

**Comment form for 2<sup>nd</sup> Review Phase of the Deliverable 2b) Regional and subregional assessments of biodiversity and ecosystem services for Africa, Chapter 4 ‘Direct and indirect drivers of change in biodiversity and nature’s contributions to people’**

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Elizabeth Milne (EM)  
IPBES Knowledge and Data Task Force (KD TF)/ Task Group on Indicators (TGI)  
Marie-Lucie Susini (MLS)  
Michael Olusegun Ogundele (MOO)  
Moha Haddouch (MH)

Neil Burgess (NB)  
Rael Loon (RL)  
South Africa (SA)  
Susan Ringrose (SR)  
The Biodiversity Indicators Partnership (BIP)  
Thomas Brooks (TB)  
Yaw Agyeman Boafo (YAB)

Comment #	Reviewer Name	From Page (start)	From Line (start)	To Page (end)	To Line (end)	Comment	How to Address
1	Rael Loon (RL)	4	75			"Associated with..." (delete 'to')	Revised
2	Rael Loon (RL)	4	82			narrow ecological niches'	Revised
3	Moha Haddouch (MH)	4	84	4	86	According to the latest air quality database from World Bank, particulate matter levels in most parts of Africa are decreasing except Morocco and ..... (See Figure 4.16).	Noted. Will be revised accordingly
4	South Africa (SA)	4	89	4	90	Is it possible to give a quantitative statistic here, e.g. xx% decline in the last decade or something similar?	Data is now presented in the chapter.
5	South Africa (SA)	4	94	4	100	Not only "alien" species are threatening the ecosystems, but indigenous species as well, such as "trees/shrubs". Think of bush encroachment in many arid- and semi-arid savanas in Africa. Many fish and other species as well.	This point is addressed in section 4.2.2.3 in the chapter. However, encroachment by indigenous plants is a southern African challenge. The key message is a high level message and captures what the experts believe are critical key messages emerging from the chapter.
6	Rael Loon (RL)	4	96			"...and among others." Delete 'and'	Revised
7	Rael Loon (RL)	4	111			"...to many continents will..." edit "...to many continents and will..."	Revised
8	South Africa (SA)	4	111	4	113	The meaning of this sentence is unclear	The revision of the sentence has improved clarity.
9	Rael Loon (RL)	5	119			Fires do not necessarily have all negative impacts on biodiversity	The sentence refers to "great" impacts and not negative impacts only. Revised to significant impacts to improve clarity.
10	South Africa (SA)	5	119	5	124	Fires also affect the climate. Statement made that "western parts of southern Africa are less	Revised accordingly and will be revised in the main chapter text.

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						prone to fire due to low vegetation cover" is not correct. These areas (grasslands and savannas) burn frequently depending on the rainfall events that contribute to higher biomass needed for fires.	
11	South Africa (SA)	5	119	5	131	It is not clear what point is being made here. The opening line suggests that fire may be driving biodiversity loss and degradation in the natural systems that provide ecosystem services, but the following lines imply that fire either does not occur in areas or it is part of the natural cycle. Surely this point should be about increased rate of human ignitions, how fire regimes have been reduced in some areas, leading to bush encroachment (with consequent loss of rangeland value or habitat for plains species) and how climate change interacts to change the fire regime? Given that this is the SPM, this point needs more thought.	Noted. This key message is being revised.
12	Susan Ringrose (SR)	5	119	5	119	Best to concentrate on the positive - especially in a summary - by explaining where fires are and why	This Key Message will be revised to focus on areas where fires occur and how they influence biodiversity and ecosystem services
13	South Africa (SA)	5	131	5	131	Include "deepening on rainfall events in previous season", as there must be enough biomass to burn, even in dry seasons.	Noted
14	Rael Loon (RL)	5	132		135	Suggest that comparing extractive industries such as mining with ecotourism is not	Deleted

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						invariably a valid comparison as these are very different sectors and not necessarily related to each other?	
15	South Africa (SA)	5	133	5	134	Do you really think that land use is "improving". Maybe in conservation areas, but not in rural and farming areas. We need better SLM practices there.	Deleted
16	South Africa (SA)	5	140	5	149	Is this statement true? E.g. "improvement in quality of life" etc. There is more poverty in Africa and more people are jobless in Africa. What about the migrations that take place in Africa. They decrease the quality of life.	Deleted
17	Rael Loon (RL)	5	186			"in Accra" should be 'in Africa?'	Deleted. The specific reference to Accra cannot be justified in the SPM. NOTE: This was not reference to Africa but to Accra specifically as a case.
18	Neil Burgess (NB)					In the IPBES deliverable 3c on models and scenarios there was a lot of work on direct and indirect drivers and their classification. Was this picked up and used here as a framework for the chapter to ensure that these different IPBES outputs use the same classification systems?	The classification followed is from the Scoping Document for the Regional Assessments and the Africa Assessment specifically. It is, however, still consistent with the classification used in the Scenarios and Models assessment, even though it may not have been rigorously followed.
19	Susan Ringrose (SR)		218 onwards			by 'climate change' here - do you really mean 'global warming'??	No reference to climate change in line 18. Will endeavour to make a distinction between

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							climate change and global change in the whole chapter. We use climate change to refer to both temperature and precipitation changes, not simply global warming.
20	South Africa (SA)		230	7	230	Increase in population is not necessarily attribute to urbanisation. In atleast some countries (e.g. South Africa (SA)), urban groups have lower fertility rates than rural populations. Gerland et al. 2014 could be cited here - there report that although there are declining fertility rates in Africa, the rates are still high and there is still an unmet need for access to contraception, estimated to be ~25%. Gerland, P., Raftery, A.E., sevcikova, H., Il, n., Gu, D., Spoorenberg, T., Alkema, L., Fosdick, B.K., Chunn, J., Nevena, L., Bay, g., Buettner, T., Heiling, G.K., Wilmoth, J., 2014. Wolrld population stabilization unlikely this century. science.	Noted. Distinction between population growth and urbanization is acknowledged and the two concepts are now addressed as two different concepts and there is no causal relationship between them implied in the revised text.
21	Susan Ringrose (SR)	7	230		230	You need to separate out 'exponential poputation growth' (nation-wide) and ongoing rural-urban migration. These are two separate concepts	Noted. Distinction between population growth and urbanization is acknowledged and the two concepts are now addressed as two different concepts and there is no causal relationship between them implied in the revised text.

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22	Marie-Lucie Susini (MLS)	8	252	8	252	second clearing should be removed	Deleted.
23	South Africa (SA)	8	261	8	265	Please add some robust references here, in order to avoid criticism from climate change denialists	References added. This part will be linked to the revised climate change section. This has also referred to the Fifth Assessment report.
24	Susan Ringrose (SR)	9	300 onwards			Infographic required showing inter-relationships between 'natural direct drivers'	Infographic will be developed. A proposed infographic will be passed to the graphic designer.
25	Marie-Lucie Susini (MLS)	9	307	9	307	discusses should be discussed	Revised.
26	South Africa (SA)	9	310	9	316	Please insert some references for this section	Reference added
27	Elizabeth Milne (EM)	GEN	GEN	GEN	GEN	General comment on natural drivers: Locust outbreaks are not mentioned here. Is this because the authors decided only to focus on a few examples? Locust outbreaks are natural, but become pests to agriculture when they swarm through the landscape and destroy crops. However, they also contribute significantly to nutrient input through their grass.	The expert decided not to include locust outbreaks. This is in the interest of keeping the chapter focused. The expert group acknowledges that there are many drivers that may not be covered.
28	Neil Burgess (NB)					The section on climate change is quite long when IPCC also handles this material in some detail	We have deleted a lot of the more general comments on climate change, and reserved the text for the impacts of climate change on biodiversity and ES. As requested by other reviewers, this aspect of climate

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							change has in fact been slightly extended. In addition the text has been structured to link what was previously similar concept in different places, thus helping to reduce length and repetition.
29	South Africa (SA)	9	324	9	334	Devoid of references, please include.	Reference to the fifth assessment report has been added.
30	Susan Ringrose (SR)	9	325			Agreed by whom? Indicate your references	This section has been reworked substantively with this particular sentence deleted.
31	Marie-Lucie Susini (MLS)	9	329	9	330	please use appropriate writing for El niño and La niña - moreover it is wrong to write that these events result from climate change, they have existed for long, only 'extreme' El niño' and/or La niña events result from climate change! FYI <a href="https://en.wikipedia.org/wiki/El_Ni%C3%B1o%E2%80%93Southern_Oscillation">https://en.wikipedia.org/wiki/El_Ni%C3%B1o%E2%80%93Southern_Oscillation</a>	This section has been reworked substantively with this particular sentence deleted.
32	South Africa (SA)	9	329		330	"leading to... extreme weather events ... La Nina and El Nino..." This is misleading. El Nino and La Nina are naturally occurring phenomena and would have occurred without anthropogenically increased CO2 concentrations in the atmosphere. What is changing/will change is their frequency and severity. This needs to be clarified.	This section has been reworked substantively with this particular sentence deleted.
33	South Africa (SA)	9	334	9	338	Bush encroachment is not restricted to Southern Africa, it is also a problem in many	That's True.

