importance of public transport being provided and the importance of people using public transport could be made. 	<ul style="list-style-type: none"> • Edits made • Refers to economic contribution of each road corridor. Readers can refer to Infrastructure Australia public source report for details • Error corrected • These are issues about ‘Response’ discussed later in context of Transport for Canberra strategy
Figure 9.10 ACT road crash trends 2014- 2014 - Is this trends or is this just data? Are trends changes over time?	No change. Chart title shows changes over time i.e. trends
Road accidents	
ACT Road crash trends. The data in this table for 2012 2013 contradicts the statement in the second sentence.	Statements regarding decline in accident and fatalities were considered correct for the reporting period
Regarding to the number of fatal crashes - it needs to be added since 2010.	Edit made. Decline has been since 2011
It would be useful to have a comparison of the ACT Road Crash trends with other cities.	Table 9.22 presents figures for road crash fatalities in each state and the NT
9.2.6 Human health	
State and trend	
The heading for Table 22 ACT Human health indicators 2007 – 2012 needs to show the “percentage of ACT population” for clarity.	Not agreed. No change made

Reviewer comment	OCSE Response
9.2.7 Response	
In the fourth paragraph it's not clear what 'the environmental connections of five of these', actually are. What are they? Are they plans, policies etc.	Agreed. Clarification has been added
People Place Prosperity	
<p>Table 9.24 People Place Prosperity commitments and results, 2015:</p> <ul style="list-style-type: none"> • Third row result - can this be updated to show the current status for the nature conservation Act, now that we are in October? • For the fourth row result the term ACT needs to be put in front of government. 	<ul style="list-style-type: none"> • Updated as suggested • Agreed. Edit made
ACT Government Infrastructure Plan	
Can a reference be provided for the sentence under ACT government infrastructure plan? The second half of this sentence is a bit confusing the way it's written.	Reference added
For Table 9.25 ACT Government Infrastructure Plan etc and its associated text, it is unfortunate that the good work of the ACT government on these policy priorities is not reflected. Current local knowledge indicates that they have successfully tendered for solar power providers, successfully installed a solar power project and on page 44 of this report it indicates that they have progressed a major water security projects.	Accepted. Information added
ACT Planning Strategy	
For figure 9.12 the heading needs to include what is the growth that is being managed is it the population, housing or something else?	Agreed. Clarification added
Although there may not be current tracking of the measures in Table 9.26 ACT Planning Strategy outcomes indicators and measures, the SoER report does provide some information to help answer the housing and dwelling components of this table. Similarly the Chief Health Officer's report provides data on physical activity as reported in this liveability chapter. It is likely the ABS would have data for the proportion of the ACT population who has postsecondary education.	Noted but no change made. The SoER was making the point that the ACT Government does not publish tracking of these measures even though the data are, in principle, available.
Transport for Canberra	
<p>Table 9.27 Transport for Canberra Report Card etc</p> <ul style="list-style-type: none"> • For clarity, the table needs to have added to the row descriptors under each principle the words 'transport system that..' • The summary of report card commentary for the first principle integration of transport system with land use planning, the sentence concerning the red rapid is unclear at the moment. 	Not agreed - aim was to keep the wording aligned with report card published in 2014

Reviewer comment	OCSE Response
<ul style="list-style-type: none"> For the sixth principle, would it make sense to include in the summary of report card, extra statements concerning raised cycleways, new kilometres of cycleways and the cleaning of cycleways as examples of what the ACT government has done? For the seventh principle under the summary of report, is not clear what the basis is for the statement concerning how investing in public transport and infrastructure will encourage more people to use public transport. Although these factors are essential for people to use public transport and may help in active travel, there may be other factors that could also influence people's use of these facilities such as increased parking fees, increased petrol costs for example. 	
Building an integrated transport network	
<p>The concept of active travel used here contradicts the work of the National heart foundation report 2014 Blueprint for an active Australia, as the concept of active travel includes the use of public transport. It is when people use public transport that they also use additional active forms of transport in terms of walking to public transport or combining cycling with the use of public transport.</p> <p>This contradiction error is repeated in case study 9.1 provided by ACT transport.</p>	<p>Noted. For SoER purposes motorised public transport is considered separately to active travel, however an additional sentence has been added: 'Active travel is often combined with motorised forms of travel, particularly public transport...'</p>
Management	
Open space and reserves	
<p>For the paragraph beginning "Much of TAMS' work in reserves consists of..." can references be provided to support this?</p>	<p>Reference added to on line version of SoER</p>
Trees	
<p>Table 9.28 Territory and Municipal Services tree management: the words 'number of' needs to be added to the row heading for developing urban trees watered.</p>	<p>Table edited as suggested</p>
Human health	
<p>The last sentence currently is unclear in terms of what does it mean when 'ACT health considers sensitive populations in the ACT' it doesn't make sense in its current context.</p>	<p>No change made. Meaning is that ACT Health takes into consideration circumstances of populations expected to be particularly sensitive to climate change effects</p>
9.3 Ecosystem services	
9.3.1 What are ecosystem services?	
<p>Can references be added to the first paragraph to support the statement?</p>	<p>The expert external author considered that references were not necessary</p>