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						other places, globally, including East Africa and probably West Africa Savannas	
34	South Africa (SA)	9	334	9	336	Please provide references. If possible provide quantitative figures - what is the rate of deforestation?	This section has been reworked substantively with this particular sentence deleted. The contribution of land use change to climate change has been emphasised. Data on deforestation rates is given in the section on deforestation and not in this Climate Change section.
35	Susan Ringrose (SR)	9	334			This is in part what the IPCC are trying to do - each signatory to the convention has representation	Deleted and reworked
36	Marie-Lucie Susini (MLS)	9	335	9	335	is should be are (forests)	section reworked
37	South Africa (SA)	10	339	10	339	Each of these claims (reduced ground water, etc0 needs a reference to substantiate it	This section has been removed as it is largely a duplicate of a later section.
38	Susan Ringrose (SR)	10	348		349	Indicate labels on vertical and horizontal axes	It has been divided to remove this section. Overall Africa values have been incorporated into the main text.
39	Susan Ringrose (SR)	10	355		355	Needs a reference	Text reworked and referenced
40	Rael Loon (RL)	10	360			Suggest reference: "Lavergne et al 2010. Biodiversity and Climate Change: Integrating Evolutionary and Ecological Responses of	Reference added



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						Species and Communities. Annual Review of Ecology, Evolution and Systematics. V41.	
41	South Africa (SA)	10	364	10	364	Get latest publications and up-to-date data regarding climate change from Engelbrecht et al. at CSIR in SA. The 2010 publication is "old".	Engelbrecht 2015 paper used as reference
42	Rael Loon (RL)	11	372			edit "...many area" to "...many areas..."	changed
43	South Africa (SA)	11	376	11	381	Please include some references	References have been added
44	South Africa (SA)	11	378	11	378	Without a map or some other identification, "fynbos" will not be meaningful for many readers. Perhaps say "the Mediterranean climate of the fynbos in the southwestern area of South Africa (SA).. "or soothing along those lines.	Reworded with a better description of what constitutes fynbos vegetation
45	South Africa (SA)	11	381	11	381	It may be useful to add that the vulnerability to storm surge will be exacerbated by removal of mangroves and coastal development.	Concept added as well as relevant reference
46	Thomas Brooks (TB)	11	383	11	384	The best citation here would be Foden et al. (2013) PLoS ONE ( <a href="http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0065427">http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0065427</a> )	Foden reference added
47	Rael Loon (RL)	11	392		392	suggest ref: Hole, D.G., Willis, S.G., Pain, D.J., Fishpool, L.D., Butchart, S.H., Collingham, Y.C., Rahbek, C. and Huntley, B., 2009. Projected impacts of climate change on a continent-wide protected area network. Ecology letters, 12(5), pp.420-431.	Reference added as suggested
48	Rael Loon (RL)	11	399			suggest additional ref: Hannah, L., Midgley, G., Andelman, S., Araújo, M., Hughes, G., Martinez-Meyer, E., Pearson, R. and Williams,	Reference added as suggested

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						P., 2007. Protected area needs in a changing climate. <i>Frontiers in Ecology and the Environment</i> , 5(3), pp.131-138.	
49	Yaw Agyeman Boafo (YAB)	11	399	11	401	I am quite unclear about the message of this last sentence. Maybe there are missing words. Please clarify	Restructured to make the message clear.
50	Rael Loon (RL)	11	400			"...will lead to a decreased suitability..."	Thanks, part of the sentence was missing and has now been added
51	South Africa (SA)	11	403	11	403	Suggest "increased concentrations of atmospheric CO2"	changed as suggested
52	South Africa (SA)	11	406	22	406	Please remove the apostrophe from savanna's, Should be "savannas"	changed as suggested
53	Marie-Lucie Susini (MLS)	12	425	12	425	Figure 4.2 is very interesting. But no reference is made to the figure in the text.	Figure is moved to where it is referenced in the text
54	Rael Loon (RL)	13	405			suggest add ref: Steffen, W., Crutzen, P.J. and McNeill, J.R., 2007. The Anthropocene: are humans now overwhelming the great forces of nature. <i>AMBIO: A Journal of the Human Environment</i> , 36(8), pp.614-621.	Reference added as suggested
55	Rael Loon (RL)	13	446			'coral' (sp)	corrected
56	South Africa (SA)	14	465	14	465	"such events" is not clear - it seems to mean that the spread of RFV drives climate change anomalies. This sentence needs some rearrangement.	reworded, with 'such events' removed
57	Marie-Lucie Susini (MLS)	14	473	14	478	I do not understand these sentences. They should be rewritten in proper EN. Avoid use of 'We'	This section has been re-written and moved to consolidate it with other similar sections
58	Marie-Lucie Susini (MLS)	14	474	14	474	it is not accurate to write that 'the ecosystems will migrate'	This section has been re-written and moved to consolidate it with other similar sections

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59	Marie-Lucie Susini (MLS)	14	476	14	476	can be increase should be 'can increase'	changed as suggested
60	Marie-Lucie Susini (MLS)	15	481	15	483	Figure 4.5 seems interesting but serious lack of interpretation/ explanation in text	A new section of text has been developed around the impact of climate change on food provision. More recent an Africa specific data has been found to replace figure 4.5 which was global and generic.
61	Thomas Brooks (TB)	15	495	15	497	Good use of biodiversity hotspots information, but ensure consistency with SPM and Chapter 3, and update citation to the key reference on biodiversity hotspots, Mittermeier et al. (2004) Hotspots: Revisited. CEMEX, Mexico.	Thanks! Consistency checked as requested.
62	Susan Ringrose (SR)	15	510			How exactly are the fisheries affected?	Reworked the text to make it clear that the stratification of water due to heat reduces fisheries
63	Rael Loon (RL)	15	527			Suggest ref: Marra, P.P., Francis, C.M., Mulvihill, R.S. and Moore, F.R., 2005. The influence of climate on the timing and rate of spring bird migration. <i>Oecologia</i> , 142(2), pp.307-315.	Added
64	Rael Loon (RL)	15	528		529	suggest ref: MILLER-RUSHING, A.J., LLOYD-EVANS, T.L., Primack, R.B. and Satzinger, P., 2008. Bird migration times, climate change, and changing population sizes. <i>Global Change Biology</i> , 14(9), pp.1959-1972.	Added

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65	Susan Ringrose (SR)	16	537			Needs clarification: are you saying that this therefore is just due to 'natural variability' or to an El Nino event?	The duration of this dry period was not el Nino linked. Its causes are still contentious, with a number of potential mechanisms suggested. Text extended to explain this.
66	CSIR BES	16	538	16	540	Figure 4.6. Can we have more recent data/graph?	Have replaced with data till 2016
67	South Africa (SA)	16	540	16	540	See comment above.	Have replaced with data till 2016
68	South Africa (SA)	17	542	17	542	In Table 4.1, it may be more accurate to put "plants" or "woody plant density" in the "Taxon" column for Tews et al 2005, rather than "Treeline". There are already trees in the region under consideration.	Tree line is the terminology used by Tews in his paper.
69	CSIR BES	18	544	18	544	In Section 4.2.1.2 , I hope that the fire we are considering here is natural fire/spontaneous.	Generally speaking YES. However, we are cognisant of the fact that some fires are human induced, directly or indirectly.
70	South Africa (SA)	18	558	18	558	What is meant by "ignition"?	By ignition we meant the action of starting wildfires.
71	Susan Ringrose (SR)	18	560			What impacts? This needs a reference	Reference added as suggested
72	South Africa (SA)	18	565	18	565	Is this Figure correct and up-to-date? "0" fires in southern Africa?	The figure mapped the fire occurrence in Africa from 2000 to 2010.
73	South Africa (SA)	19	568	19	578	No references. Please substantiate this section with relevant references.	Reference added as suggested

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74	South Africa (SA)	20	603	20	607	Substantiate with references	Reference added as suggested
75	South Africa (SA)	20	624	20	624	Does "it" mean "this section"?	Text has been removed since poisoning is irrelevant to this section. It is addressed elsewhere
76	Susan Ringrose (SR)	20	631	20	636	Reference needed	Thanks for the complement. We have included economically important pest, the locust as well.
77	CSIR BES	21	641	21	643	I like Table 4.2 economic impact of diseases, bearing in mind importance of economic data to policy/decision-makers	The text in the section has been reduced according
78	Neil Burgess (NB)	21	642	21	643	This is a good table. Given this table it might be possible to reduce the supporting text as the table covers a lot of material already	This table was compiled by the current authors and attributions is duly done
79	Susan Ringrose (SR)	21	641			Source needed	Effect of canine distemper on the endangered wild dog has been included.
80	South Africa (SA)	22	650	22	650	Canine distemper has also been implicated in the precipitous decline in the endangered wild dog ( <i>Lycaon pictus</i> )	The connection between chimpanzee and HIV appears vague and inconclusive. However, we are grateful for the resources offered and we have discussed transmission of zoonotic diseases between primates and man below.
81	South Africa (SA)	22	663	22	663	Perhaps the most famous zoonosis, HIV, has jumped from chimpanzees to humans, and likely occurred during the butchering of	Bilharzia and malaria have been mentioned especially with regards to how their increase is