Reviewer comment	OCSE Response
For better clarity can the millennium report or another appropriate reference be used to support the concept of the classifications of ecosystem services under the dot points?	Reference to the Millennium Ecosystem Assessment added to on-line version
<p>Table 9.29 Ecosystem Services and their relation to State of the Environment Report themes.</p> <p>Is it worth considering how air relates to more of the ecosystems than those that are currently shown? For example food, iconic species such as birds, systems from which humans can increase their knowledge, inspiration, mediation of social interactions such as hot air ballooning, sense of place and iconic landscapes. These suggested ecosystem services all rely on air in terms of how air in the form of wind, temperature, evaporation and pollution. In the case of Canberra our current low levels of smog mean that we are able to experience and enjoy the iconic landscapes and a sense of place because we can physically see the Canberra nature Parks and mountains are just a few examples.</p>	Agreed. Additions were made to Table 9.29 to recognise the full range of themes to which air is relevant
9.3.2 How is the state of the environment affecting ACT ecosystem services?	
Air	
Similarly the above point (regarding Table 9.29) can be explored further in the text under the second paragraph under Air.	Not agreed. CSE sought to maintain brevity in the Report
Land	
In the final paragraph, commencing “The high proportion of land....”, the statement in the first paragraph that “the question of whether the balance between provisioning and other ecosystem services is addressed through planning mechanisms..” is questioned in the literature as planning reports, recommendations and legislation can and do become politicised by our elected decision-makers and sometimes undone so to speak. A current example is the continuing business as usual levels of CO2 emissions and the loss of Melbourne’s green belt to new urban development.	Noted. No change made. It is stated that ‘Chapter 10 focuses on whether these mechanisms are functioning effectively’
In the final paragraph it refers to “what are we doing and what effect it is having” is this a different part of the SoE report or a different reference. The text just needs to indicate what it is.	Agreed. Changed to say it is Chapter 10
Is it worth considering how the maintenance of existing urban living development may also need to be monitored in terms of how it affects the production and availability of ecosystem services?	Suggestion welcomed, however time constraints precluded consideration
Water	
Under the Water section, in the third paragraph is an internal reference to the SOE report required for the last sentence?	Agreed. Reference to Chapter 6 added
Fourth paragraph, second last sentence is unclear for the term	Refer to Chapter 6 <i>Water</i> for

Reviewer comment	OCSE Response
reflects the status of cultural services, does this mean that they have declined due to urban development?	information on water quality and causes of decline
In the final paragraph does air need to be included as part of the interrelationships between water, land, biodiversity, etc?	Suggestion not adopted. ACT Air quality is very good now and into the foreseeable future. Interrelationships with water, land and biodiversity are therefore less important.
Biodiversity	
In the first sentence, can an example be provided that illustrates this point?	Suggestion not adopted to stay concise
In the second paragraph, first sentence, is it worth including rainfall, evaporation and temperature as example of ecosystem processes that affect provisioning services?	Suggestion not adopted to stay concise
The last sentence in the paragraph commencing “Regulating services...” contradicts an earlier part of this section of the report which found that water quality was still at risk (due to inadequate cooperation between government agencies).	Noted. No change made. The earlier finding that inter agency co-operation was poor resulting in risks to water quality was specific to recovery of the Lower Cotter Catchment since bushfires (quoting an Auditor General’s report) but the overall level of cooperation is considered to be good.
<p>In paragraph four:</p> <ul style="list-style-type: none"> • The second last sentence states ‘reflects status of cultural services’, this is currently unclear does it mean that there’s been a decline due to urban development? • The last sentence refers to what influences cultural services, however there are other factors that also influence cultural services such as connectivity, access, arts precinct funding and the multicultural festival as examples. • Third paragraph, second sentence could use other references to support it that show how urban development in similar cities does have a negative impact on biodiversity and ecosystem services. • For the concept of thresholds being crossed can an example be provided to illustrate this concept? For example when overly acidic or saline soils change the type of vegetation, farming and possible land-uses, saline damage to concrete infrastructure. 	<ul style="list-style-type: none"> • This has been altered to refer to the <u>provision</u> of cultural services • Suggestion not adopted. These factors are out of SoER scope • Suggestion not adopted to avoid greater text length • Suggestion not adopted to avoid greater text length

Reviewer comment	OCSE Response
Heritage	
Currently cultural heritage is not referred to in this section and yet there are clear links between ecosystem services and cultural heritage for example, cycling competitions, recreational fishing, outdoor employment, ecotourism are just a few examples.	Cultural heritage was not referred to so as to avoid greater text length
Assessment summary	
There is no text referring to table 9.30 How the ACT state of the environment is affecting ecosystem services, by theme	Agreed. A sentence has been added
9.4 Resilience	
9.4.1 What is resilience?	
How does resilience relate to the state of the environment reporting framework?	
<p>Under how does resilience relate to the state of the environment:</p> <ul style="list-style-type: none"> For the first sentence can references be provided? In the second sentence it states 'because that state affects', it is not clear what state is referring to even though earlier in the sentence it is referring to the state of the environment. Because the word state has multiple meanings it may assist to indicate that it is the status of the environment that is being referred to. 	<ul style="list-style-type: none"> The expert external author considered no reference necessary. Agreed. Edit has been made
In figure 9.15, the first part of the description concerning 'the capacity of the ACT s ecosystems and human social systems coupled with them', is currently unclear and needs clarification.	Not agreed. No change made
9.4.2 Assessing resilience	
Can references be made to support the dot points?	The expert external author considered no reference necessary
9.4.3 A resilience assessment for the ACT	
Methodology	
The resilience assessment for the ACT has a heading called methodology and refers to methodologies; the correct technical term is methods.	No change made. The expert external author preferred 'methodology'
Resilience of what?	
<p>Table 9.31 Resilience 'of what' in relation to themes of this report:</p> <ul style="list-style-type: none"> typo in water, the last point should refer to water quality and not air quality a source for this table needs to be provided was it at an outcome of the expert workshops? 	<ul style="list-style-type: none"> Edited to remove error Clarification added. Table shows what CSE considers the ACT community is likely to value in relation to socioecological resilience

Reviewer comment	OCSE Response
Under the “Resilience of what?” for the third paragraph can references be provided to support the dot points?	The expert external author considered no reference necessary
Resilience to what?	
The second paragraph refers to What are the drivers, it would help to indicate that this is a different section of the SOE report.	Agreed. Clarification added
A source needs to be provided for Table 9.32 Resilience ‘to what’ in relation to the themes of this report.	Not agreed. CSE considers from the explanation of methods it is clear Table 9.32 is result of author’s analysis
Can a sufficient diversity of skills, expertise and ideas be accessed to understand the socioecological system?	
<p>The first paragraph refers to the ‘management effectiveness assessment’, but it’s not clear what this is, is this tool or a method?</p> <p>In the next sentence it refers to components of that assessment, but it’s not clear what ‘that assessment’ means is it still the management effectiveness assessment or something else?</p>	Agreed. Clarification that Chapter 10 is being referred to was added
Are potential thresholds of concern considered, understood and monitored?	
<p>In the paragraph commencing “Thresholds are a key concept...”:</p> <ul style="list-style-type: none"> the words “from they were in the previous state”, are unclear. for the second sentence in this paragraph can a reference be provided to support it? 	<ul style="list-style-type: none"> Corrected to say ‘different from <u>what</u> they were in the previous state’ The expert external author considered no reference was necessary
How might the ways in which things are connected affect resilience?	
In the second paragraph (beginning ‘Undisturbed ecological systems’) can a simpler or more applied example be provided as the current one is a bit too abstract to understand, concerning the challenge by shocks?	No change made. The immediately following paragraph notes the well developed, connected and potentially resilient networks between ACT government agencies. CSE could not identify a local example of a socioecological system with low redundancy and low resilience.
The fourth dot point stating self-organisation needs explaining or an example and also the term social ecological sustainability needs explaining.	Not agreed. No change made