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						chimpanzee for bushmeat. Note that passive encounters with chimpanzees pose no risks to humans. We know that HIV has jumped the species barrier to humans at least seven times. See: Hahn, B.H., Shaw, G. M., De Cock, K.M., Sharp, P.M., 2000. AIDS as a zoonosis: scientific and public health implications. science (80-.). 287, 607-614. doi: 10.1126/science.287.5453.607. perhaps this should be included in the bushmeat section.	as a result of interactions with other driver - the invasive species.
82	South Africa (SA)	24	744	24	744	Another serious African disease is Bilharzia - increases in bilharzia seem to be linked to heavy fishing of molluscovorah fish and loss of water birds that help control the intermediate (nail) host.	Bilharzia and malaria have been mentioned especially with regards to how their increase is as a result of interactions with other driver - the invasive species.
83	South Africa (SA)	24	744	24	744	The section on disease section should include something on malaria, given that it is one of Africa's most serious health challenges. Climate change as well as of mosquitos predators like bats, needs to be considered.	Combined with comment on bilhazia above
84	Neil Burgess (NB)	GEN	GEN	GEN	GEN	This section is quite heavily about human and domestic animals and crop diseases. Although certainly part of the story - its not that well linked into the conceptual framework of IPBES and the role of the regional assessments. Also - I assume quite a lot of this kind of material comes into other African assessments for FAO, UNEP GEO6 etc	Thanks for the observation. The text in the section has been modified to explain linkages with the IPBES conceptual framework. For example we have explained how trypanosomiasis affect NCP. General effects on biodiversity are explained but

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							pathophysiological effects have been excluded
85	Neil Burgess (NB)	GEN	GEN	GEN	GEN	This section is quite heavily about crops and domestic animals. How do these diseases and pests also relate to the natural systems and species of Africa (or maybe they don't?)	Sections that talk and describe linkages of the diseases have been elaborated. However, a large section that is just descriptive on the diseases has been trimmed out.
86	Diane Douglas (DD)	24				Consider use of "natural hazards" rather than "natural disaster" following SENDAI framework definitions, as well as other UNISDR definitions.	According to reviewer comment, we checked the definitions and found that actually in this section we talked about both of them, since we also presented the different disasters that Africa had known
87	CSIR BES	24	746	24	746	For Section 4.2.1.4, can we find table showing frequency and impact of different natural disasters?	We thank reviewer for this good comments. So we did a research on such study in Africa, and we find document of CRED 2003: THIRTY YEARS OF NATURAL DISASTERS 1974-2003: THE NUMBERS. The results of this study on Africa has been reported. Also we give an example of the disasters affected Africa in 2015 according to the CRED 2015 report
88	South Africa (SA)	24	748	24	749	What about "droughts" as a natural disaster and the huge drought in southern Africa over 2015-2016?	Yes, you're right. We just gave an exhaustive list of examples, but we included the drought

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							suggested to the list. Also from the line 751 to 753 we gave many examples of African drought
89	Elizabeth Milne (EM)	GEN	GEN	GEN	GEN	General comment on anthropogenic drivers: Mining is mentioned here, but the focus of the authors is mainly on agriculture and forestry. I would suggest elaborating more on the effect of mining... the different types of mining and which mining activities are most significant in terms of habitat loss/fragmentation by giving examples in the various regions. I also suggest providing more statistics on habitat loss due to mining. It is also important to portray the economic value of mining, as this indicates the significant "fight" between ECONOMY vs. BIODIVERSITY	the comments is very important, so we added some examples of impact of mining activities in Africa, according to two references: Duran et al. (2013) & (David et al. 2013).
90	Thomas Brooks (TB)	25	793	25	795	A useful reference here might be Brooks, Pimm & Oyugi (1999) Time lag between deforestation and bird extinction in tropical forest fragments. Conservation Biology 13: 1140–1150.	we found that the reference proposed explain better our idea, so we included as reference
91	South Africa (SA)	26	810	26	810	This need to acknowledge human-wildlife conflict and that often both commercial farmers and pastoralists will persecute predators and wildlife that they view as competitors.	Loss of space for wildlife due to increased areas of cultivation and grazing lead to human-wildlife conflicts. There is need for policy intervention to ensure balance between livelihoods of farmers and pastoralists and



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							wildlife in these mixed-use landscapes.
92	South Africa (SA)	26	817	26	821	References required	Reardon, T., Barrett, C.B., Kelly, V. & Savadogo, K. 1998. Sustainable Versus Unsustainable Agricultural Intensification in Africa: Focus on Policy Reforms and Market Conditions. Paper invited for presentation at the AAEA International Preconference on "Agricultural Intensification, Economic Development and the Environment," July 31-August 1, 1998
93	CSIR BES	27	863	27	867	To Fig 4.9, add explanations to caption and explain 'gain' in the figure	we provided explanation as recommended at the top of the paragraph, but in the source (reference) they didn't explain the meaning of "gain"
94	South Africa (SA)	27	867	27	856	References required	Reardon, T., Barrett, C.B., Kelly, V. & Savadogo, K. 1998. Sustainable Versus Unsustainable Agricultural Intensification in Africa: Focus on Policy Reforms and Market Conditions. Paper invited for presentation at the AAEA International Preconference on "Agricultural Intensification,

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							Economic Development and the Environment," July 31-August 1, 1998
95	South Africa (SA)	27	867	27	867	This is an odd map, given that many areas attributed to having "forest gain" are not forests. Is this because of afforestation, of is it bush thickening, or both?	On the contrary, where there is Gain there are natural forests with a lower density than the forests existing at the equator. But they still an important resources de their country
96	Marie-Lucie Susini (MLS)	28	870	28	870	I disagree with this sentence (annual deforestation rates are relatively low in Central Africa), the rest of the paragraph (and scientific data) say the opposite... or give reference in recent literature to prove the allegation	Deforestation levels are low relative to Asia or South America. This is a misunderstanding
97	Susan Ringrose (SR)	28	870			According to a recent FAO Newsletter Africa and South America had the highest net annual loss of forests (globally) between 2010 and 2015. Recently the rate has 'substantially decreased'. NB Difficult to directly compare the Congo Basin with the whole of SE Asia or South America. You need to use comparable areas/statistics.	We used the most recent references in this section. I'm not sure if an FAO newsletter should supersede scientific literature. Reviewer appears to contradict self.
98	Marie-Lucie Susini (MLS)	28	890	28	892	cite references to support this	The reference here is Figure 4.10 which comes from USAID report which is referred to in references
99	South Africa (SA)	28	890	28	891	References required	The reference here is Figure 4.10 which comes from USAID report

Comment #	Reviewer Name	From Page (start)	From Line (start)	To Page (end)	To Line (end)	Comment	How to Address
							which is referred to in references
100	Susan Ringrose (SR)	28	891		891	Need a reference linking Ebola outbreaks and deforestation	Rutto, J. J., Osano, O., Thuranira, E. G., Kurgat, R. K. & Odenyo, V. A. O. (2013). Socio-Economic and Cultural Determinants of Human African Trypanosomiasis at the Kenya – Uganda Transboundary. PLoS Neglected Tropical Diseases, 7(4): e2186. <a href="https://doi.org/10.1371/journal.pntd.0002186">https://doi.org/10.1371/journal.pntd.0002186</a>
101	CSIR BES	28	893	28	895	In Fig 4.10, what is starting/baseline year? There are data/figures presenting trends of all types of forests in Africa. We should find them and use them here.	I'm not sure what the reviewer wants. The timeline is dated and area coverage over time is depicted.
102	Neil Burgess (NB)					I would tend to use the material in the Critical Ecosystem Partnership Fund profile for the Guinean Forests (CEPF 2015) as a source for this region <a href="http://www.cepf.net/SiteCollectionDocuments/donor_council/CEPF-DC28-8.pdf">http://www.cepf.net/SiteCollectionDocuments/donor_council/CEPF-DC28-8.pdf</a>	Added
103	South Africa (SA)	28	899	28	899	Much of the muimbo woodland is being cut down to cultivate and cue tobacco - often more cut down for curing than for cultivation. Tobacco is not even a food crop, and is associated with substantial human health costs. The extent of this degradation should be included in this report	Text and references has been included

Comment #	Reviewer Name	From Page (start)	From Line (start)	To Page (end)	To Line (end)	Comment	How to Address
104	Susan Ringrose (SR)	28	900	28	900	Complete this sentence - words missing	Only one word missing 'by'
105	South Africa (SA)	28	901	29	902	insufficient local and national what? Word missing at the end of the sentence	The word 'intervention' is missing
106	Yaw Agyeman Boafo (YAB)	29	898	29	914	By way of example, I can refer to the Kaya forests in coastal Kenya which for long has been a hotspot for biodiversity and ecosystem services but in recent decades has been lost due to the interplay of direct and indirect drivers. I suggest a Box/case study here to highlight this example. The following references can be helpful (1) Githitho, A 2005, The Sacred Mijikenda kayas of coastal Kenya: Traditional conservation and management practices, in Thierry Joffroy (ed). Traditional conservation practices in Africa, ICCROM. (2) UNU-IAS & IR3S/UTIAS 2016, Socio-ecological production landscapes and seascapes (SEPLS) in Africa. United Nations University Institute for the Advanced Study of Sustainability, Tokyo, Xpress Print Pte, Singapore. Page 66-73 (available at <a href="http://satoyama-initiative.org/wp-content/uploads/2016/08/SEPLS-in-Africa_FINAL_lowres_web.pdf">http://satoyama-initiative.org/wp-content/uploads/2016/08/SEPLS-in-Africa_FINAL_lowres_web.pdf</a> ).	The comment has been adopted and reference consulted. No Box/Case study has been provided
107	Michael Olusegun Ogundele (MOO)	29	909	29	909	I totally disagree with the statement that human arrival can be traced to 2000 years ago. Otherwise can you state the authority for this statement? I suggest you get more literature/ authority on archaeological	The sentence rephrased as requested.

Comment #	Reviewer Name	From Page (start)	From Line (start)	To Page (end)	To Line (end)	Comment	How to Address
						evidences on human fossils. The oldest known human fossils in Europe was the Neanderthal man dated 200,000- 400,000 years of age, Javal man fossils was 300,000- 500,000 years old, Ethipoian man fossils over 3.5million years and Tangayinka fossils dated 2million years.	
108	Neil Burgess (NB)					There are lots of more detailed analyses of forest change in this region. The CEPF Eastern Afr fromontane hotspot document (BirdLife 2012) <a href="http://www.cepf.net/Documents/Eastern_Afr_omontane_Ecosystem_Profile_FINAL.pdf">http://www.cepf.net/Documents/Eastern_Afr_omontane_Ecosystem_Profile_FINAL.pdf</a> is a good synthesis of the wetter forests and Burgess et al. 2016 for the coastal forests <a href="https://www.cambridge.org/core/services/aop-cambridge-core/content/view/084C3958DEBB8F1F36D2AF9BC363CB06/S003060531500099Xa.pdf/two-decades-of-change-in-state-pressure-and-conservation-responses-in-the-coastal-forest-biodiversity-hotspot-of-tanzania.pdf">https://www.cambridge.org/core/services/aop-cambridge-core/content/view/084C3958DEBB8F1F36D2AF9BC363CB06/S003060531500099Xa.pdf/two-decades-of-change-in-state-pressure-and-conservation-responses-in-the-coastal-forest-biodiversity-hotspot-of-tanzania.pdf</a>	A case study has been included following suggested references by reviewer related to forest changes in East Africa
109	Susan Ringrose (SR)	29	905			Complete this sentence - words missing	Sentence complete
110	Susan Ringrose (SR)	29	919			SADC = Southern African Development Community	Edited
111	South Africa (SA)	29	923	29	923	It would be useful to give more detail - who coordinates and funds this project?	Comment incorporated
112	South Africa (SA)	29	923	29	926	References required	Reference included

Comment #	Reviewer Name	From Page (start)	From Line (start)	To Page (end)	To Line (end)	Comment	How to Address
113	Susan Ringrose (SR)	29	929		929	You mean Southern Africa	Edited
114	IPBES Knowledge and Data Task Force (KD TF)/ Task Group on Indicators (TGI)	29	927	29	928	The graph of Forest area as percentage of total land area can be replaced to the graph which TGI provided	cross-checked
115	Neil Burgess (NB)	GEN	GEN	GEN	GEN	It would be good to have quantification of the known habitat loss for different biomes. For forests at least this is very possible and there is a lot already published regionally and for different forest types. At present the information presented is quite general and not really synthesised from what we know in the literature for forests (or wetlands). For Africa see: <a href="http://www.yadvindermalhi.org/uploads/1/8/7/6/18767612/hansen_science-2013.pdf">http://www.yadvindermalhi.org/uploads/1/8/7/6/18767612/hansen_science-2013.pdf</a> . For Central Africa see: <a href="http://www.observatoire-comifac.net/docs/edf2013/EN/EDF2013_EN.pdf">http://www.observatoire-comifac.net/docs/edf2013/EN/EDF2013_EN.pdf</a> For Eastern Africa see: <a href="https://www.researchgate.net/profile/Neil_Burgess4/publication/223318341_Conservation_implications_of_deforestation_across_an_elevational_gradient_in_the_Eastern_Arc_Mountains_Tanzania/links/57d3f5e808ae5f03b4914af3.pdf">https://www.researchgate.net/profile/Neil_Burgess4/publication/223318341_Conservation_implications_of_deforestation_across_an_elevational_gradient_in_the_Eastern_Arc_Mountains_Tanzania/links/57d3f5e808ae5f03b4914af3.pdf</a> For Western Africa see the ecoregion profile mentioned above:. For wetlands see	A summary table showing forest assessment statistics for Africa has been provided.

Comment #	Reviewer Name	From Page (start)	From Line (start)	To Page (end)	To Line (end)	Comment	How to Address
						WET index paper in Biological Conservation in 2016	
116	South Africa (SA)	30	945	30	945	should afforestation be included here?	This section has been integrated with another in the revised text. That takes care of this comment.
117	South Africa (SA)	30	960	30	960	Typo - ungulates, not undulates	Changed to ungulates
118	South Africa (SA)	30	961	30	970	this needs reference	References added.
119	Susan Ringrose (SR)	30	969		969	Check spelling	Spelling checked
120	South Africa (SA)	31	982	31	982	Please use correct genus name for Acacia, either Senegalia or Vachellia/ e.g. Senegalia mellifera and Vachellia tortillis. Also further in text, e.g. line 1209 and table 4.4 etc etc	New names added but also indicated old names
121	South Africa (SA)	31	986	31	986	It is not clear that elephants have been linked to the declines in species like Roam and sable antelope - there is no causative proof of this. This information does not seem to be reliable.	Section deleted
122	Neil Burgess (NB)	31	989	31	990	This appears to be global rather than specific to Africa	Only African component is presented
123	South Africa (SA)	31	994	31	998	Needs rewriting and referencing	Deleted statements on value of bush meat
124	Susan Ringrose (SR)	31	997		997	Why 'servient' ?? Probably 'surfaces'	Paragraph deleted because not really relevant
125	Yaw Agyeman Boafo (YAB)	31	1001	31	1006	This recent study (Jasaw et al. 2015) provide relevant evidence from Ghana on the issue being examined here. Full reference here: Jasaw, G., Saito, O., & Takeuchi, K. (2015). Shea ( <i>Vitellaria paradoxa</i> ) Butter Production	Reference added.

Comment #	Reviewer Name	From Page (start)	From Line (start)	To Page (end)	To Line (end)	Comment	How to Address
						and Resource Use by Urban and Rural Processors in Northern Ghana. Sustainability, 7(4), 3592–3614. <a href="https://doi.org/10.3390/su7043592">https://doi.org/10.3390/su7043592</a>	
126	South Africa (SA)	32	1017	31	998	perhaps HIV discussion should be included here. Passive exposure to chimpanzees has not caused HIV, but SIV has jumped owing to butchering of these apes. See comments above, 're line 663	Not relevant to discuss under this section.
127	Neil Burgess (NB)	32	1013	32	1034	The section on bushmeat harvesting is quite out of date. There are many new references on this subject that could have been used. See soe examples above	Restructured this section
128	Marie-Lucie Susini (MLS)	32	1033	33	1034	the 2 sentences state the contrary. Is bushmeat more or less expensive than other meat? Not clear	Deleted statement contrasting statements on value of bush meat
129	Susan Ringrose (SR)	32	1026		1026	Map needs a source - NB Botswana is NOT a big charcoal producer (check FAO websites)	Not yet addressed
130	Marie-Lucie Susini (MLS)	33	1049	33	1049	classified and not classed	Changed to classified
131	Marie-Lucie Susini (MLS)	33	1072	33	1072	delete 'This is not too far from the truth since' - rephrase. Use 'Furthermore' for instance..	Done as suggested
132		33	1077		1077	su	Deleted
133	Neil Burgess (NB)	34	1078	34	1078	I don't think we can include a graph of Atlatic cod in the African assessment. Something better could be done using Sea Around Us data with bit of effort	this figure and related text deleted
134	South Africa (SA)	34	1084	34	1085	it would be useful to include a definition of what is meant by invasive species?	We have used the definition suggested in line 7 of this Excel file:"According to Ipbes, invasive



Comment #	Reviewer Name	From Page (start)	From Line (start)	To Page (end)	To Line (end)	Comment	How to Address
							alien species are defined as animals, plants or other organisms introduced directly or indirectly by people into places out of their natural range of distribution, where they have become established and dispersed, generating an impact on local ecosystems and species"
135	Susan Ringrose (SR)	34	1086		1086	Treaties and Conventions were all covered in Ch 1 of this Assessment - no need to repeat here.	In the previous review, the "German IPBES Coordination office and national scientists" had added the following comment (line 56 of the previous Excel file): "The whole chapter: the focus should now be on treaties and conventions with impacts". I consider we had correctly addressed the comment, and should not delete this part!
136	South Africa (SA)	35	1142	35	1142	This information is out of date. The Global invasive Species Programme no longer has its head office in Cape Town at the National Botanical Institute	The GISP is closed, but it was actually based in Cape Town. I suggest to replace "has based", with, "had based".
137	Elizabeth Milne (EM)	GEN	GEN	GEN	GEN	General comment on Plant Invasive Alien Species (IAS): I like the case study box highlighted in green that was done under the IAS section. I suggest this case study element is	The section on IAS involves two study boxes. I consider it is far enough in such a short section.