Reviewer comment	OCSE Response
What is the adaptive capacity of the ACT's socioecological systems?	
Under "What is the adaptive capacity..." the third paragraph last sentence is too long to easily understand and part of it is unclear..."means by which and interest groups can interact productively and problems can be solved flexibly".	Agreed. A drafting error fixed to clarify meaning
<p>For future users of this report, if Table 9.33 has the capacity to be printed in black and white then the use of ticks and crosses in the left-hand section and in the themes section on the right-hand section requires rethinking or more instruction on how to read the table. Because it is only the colours of the boxes that helps the reader to understand this table.</p> <p>Another option may be, is to use a numbering system for the boxes on the left hand side or a symbol that is not coloured. For example by reversing the order of the boxes on the left-hand side so that the bottom boxes are at the top and it has a number one and the current top box on the left hand side goes to the bottom and has a number four. Then those numbers can then be reflected in the right-hand side under the themes.</p>	Thank you for the suggestion but the SoER is in colour in both the printed and on-line version
9.4.4 Summary	
In the second paragraph the last sentence is too complex. Maybe make it into two sentences and provide an example to assist understanding for the concept of 'the ACTs coupled social and ecological processes might be thresholds of potential concern.'	Agreed. Sentence edited but to maintain brevity no example given

APPENDIX 1

State of the Environment Report 2015: Guidelines for Reviewers



State of the Environment Report 2015

Guidelines for Reviewers

Introduction

The Office of the Commissioner for Sustainability and the Environment (CSE) is committed to ensuring that the 2015 State of the Environment Report (SoER) is of the highest quality and contains scientific and technical analysis which is current and robust. To achieve this standard all subject areas contained in the SoER will be subject to a rigorous review process.

This report outlines the principles and processes for reviewing the ACT 2015 SoER. It provides information on how the issues raised by reviewers, and the feedback provided to the authors, will be incorporated into the final SoER.

Outline of the Review Process

The aim of the review process is to obtain constructive advice which validates and strengthens the content of the SoER. Aside from the authors and other contributors, the people best placed to provide suggestions for improving the chapters are external expert reviewers and the data holders / ACT Directorates themselves.

External, Expert Reviewers

External, expert reviewers for each of the chapters of the SoER have been selected based on their relevant expertise in particular fields, and the need to review the full breadth of content in each chapter. Because of the scope of each chapter, and because the specific experience of an individual reviewer varies, where possible each chapter will be reviewed by two experts.

Priority for external, expert review will be given to reviewers who hold accreditation as Certified Environmental Practitioners or Registered Environmental Professionals pursuant to the Environment Institute of Australia and New Zealand *Environmental Code of Ethics and Professional Conduct*.

Data Holder / ACT Directorate Reviewers

The CSE acknowledges the knowledge, skills and expertise of Directorate staff and their use of the data provided to design and implement policy and manage the ACT's natural and built environments. Review from relevant ACT government Directorate staff is fundamental to ensuring the data provided has been interpreted and analysed correctly.

Terms of Reference for Reviewers

Reviewers should examine the document provided with the aim of improving its quality and credibility, focusing comments on:

- Assertions that contradict published data, general scientific understanding or other evidence;
- Unfounded assertions;
- Conclusions drawn from the selective use or representation of data, where more objective or balanced reporting of the data would show a different conclusion; and
- Omission of relevant data or important issues that would significantly improve the material.

Please note: the CSE has engaged professional editors for the whole report. Reviewers are therefore not required to perform an editorial role such as correcting grammatical or typographic errors. They are, however, encouraged to bring to the author's attention text which requires clarification or editing to improve understanding of the main issue(s) or content.

Processing and responding to reviewers' comments

Reviewers will be provided with a template in which to organise their feedback. At the completion of the review period of 1 (one) week, each reviewer will provide a written report that comprises the completed template with all comments and suggestions relating to the whole chapter, with justifications as appropriate, including a condensed, dot point summary of key issues.

This document will be forwarded to the chapter author(s). As in most instances where peer review is used, and particularly noting the independence of the Commissioner, the CSE is not obligated to accept each recommendation from each reviewer. The authors are, however, required to consider and respond to all individual comments, indicating whether or not a change was made and providing justification as appropriate.

A completed set of comments and responses will be returned to the corresponding reviewer, and each reviewer also received a copy of this peer review summary report, to help provide a context for their own feedback in the light of other reviews of that chapter and those of other chapters. All reviewers of the chapters will be acknowledged in the final 2015 SoER.

APPENDIX 2

ACT STATE OF THE ENVIRONMENT REPORT 2015

PEER REVIEW TEMPLATE

Peer reviewer name_____

Peer reviewer position _____

Date_____

Chapter

Review criterion	Summary of reviewer comments and suggestions	Specific factual corrections, specific critiques, comments on specific chapter text, or additional issues or facts (Please include page numbers)
Assertions that contradict published data, general scientific understanding or other evidence		
Unfounded assertions		
Conclusions drawn from selective use or representation of data, where more objective or balanced reporting of the data would show a different conclusion		
Omission of relevant data or important issues that would significantly improve the material		