Comment #	Reviewer Name	From Page (start)	From Line (start)	To Page (end)	To Line (end)	Comment	How to Address
						added to all the relevant sections in this Chapter.	
138	South Africa (SA)	35	1152	35	1152	Unless there is reliable data and a peer-reviewed reference demonstrating that queelaes have increased in abundance or distribution in response to cropping or increase in grasslands, it is not possible to state that they rae invasive. This is unsubstantiated, and potential problematic, given that this species is already persecuted across Africa.	I would rather suggest to write: "Beyond the orthodox definition of IAS restricted to introduced species, we can consider that native species can also be invasive. The famous Red Billed Quelea... etc.
139	Thomas Brooks (TB)	35	1152	35	1160	This paragraph is not appropriate: invasive species are by definition populations outside of their native range. See IPBES Annex III to decision IPBES-4/1 ( <a href="http://www.ipbes.net/sites/default/files/downloads/pdf/Decision_IPBES_4_1_EN.pdf">http://www.ipbes.net/sites/default/files/downloads/pdf/Decision_IPBES_4_1_EN.pdf</a> ) "invasive alien species are defined as animals, plants or other organisms introduced directly or indirectly by people into places out of their natural range of distribution, where they have become established and dispersed, generating an impact on local ecosystems and species" and equivalent definitions from CBD and IUCN. Either delete the paragraph, or move it into a section (probably best in Chapter 2) on problematic native species/ecosystem disservices.	Agree with this comment from the reviewer. Bush encroachment is a result of change in land use practice such as exclusion of mega-herbivores or changes in fire regime. The whole paragraph is about indigenous species which can impact on agricultural production systems whether the Queleas on grain production or bush encroachment on grazing potential. In my opinion, the paragraph remains highly appropriate (see comment above). If these native species cannot be defined as IAS because of their nativeness, they

Comment #	Reviewer Name	From Page (start)	From Line (start)	To Page (end)	To Line (end)	Comment	How to Address
							deeply proceed as invasive species.
140	South Africa (SA)	35	1156	35	1156	References required	Kueffer, C. and Vos, P. 2004. Case Studies on the Status of invasive Woody Plant Species in the Western Indian Ocean: 5. Seychelles. Forest Health & Biosecurity Working Papers FBS/4-5E. Forestry Department, Food and Agriculture Organization of the United Nations, Rome, Italy. <a href="http://www.fao.org/forestry/6848-07d9a941381eb5e556c4ead52e20bd418.pdf">http://www.fao.org/forestry/6848-07d9a941381eb5e556c4ead52e20bd418.pdf</a>
141	South Africa (SA)	35	1164	35	1164	what is meant by "food control"?	"food control" replaced with "food production"
142	South Africa (SA)	36	1168	36	1168	These are merely crop pests on crops that are also non-native. Does this fall into the definition for invasive species, then?	Cassava mealy bug and Larger grain borer have both been introduced into Africa. They do attack cassava and maize both of which are also introduced as useful crop plants. The insects are considered invasive as well as agricultural pests.
143	South Africa (SA)	36	1179	36	1179	What does "which were pre-adapted to their new environment" mean? Does it mean that climatically the new environment was ideal?	The sentence changed from "they mainly consist in Australian trees and shrubs which were pre-adapted to their

Comment #	Reviewer Name	From Page (start)	From Line (start)	To Page (end)	To Line (end)	Comment	How to Address
							new environment” to read “they mainly consist of Australian trees and shrubs and Northern Hemisphere pine species which have been introduced into habitats with suitable climatic and edaphic conditions for growth and spread”
144	South Africa (SA)	36	1187	36	1187	It is not clear where rats and mice have generated this cost. In the CFR? In South Africa (SA)?	This cost has been generated in South Africa (SA). The original source is indeed Pimentel et al (2011).
145	South Africa (SA)	36	1189	36	1189	not clear what is meant by "outstanding"?	The text changed from: “IAS has a strong impact on rural production and ecosystem services on Africa. Outstanding examples of IAS have been provided by Africa (Table 4.4).” to read as follows: “IAS has a strong impact on rural production and ecosystem services on Africa (see Table 4.4 for selected examples).”
146	South Africa (SA)	36	1191	36	1195	Are these not just crop pests? It may be that if they are non-native, then they are invasive, but perhaps it would help to have a definition earlier on in the chapter	Crop pest are indeed invasive species. In my opinion, this is consistent with the IPBES definition of IAS.
147	South Africa (SA)	36	1196	36	1196	Yes, but the South Africa (SA)n programme against invasive species is primarily aimed at invasive plants - it may be useful to specify	namely plant invasive alien species' added after (Boy and Witt, 2013)

Comment #	Reviewer Name	From Page (start)	From Line (start)	To Page (end)	To Line (end)	Comment	How to Address
						this, otherwise the impression could be created that it is aimed at all invasive species.	
148	South Africa (SA)	36	1200	36	1200	Give scientific name as well Eichhornia crassipes	The scientific name is written in table 4.7. Addition of the reviewer's suggestion shall create some redundancy.
149	South Africa (SA)	36	1206	36	1206	suspect this is "Holmes" not "Homes"	"Homes and Cowling, 1997..." now reads "Holmes and Cowling, 1997..."
150	CSIR BES	37	1212	37	1213	Add Striga in agricultural lands to Table 4.4. Invasive Striga spp., particularly S. hermonthica, causes enormous crop (cereals and legumes) losses in the savanna regions of sub-Saharan Africa. NB : some of the invasives like Acacia sp. are used as biological fertilizers in cropping systems	Striga added. The use of Australian Acacias should be avoided if there are indigenous legumes which could perform the same function.
151	South Africa (SA)	38	1221	38	1221	is this owing to better detection or actual new invasions?	We fully agree with the reviewer that this is a case of greater awareness and greater reporting as well as an increase in the number of new invasions. But we found this information to be out of the scope of this assessment.
152	South Africa (SA)	38	1229	38	1229	it is no clear what is meant by "the FOUR ecosystem services".	
153	Neil Burgess (NB)	GEN				IUCN Invasive Alien species database could have been used to generate some more statistics. But the use of that database for Figure 4.15 is good to see. There was a paper	Addition of such a map is found to irrelevant for this assessment given the scale at which the study was conducted.

Comment #	Reviewer Name	From Page (start)	From Line (start)	To Page (end)	To Line (end)	Comment	How to Address
						just published that covers the distribution of invasive alien species globally. That would be good to include here	
154	Elizabeth Milne (EM)	GEN	GEN	GEN	GEN	General comment on Plant Invasive Alien Species (IAS): I like the case study box highlighted in green that was done under the IAS section. I suggest this case study element is added to all the relevant sections in this Chapter.	Replied. See above (line 7 of the file)
155	South Africa (SA)	38	1235	38	1235	The pollution section has nothing on plastic pollution, but this is a global issue, particularly of marine environments. Suggest including something on this.	issues of plastic contamination especially of the marine ecosystem and their possible effects has been included at the section on water pollution
156	Susan Ringrose (SR)	39	1295	39	1295	How does Table 4.5 fit into the present narrative?	Table 4.5 has been omitted from the chapter, given the scarcity of tangible evidence to back it.
157	Elizabeth Milne (EM)	40	0	40	0	General comment of Table 4.5: I would like to see mining being added here	Table 4.5 has been omitted from the chapter, given the scarcity of tangible evidence to back it.
158	CSIR BES	40		40		In Table 4.5, add headings to columns 1 and 2	Table 4.5 has been omitted from the chapter, given the scarcity of tangible evidence to back it.
159	Marie-Lucie Susini (MLS)	40		40		it would be good to use a colour code in the boxes of Table 4.5	Table 4.5 has been omitted from the chapter, given the scarcity of tangible evidence to back it.
160	South Africa (SA)	40		40		Table 4.5 - also say what 'H', 'M', 'L' stand for below.	Table 4.5 has been omitted from the chapter, given the scarcity of tangible evidence to back it.

Comment #	Reviewer Name	From Page (start)	From Line (start)	To Page (end)	To Line (end)	Comment	How to Address
161	Neil Burgess (NB)	40		40		Good table. Not sure why it does not come earlier and is used to drive the rest of the chapter? Mind you - this table does not have the same order of threats as in the rest of the chapter. So that will need addressing somehow	Table 4.5 has been omitted from the chapter, given the scarcity of tangible evidence to back it.
162	South Africa (SA)	40		40		Fire must not be "L" in deserts and xeric shrublands. The same for "overgraze" etc. Why are they all "L"? AND a "L" for Invasives in savannas? That cannot be correct.	Table 4.5 has been omitted from the chapter, given the scarcity of tangible evidence to back it.
163	The Biodiversity Indicators Partnership (BIP)	43	87	43	87	Map Figure 4.16 Does not show South Sudan which became an independent country in 2011, The Aouzou strip is shown as being contested between Chad and Libya, the international Court of Justice in 1994 found in favour of Chad sovereignty and Libyan claims were ended.	Map updated to show South Sudan
164	Susan Ringrose (SR)	43	88	43	88	PM2.5 is very high over (coastal) Namibia because of the open cast uranium mines	Comments on the effect of dust in southern Africa and appropriate references have been added
165	Neil Burgess (NB)	GEN				I wondered how relevant this was for an assessment on biodiversity and ecosystem services. More relevant to a more general environmental assessment perhaps like the regional GEO6 reports?	Agreed
166	Neil Burgess (NB)	GEN				This is written as if the work has not yet been done. Better to write it saying what has been done and not using the future 'will' tense.	The tenses at the introduction parts of section have been changed appropriately

Comment #	Reviewer Name	From Page (start)	From Line (start)	To Page (end)	To Line (end)	Comment	How to Address
167	Susan Ringrose (SR)	127	43	127	43	Source needed	Drawn by authors, CA
168	CSIR BES	44	130	44	130	In section 4.3.1, many climate change impacts of importance to decision-makers are still not in the text. Please continue adding	Not clear what is missing and this section is already relatively huge
169	Susan Ringrose (SR)	44	132	44	132	According to the African Development Bank (2012) the main drivers of African economic growth are exports from mining (minerals and oil), agriculture and manufacturing and services. Sustainable tourism - and other ecologically related activities - are relatively minor	The report is not providing any additional information
170	Susan Ringrose (SR)	44	201		201	Much of African trade is not constrained by globalisation - in fact overall trade is increasing - however globally the effects of globalisation are decreasing ( <a href="http://www.marketwatch.com">www.marketwatch.com</a> )	Agreed
171	South Africa (SA)	46	201	46	205	Section 4.4.3 on the link between anthropogenic and global drivers seems too brief. It would be useful to give a few examples here, and to expand on this.	Expanded slightly though need supporting references
172	Susan Ringrose (SR)	46	201		216	Good to have this clarification but why does this occur at such a late stage (half-way through the Assessment)?	
173	South Africa (SA)	46	223	46	223	References required	Reference added and arid and sub humid replaced with drylands
174	Susan Ringrose (SR)	46	224	46	224	No crops are grown in the most arid areas of Africa - but they are grown to some extent in the semi-arid areas.	Focused on livestock production



Comment #	Reviewer Name	From Page (start)	From Line (start)	To Page (end)	To Line (end)	Comment	How to Address
175	South Africa (SA)	46	226	46	226	References required	Reference provided an example provided
176	South Africa (SA)	46	231	46	231	References required	Reference provided an example provided
177	South Africa (SA)	46	234	46	234	Damming of rivers could be anthropogenic threat that interacts with the natural drivers - can incze the likelihood of earthquakes, and there are also climate change impacts as rotting vegetation produces methane. Floods can happen when dam walls break. Production of small pools can exacerbate disease spread with mosquitoes being able to breed in pools. May possibly also impact IAS like Kariba weed. This could be added to Table 4.2 , and it would be useful to have some references for this table.	Information added to Table 4.2
178	South Africa (SA)	46	234	46	234	Table 4.2, column on wildfires: Also, overgrazing actually reduces wildfires, leading to increased bush encroachment/woody plant thickening.	Table reworked to take into consideration the suggested changes
179	Susan Ringrose (SR)	47	235		235	Where does Table 4.2 fit in?? Omit if not helpful	This table, now renumbered to Table 4.7 fit in section 4.3.5 "Link between anthropogenic drivers and climate change.
180	South Africa (SA)	48	243	48	243	Indirect drivers of change will be at global, physical and human level. "It is not clear what this means. What is a physical leve, how does this compare/link to global or huma level?	We agree this statement is unclear and as it adds no value to the paragraph, we have chosen to delete it.
181	Michael Olusegun	48	246	48	246	" Africa is the world youngest continent"- whose authority established this? This is a big	Yes, noted, this has been removed.

Comment #	Reviewer Name	From Page (start)	From Line (start)	To Page (end)	To Line (end)	Comment	How to Address
	Ogundele (MOO)					distortion of history. Remember the ancient Kemet (Egyptians) existed before the first Europeans- the Greeks.	
182	South Africa (SA)	48	246	48	246	"Africa is the world's youngest continent". This could be interpreted as meaning that the landmass of Africa is the youngest, geologically. It would be clearer to say, for example, "The population of Africa is the world's youngest of all the continents."	We've removed this reference due to the consideration that African civilizations and thus peoples are among the most ancient in history
183	Susan Ringrose (SR)	48	246			Need reference - Africa is a very old continent in many ways..	Noted and responded as above
184	Susan Ringrose (SR)		267		279	Entire section needs more references to justify statements - e.g. what are these many examples' where decision making has led to poor outcomes for nature'	The section on Economic policies included references and these are adequate. The example given in the comment is found in the Introduction.
185	Thomas Brooks (TB)	49	286	49	290	Add a sentence explaining that coverage of area by PAs is a very poor measure of progress (eg Barnes et al. 2015 Nature 526: 195), as recognised by Aichi Target 11, and that these statistics need to be complemented by indicators of PA coverage of key biodiversity areas (see <a href="https://www.nature.com/articles/sdata20167">https://www.nature.com/articles/sdata20167</a> ) to be useful.	The statement was added at the end of the paragraph.
186		49	290	49	290	Although these areas are protected, many of them can go through periods of heavy poaching. Thus although these targets are met on paper, the situation on the ground is often quite different, and cognisance should be	A cross reference was made between sections 4.4.1.2 and 4.5.1.1

Comment #	Reviewer Name	From Page (start)	From Line (start)	To Page (end)	To Line (end)	Comment	How to Address
						taken of that. The point is dealt with in line 1061 - a cross reference may be useful.	
187	South Africa (SA)	51	373	51	373	Perhaps say "policy makers" instead of "politicians"	"politicians" replaced with "policy makers". Kindly note that line 373 is on page 50.
188	Susan Ringrose (SR)	50	331			Theres a whole chapter (in the Assessment) on Governance issues - no need to repeat here	We are liaising with chapter 6 to address the issues of repetitions and overlaps
189	Neil Burgess (NB)	52	418	52	419	This is a global figure not about Africa	The entire paragraph focuses on global trade. It does not have a comparison for the African situation; it does not seem to add value to the paragraph. It was deleted together with accompanying graph
190	Susan Ringrose (SR)	52	419			Labels difficult to read	Addressed as above
191	The Biodiversity Indicators Partnership (BIP)	54	458	54	458	Reference to the WWF and AfDB study should be provided. BTW Global Footprint Network and the Zoological Society of London were also among the authors of this study.	Reference to the WWF and AfDB study was provided, however, there was no mention (in the referenced report) of BTW Global Footprint Network and the Zoological Society of London. having been among the authors of this study.
192	The Biodiversity Indicators Partnership (BIP)	54	459	54	460	Text should read "the demand for resources and ecological services will be greater than the capacity of Africa's ecosystems to produce such useful biological materials and absorb waste flows generated by its populations"	The text was deleted and replaced with the text proposed by the reviewer

Comment #	Reviewer Name	From Page (start)	From Line (start)	To Page (end)	To Line (end)	Comment	How to Address
193	Neil Burgess (NB)	54	464	54	465	The map included is only the corridors. A better map might be that published in the paper by Laurence et al. 2015 <a href="http://www.cell.com/current-biology/abstract/S0960-9822(15)01309-3">http://www.cell.com/current-biology/abstract/S0960-9822(15)01309-3</a>	The reference has been provided and the paper by Laurence et al. 2015 (Laurance, W. F., Sloan, S., Weng, L., and Sayer, J. A. (2015). Estimating the Environmental Costs of Africa's Massive "Development Corridors". Current Biology 25, 3202–3208 December 21, 2015)
194	Neil Burgess (NB)	55	501	502	55	Material extraction is a quite general heading. It mainly seems to show that Africa is using less than the world average and that has not changed over time. What does that tell us	The material extraction referred to in this is per capita extraction which seem to stagnate as the population increases.
195		56	510			Should explain what commodities are included in 'material extraction'	The commodities included in the 'material extraction' were added to the document. (biomass; fossil fuels - coal, oil and gas; metal ores and non-metallic minerals)
196	South Africa (SA)	57	547	57	547	"..adaptation strategies" - examples, references?	One example of the climate change adaptation strategies on which green growth focuses was included and that is the reduction in the greenhouse gases. Relevant reference was provided (OECD, 2011)
197	South Africa (SA)	58	572	58	576	This section could do with some references	Some references were provided and included, (ACBF, 2006)
198	South Africa (SA)	58	584	58	584	Word "growth" missing here, after population	We thank the reviewer for noting the omission. We

Comment #	Reviewer Name	From Page (start)	From Line (start)	To Page (end)	To Line (end)	Comment	How to Address
							corrected the sentence and the word 'growth' was added after population.
199	Susan Ringrose (SR)	58	588			Climate change = global warming here	We agree with the reviewer and we replaced the 'climate change' with 'global warming'.
200	Susan Ringrose (SR)	58	591			Indicate what are the important variables (in Parnell and Walowege, 2011)?? Appears that in-city natural growth often exceeds rural-urban migration	Indeed, an important observation from the reviewer. We added information that natural population growth in cities is more important than migration and displacement.
201	Neil Burgess (NB)	59	617	59	617	Source? How does this vary from what is already presented in the UNEP GEO6 report?	The source was added in the caption, i.e., Pesche, D.; Losch, B.; Imbernon, J. (eds). 2016. A new emerging rural world: An overview of rural change in Africa. Atlas for NEPAD's Rural Futures Programme, 2nd edition (Montpellier, CIRAD). Differences in the figure with that in UNEP GEO6 report, i.e., Fig. 3.1.3, page 103 presents urbanisation in parts of Africa from 1975 to 2014, whereas the figure in the current report provides a broad overview of African cities for 2016, hence more elaborate

Comment #	Reviewer Name	From Page (start)	From Line (start)	To Page (end)	To Line (end)	Comment	How to Address
202	Neil Burgess (NB)	60	619	60	619	Source?	The source was added in the caption, i.e., Pesche et al. 2016 and also in the reference list.
203	Susan Ringrose (SR)	60	629			Source not readable - indicate in caption	The source was added in the caption, i.e., Pesche et al. 2016.
204	Susan Ringrose (SR)	60	619			1. Quote source 2. South Africa (SA) = southern Africa (in this context)	(1) The source was added, i.e., Pesche et al. 2016. (2) A note was added to show that South Africa (SA) denotes Southern Africa
205	Neil Burgess (NB)	GEN				Should this not be in the section on threats drivers (the issues that cause the surface threats affecting habitats, species, ecosystem services etc). Does the structure of this chapter follow the IPBES conceptual diagram and guidance materials?	YES, indeed placement of the population change under indirect drivers is in line with "IPBES Draft generic scoping report for the regional and subregional assessments of biodiversity and ecosystem services"
206	South Africa (SA)	61	654	61	654	Also associated animals - e.g. domestic cats responsible for large declines in reptiles, amphibians, birds and rodents. Gogs carry diseases that can be transferred to othe fauna - e.g. rabies, canine distemper.	Newer text and references was added. On top of urbanization, agriculture intensification effects was also added
207	South Africa (SA)	61	659	61	659	A reference should probably be included here - e.g. Gerland, P., Raftery, A.E., sevcikova, H., Il, n., Gu, D., Spoorenberg, T., Alkema, L., Fosdick, B.K., Chunn, J., Nevena, L., Bay, g., Buettner, T., Heiling, G.K., Wilmoth, J., 2014. Wolrld population stabilization unlikely this century. science (80-) 346, 234-237.	Updated with Gerland et al

Comment #	Reviewer Name	From Page (start)	From Line (start)	To Page (end)	To Line (end)	Comment	How to Address
208	Neil Burgess (NB)					Should an IPBES assessment focus on climate as much as this one does? Conversely there is interesting work using the LANDSHIFT model on land use change that could have been included - see <a href="http://dl.acm.org/citation.cfm?id=1972385">http://dl.acm.org/citation.cfm?id=1972385</a>	This is being addressed in the climate change section.
209	South Africa (SA)	62	688	62	688	please give the reference here	Agree. Reference added
210	South Africa (SA)	62	706	62	706	References required	Reference added "African Development Bank, 2015".
211	South Africa (SA)	63	728	63	728	Unfortunately, using GM crops is often associated with heavy use of herbicides to rid fields of weeds. This in turn reduces forage for pollinators, or it breeds superweed - see, e.g. Gilbert, N., 2013. Case study., 2013. case studies; A hard look at GM crops. Nature 497, 24-26. doi:10.1038/497024a and Brown, M.J.F., Dicks, L. V, Paxton, R. J., Baldock, K.C.R., Barron, A.B., Chauzat, M., Freitas, B.M., Goulson, D., Jespen, S., kREMEN, c., LI, j., Neumann, P., Pattermore, D.E., pOTTS, s.g., Schweiger, O., sEYmour, C.L., Stout, J.C., 2016. a horizon scan of future threats and opportunities for pollinators and pollination. PeerJ 2249. doi:1010.7287/peerj.preprint.2006v1	Heavy use of herbicides to rid fields of weeds, and reduction of forage for pollinators is included in the text. Proposed references will be sought for additional information.
212		63	742	63	742	This may be the case, but it would be useful to know if existing hydro electric projects, e.g. Cahora Basa and Kariba dams are producing power to their full capacity. If not, then surely	Agree with comment but finding evidence and references not forthcoming

Comment #	Reviewer Name	From Page (start)	From Line (start)	To Page (end)	To Line (end)	Comment	How to Address
						it would be a priority to fix these first? Also, some discussion about institutional and political issues may be useful in this section. For example, in South Africa (SA), the power utility, ESKOM has been quite obstructive to renewable energy, citing concerns of safety, amongst others. Some of these concerns may well be real, but this sort of obstruction is probably not an isolated case.	
213	Susan Ringrose (SR)	63	741			Reference needed - what are the environmental 'trade-offs' to renewable energy development??	Reference exists, Mutia 2010.
214	Susan Ringrose (SR)	63	747			Reference needed	Reference added
215	CSIR BES	64	765	64	766	Figure 4.28: 'Overall resource potential for PV, CSP and wind technologies for Africa' is not clear	In figure caption define PV, CSP
216	Neil Burgess (NB)	64	765	64	766	Source for this figure?	Figure caption joined with the note below to become one statement., which includes source of figure.
217	Susan Ringrose (SR)		799			Conclusions: Indicate exactly how (you consider) diseases to be drivers of climate change??	The requested information added under conclusion section.
218	Thomas Brooks (TB)	65	824	65	825	A useful citation here might be Hanson et al. (2009) Warfare in biodiversity hotspots. Conservation Biology 23: 578–587.	Reference added
219	Susan Ringrose (SR)	64	824	66	860	References needed throughout	References added and text reworked



Comment #	Reviewer Name	From Page (start)	From Line (start)	To Page (end)	To Line (end)	Comment	How to Address
220	Susan Ringrose (SR)		864		874	References needed throughout	References added and text reworked
221	South Africa (SA)	65	842	65	842	References required	References added and text reworked
222	South Africa (SA)	66	850	66	860	This is a fascinating paragraph, but it needs to be supported with references.	References added and text reworked
223	Susan Ringrose (SR)	66	867	66	867	Need a map showing your spatial definition of regions e.g. central Africa	The requested map is added in Chapter 1 and cross referred in this chapter
224	South Africa (SA)	66	995	69	1009	Humans are undoubtedly a natural part of the environment, and changes to disturbance regimes like the fire regime has had immense negative impacts owing to the exclusion of humans from Africa savannas. That said, this section is a little unbalanced, and some recognition of the impact of higher human population densities in these natural areas that were historically present needs to be made. Therefore, I think what is missing here is the point that there are different degrees of "access" that communities have to protected areas, and that these can mean anything from living completely in the protected area and hunting, etc. to running tourism ventures where there is no or very little hunting impact, and the main income stream is from tourism. This is somewhat covered around line 1029.	A sentence was included that indicated that community-based conservation is the current approach and that pros and cons do exist was added ...telling that such information is given in subsection 4.5.2
225	South Africa (SA)	66	995	66	995	In UK, and many other "western" countries, many of the national parks have people living	The term 'Western' deleted

Comment #	Reviewer Name	From Page (start)	From Line (start)	To Page (end)	To Line (end)	Comment	How to Address
						in them, so this is hardly a "Western" idea. Suggest leaving the word western out.	
226	Neil Burgess (NB)	67	917	68	941	This material is very old. Use review by Roe et al. 2009 and then updates for Namibia by Naidoo and more generally across Africa by Maliasili and Rights and Resources reports	Suggested references have been used and rather than removing the older materials, newer ones were added alongside the old one
227	Michael Olusegun Ogundele (MOO)	68	981	68	981	rephrase 'Africa has one the continents with of the last remnants'	The sentence has been rephrased to 'Africa is one of the continents with the last remnants'
228	Rael Loon (RL)	68	981	69	982	edit: "Africa is one of the continents with (del 'of') the last remnants..."	Many thanks, sentence corrected as suggested
229	Rael Loon (RL)	69	989			"received a major boost..."	Many thanks, sentence corrected as suggested
230	Thomas Brooks (TB)	69	995	69	995	Delete "western" - this model has been used in many countries around the world	Agreed, the word "western" was deleted
231	Rael Loon (RL)	69	996			del "in" add "and" ("...and this model...")	Agreed, the word "in" was replaced with "and"
232	Rael Loon (RL)	69	1012		1012	Quote: "Bushell, R., Staiff, R. and Eagles, P.F., 2007. Benefits beyond boundaries. In Tourism and Protected Areas: Benefits Beyond Boundaries: the Vth IUCN World Parks Congress (p. 1). CABI."	Many thanks for noticing the missing reference. The reference has been added.
233	Rael Loon (RL)	69	1016		1018	Suggested ref: Barnes, J.I., MacGregor, J. and Weaver, L.C., 2001. Economic analysis of community wildlife use initiatives in Namibia (No. 42). Directorate of Environmental Affairs, Ministry of Environment and Tourism.	Many thanks for the reference which is valuable. The reference has been added.

Comment #	Reviewer Name	From Page (start)	From Line (start)	To Page (end)	To Line (end)	Comment	How to Address
234	Rael Loon (RL)		1020		1021	Promising examples of proactive people/parks initiatives in East Africa include Laikipia and A Roche, both in Kenya.	Agreed, the comment supports our presentation and we added the example of Laikipia in the text.
235	Rael Loon (RL)	70	1029		1031	Unwieldly sentence.	Sentence has been revised for clarity
236	Rael Loon (RL)	70	1031		1036	Discussion on community fishing does not flow well after discussion on tourism ventures. Suggest mention how sustainable tourism can work in certain instances citing examples. Discussion of fishing should be new paragraph.	The section has been revised for clarity and flow with supporting reference on the finishing part
237	Rael Loon (RL)	70	1041		1042	For example the African Parks network manages over 12 protected areas in 8 countries in Africa. They aim to expand this further to manage 20 parks covering more than 10 million hectares by 2020.	The example has been added.
238	Rael Loon (RL)	70	1043		1045	Unwieldly sentence and does not follow on to the following sentence.	Sentence has been revised for clarity
239	Rael Loon (RL)	70	1045		1047	Significance of 5%? Result quoted out of context and is not clear?	Sentence has been revised for clarity
240	Rael Loon (RL)	70	1049	70	1049	Map Figure 4.29 Does not show South Sudan which became an independent country in 2011,	Map is updated to show South Sudan
241	Rael Loon (RL)	70	1083		1085	Have mentioned Ramsar in the previous sentence.	Sentence has been corrected and now has wetlands
242	Rael Loon (RL)	70	1083		1085	Suggest include: "As well as the African Eurasian Waterbird Agreement (AEWA) a agreement between parties to the Convention for Migratory Species (CMS)"	The suggested statement has been included

Comment #	Reviewer Name	From Page (start)	From Line (start)	To Page (end)	To Line (end)	Comment	How to Address
243		72	1086	70	1087	This is very old and much newer data are available and have been published. See <a href="http://datazone.birdlife.org/site/search">http://datazone.birdlife.org/site/search</a> - then search for Africa	Map to be updated
244	Thomas Brooks (TB)	71	1074	73	1103	Add a sentence explaining that coverage of area by PAs is a very poor measure of progress (eg Barnes et al. 2015 Nature 526: 195), as recognised by Aichi Target 11, and that these statistics need to be complemented by indicators of PA coverage of key biodiversity areas (see <a href="https://www.nature.com/articles/sdata20167">https://www.nature.com/articles/sdata20167</a> ) to be useful.	The suggested statement has been included together with the references
245	Rael Loon (RL)	72	1086			BirdLife International Reference 2012 not 2002 (as in references)	Reference corrected to 2012
246	Rael Loon (RL)	72	1087	72	1089	Box 4.4 is very good	We appreciate the comment!
247	Neil Burgess (NB)	73	1089	73	1090	This is quite old and newer data are available and have been published (see Brooks et al. 2016)	Map updated with recent data from IPBES Knowledge and data task force group
248	The Biodiversity Indicators Partnership (BIP)	73	1090	73	1090	Incorrect attribution of WDPA on map UNEP-WCMC and IUCN (year), Protected Planet: The World Database on Protected Areas (WDPA) [On-line], [insert month/year of the version downloaded], Cambridge, UK: UNEP-WCMC and IUCN. Available at: <a href="http://www.protectedplanet.net">www.protectedplanet.net</a> .	Map updated with recent data from IPBES Knowledge and data task force group
249	The Biodiversity Indicators	73	1090	73	1090	Map Figure 4.31 Does not show South Sudan which became an independent country in 2011, The Aouzou strip is shown as being contested between Chad and Libya, the	Map updated with recent data from IPBES Knowledge and data task force group

Comment #	Reviewer Name	From Page (start)	From Line (start)	To Page (end)	To Line (end)	Comment	How to Address
	Partnership (BIP)					international Court of Justice in 1994 found in favour of Chad sovereignty and Libyan claims were ended.	
250	The Biodiversity Indicators Partnership (BIP)	73	1090	73	1090	Map Figure 4.31 Why is a 2014 version of the WDPA being used? Updated maps using 2016 data are available from UNEP-WCMC	Map updated with recent data from IPBES Knowledge and data task force group
251	Neil Burgess (NB)	GEN				The primary data for this section should be taken from UNEP-WCMC Protected Planet report 2016 and Brooks et al. 2016 and then augmented by the various literature review that is included	Map updated with recent data from IPBES Knowledge and data task force group
252	The Biodiversity Indicators Partnership (BIP)	73	1096	73	1096	low compared "to" WEOG	The sentence has been edited to include 'to'
253	Neil Burgess (NB)	73	1100	73	1101	Newer MPA data are available. See protected planet reports 2012, 2014, 2016	Map updated with recent data from IPBES Knowledge and data task force group
254	The Biodiversity Indicators Partnership (BIP)	73	1101	73	1101	Incorrect attribution of WDPA on map UNEP-WCMC and IUCN (year), Protected Planet: The World Database on Protected Areas (WDPA) [On-line], [insert month/year of the version downloaded], Cambridge, UK: UNEP-WCMC and IUCN. Available at: <a href="http://www.protectedplanet.net">www.protectedplanet.net</a> . The data should not come from the World Bank but from UNEP-WCMC, this is in breach of our terms	Map updated with recent data from IPBES Knowledge and data task force group

Comment #	Reviewer Name	From Page (start)	From Line (start)	To Page (end)	To Line (end)	Comment	How to Address
						and conditions. Updated maps using 2016 data are available from UNEP-WCMC	
255	The Biodiversity Indicators Partnership (BIP)	73	1101	73	1101	Land locked countries should NOT be colourcodes in the sam interval bin as coastal countries- it misrepresents the data	Map updated with recent data from IPBES Knowledge and data task force group
256	The Biodiversity Indicators Partnership (BIP)	73	1101	73	1101	Map Figure 4.31 Does not show South Sudan which became an independent country in 2011, The Aouzou strip is shown as being contested between Chad and Libya, the international Court of Justice in 1994 found in favour of Chad sovernity and llbyian cliasm were ended.	Map updated with recent data from IPBES Knowledge and data task force group
257	Rael Loon (RL)	73	1101	73	1101	Map Figure 4.31 Why is a 2014 version of the WDPA being used?	Map updated with recent data from IPBES Knowledge and data task force group
258	Rael Loon (RL)	73	1107	74	1110	Unwieldy sentence	
259	IPBES Knowledge and Data Task Force (KD TF)/ Task Group on Indicators (TGI)	73		73		The two graphs of Percentage of areas covered by protected areas - marine and terrestrial can be replaced to the graphs which TGI provided	Map updated with recent data from IPBES Knowledge and data task force group
260	Neil Burgess (NB)					Are these two things related? How?	These represent a broader policy context within which African countries have to make decisions. This will be clarified in text

Comment #	Reviewer Name	From Page (start)	From Line (start)	To Page (end)	To Line (end)	Comment	How to Address
261	Rael Loon (RL)	74	1119			Del: "Many actions..."	"Many actions..." deleted
262	Rael Loon (RL)	75	1172			There is growing interest in using landscapes...	edited
263	Rael Loon (RL)	75	1173			That consider play at a landscape (del 'of') level...'	of' deleted
264	Rael Loon (RL)	75	1192			Add parenthesis (WOCAT)	Parenthesis added
265	CSIR BES	76	1230	76	1248	You may always wish to consider 'climate variability and change', noting that these days decision-makers talk more about climate change	Updated as conclusion was updated
266	Marie-Lucie Susini (MLS)	76	1230	76	1230	number problem: of 3°C to 3°C ?	updated
267	Rael Loon (RL)	76	1230			Confirm 3 °C to?	updated
268	Marie-Lucie Susini (MLS)	76	1238	76	1238	delete these here: 'of several these disease vectors'	deleted
269	Rael Loon (RL)	76	1238			add several 'of' these disease vectors...	added
270	Rael Loon (RL)	77	1246		1248	Unclear sentence - Transfrontier Parks?	Sentence rephrased
271	Rael Loon (RL)	78	1284			Could qualify "...endangered wild fauna such as elephant, rhino, pangolin, and various reptiles and birds among others"	updated
272	Neil Burgess (NB)					This is quite good, but does not seem to really be supported well enough by the sections coming beforehand	Section updated to support the preceding sections
273	Neil Burgess (NB)					A lot of the contributing authors are from South Africa (SA) so the regional overview aspect is a bit missing	We've unfortunately struggled with this but have managed through contributing authors a better balance than First Order Draft
274	Neil Burgess (NB)					This is a an OK chapter, but could still be considerably improved. And there is a need	Thanks, we've noted areas where this needs to be done and

Comment #	Reviewer Name	From Page (start)	From Line (start)	To Page (end)	To Line (end)	Comment	How to Address
						for my synthesis of the available material in my view.	have addressed them in the diverse sections
275	Susan Ringrose (SR)					General Ch 4: This is a very long chapter and in places difficult to read. Some overlap with other chapters. Overall editorial direction needed to ensure the same ground is not covered several times. There are a number of mantras appearing around for instance African development and globalisation which are far from true. It is important to double check all your important assumptions (easily done on the web) as ideas and economic reality change relatively quickly (see below)	Dealt with: overlap; do fact check of all important statements!
276	Susan Ringrose (SR)					These Milankovitch cycles need a reference - check internet	Find link with climate
277	CSIR BES					Also missing, measures taken to stop decline, degradation. IMPORTANT. So far only 4.2.2.6 Sustainable land management + 4.3.3 protected areas are about measures taken. Good to have a section on measures taken including protected areas, restoration, sustainable use, and legislation, policies and others like governance, strategies, plans and programmes	Section 4.4.7 provides information on example as of measures taken to stop decline, degradation.
278	CSIR BES					It would be good to have a section on (i) status and trends [and future dynamics] of direct pressures (natural and anthropogenic including climate change); (ii) status, trends and future dynamics of indirect drivers; (iii) interrelations between and among direct	Status, trends and future dynamics is covered in Chapter Three



Comment #	Reviewer Name	From Page (start)	From Line (start)	To Page (end)	To Line (end)	Comment	How to Address
						drivers and indirect drivers, and (iv) and a section on measures taken to conserve and use biodiversity sustainably	
279	CSIR BES					Missing: trends and future dynamics of drivers	Status, trends and future dynamics is covered in Chapter Three
280	Thomas Brooks (TB)					The IPBES definition of "biodiversity" includes "ecosystems" (see e.g. <a href="http://www.ipbes.net/sites/default/files/downloads/IPBES_2_INF_2_Add.1.pdf">http://www.ipbes.net/sites/default/files/downloads/IPBES_2_INF_2_Add.1.pdf</a> ; also Africa assessment Chapter 1, Page 5, Lines 142-145). So, avoid use of phrases like "biodiversity and ecosystems", which is a tautology and unnecessary repetition. Instead, either a) if the intent is to refer to "ecosystems" a specific level of ecological organisation, then delete "biodiversity", b) if the intent is to refer to "biodiversity" generally, delete "ecosystems", or c) replace "biodiversity" with something like "genetic diversity, species, and ecosystems". Examples that need correcting include Page 7 (Lines 203 & 205), Page 8 (Line 267), Page 9 (Line 303), Page 49 (Line 325)	Updated