

Comment form for 2nd Review Phase of the Deliverable 2b) Regional and subregional assessments of biodiversity and ecosystem services for Africa, Chapter 2 ‘Nature’s contributions to people and quality of life’

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Reviewers:

Benis Egoh (BE)	Odirilwe Selomane (OS)
Brian Mac Sharry (BMS)	Patrick O’Farrell (PO)
CB TSU	Rael Loon (RL)
CSIR BES	South Africa (SA)
Dan Faith (DF)	Susan Ringrose (SR)
Diane Douglas (DD)	The Biodiversity Indicators Partnership (BIP)
Michael Olusegun Ogundele (MOO)	Thomas Brooks (TB)
Moha Haddouch (MH)	TSU Values
Nadia Sitas (NS)	Yaw Agyeman Boafo (YAB)
Neil Burgess (NB)	

Comm ent #	Reviewer Name	From Page (start)	From Line (start)	To Page (end)	To Line (end)	Comment	How to Address
1	CB TSU	1	12	1	12	Claire Ntshane (South Africa (SA)) is listed as a fellow of the chapter, however she is not on our list of IPBES fellows	Claire is a lead author not a fellow. No change made.
2	TSU Values	2	47	2	65	Consider presenting values and valuation and NCP's as two separate sections. Many sections regarding NCPs are not referring at all to values and valuation	Values and valuation are now presented for each of the three NCP categories, following changes made at the Addis Meeting. Values are mentioned when available
3	CSIR BES	4	94	5	149	Note, the Executive Summary is your key findings. The structure is a bold sentence which is the take home message, followed by 2-4 supporting sentences that must support that bold sentence. It has confidence terms, and links to section numbers. Please reformat your key messages like Chapter 3 did.	Changes have been made to follow C3 presentation
4	Patrick O'Farrell (PO)	4	94	5	175	The key findings are very general (All regions are diverse and multicultural and depend on nature's service and contributions, with strong links to spirituality and culture. Most of these will apply to any region in the world. The key messages need to strongly emphasize the unique African experience. Unique biodiversity, rapid and extractive resource patterns, the role of colonization, multi-nationals, and conflict and wars and the impacts that these disruptive processes have had on ecosystems should feature here. A key character is the lack of these benefits - poor quality water, disease, etc....	Key findings have been revised. We now have a key message on how diverse Africa is in terms of cultural diversity, ecosystems and ecosystem goods.

Comm ent #	Reviewer Name	From Page (start)	From Line (start)	To Page (end)	To Line (end)	Comment	How to Address
5	Rael Loon (RL)	4	103			"it also," delete comma	comma deleted
6	Rael Loon (RL)	4	105		106	"The spirituality is part" delete 'the'	"The" deleted
7	South Africa (SA)	4	106	4	107	Duplication of sentences"There is an unquestionable spiritual and material inter-linked dimension of nature in Africa.	duplication removed
8	Rael Loon (RL)	4	111			Edit to "The link between the critical role of Indigenous local knowledge" add 'and ecosystem services'...is well documented...	Edited.
9	Rael Loon (RL)	4	113			Suggest "At times its role can also be oversimplified and underestimated".	Edited using the suggested phrase
10	Rael Loon (RL)	4	123			"...can provides us with..." change to "...can provide us with..."	"s" deleted
11	Odirilwe Selomane (OS)	4	125	4	127	This sentence could also start from "Decisions...", the point about dependence is already made in 1.	Start at Decision now.
12	South Africa (SA)	4	125	4	125	Leave out "we" here and further on in text. Authors are not all from Africa.	"we" removed in the text
13	Rael Loon (RL)	4	126			"...decisions about managing our nature contributions..." suggest "...decisions about managing nature's contributions in Africa often fail to take account of nature's ability to sustainably provide such contributions."	Suggestion considered
14	Odirilwe Selomane (OS)	4	128	4	129	Sentence structure, unclear. What "other values" are being referred to?	sentence changed.
15	Rael Loon (RL)	4	128			'...in ways that contributed some values..' rather "...in ways that contribute..."	sentence changed.

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16	Rael Loon (RL)	4	130			"in giving value to nature contributions..." suggest "in asigning value to..."	sentence changed.
17	Odirilwe Selomane (OS)	5	132	5	132	Replace "is" with "are"	"is" replaced with "are"
18	Rael Loon (RL)	5	132		138	Combine Paragraph 12 & 13 (same message?)	paragraph 12 suppressed as redundancy with Par 2.
19	Rael Loon (RL)	5	132			suggest rephrase to "People derive vital benefits from interacting with nature, which may maintain and improve their well being"	Key messages have been revised substantially. Therefore this comments may have been deemed irrelevant based on the new structure of the chapter's executive summary.
20	Odirilwe Selomane (OS)	5	134	5	138	Start at "Interacting..."	start at "interacting"
21	Odirilwe Selomane (OS)	5	139	5	140	Captured in 7 above?	Paragraph removed.
22	Rael Loon (RL)	5	141			suggest edit "Africa people use a wide diversity of plants and fauna for meeting important subsistence needs."	Paragraph removed.
23	Odirilwe Selomane (OS)	5	142	5	146	Start at "The increasing..." and rephrase, confusing	"The increasing..." added
24	Odirilwe Selomane (OS)	5	147	5	149	Sentence unclear, rephrase	Sentence rephrased

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25	Odirilwe Selomane (OS)	5	150	5	166	How are these different from key messages?	No idea.
26	CSIR BES	5	174	5	190	The current Executive summary text is the text of the outline. It is better to use it to develop the introduction. The executive summary will include/be based on the key messages.	This comment was not addressed nor responded to, as it requires too many changes that will not be accepted at this stage.
27	Odirilwe Selomane (OS)	6	174	6	190	Add a paragraph summarizing the main findings of the assessment	A paragraph has been added.
28	Benis Egoh (BE)	6	177	6	177	Is this chpater about nature's contribution to people or just about values. I think value is a narrow way to look at it.	It is about status of nature's contributions to people and their socio-economic value and valuation. So "Values" has been removed from the second sentence.
29	Benis Egoh (BE)	6	180	6	180	Ecosystem services is the same as nature's contribution to people. Please change nature's gift to people to "nature's contribution to people"	Suggested changes made.
30	Rael Loon (RL)	6	184			"...identify aspects of..." amend "....identifies aspects of..."	not requested anymore.

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31	Patrick O'Farrell (PO)	6	188			It is not made clear - what is the aim of the chapter, what are the key questions that the chapter is addressing? Over all the chapter has lots of detail, but what is presented is not effectively anchored down.... An it provides bits and pieces of all sorts of data. Defining the questions and answering them would provide much needed structure.	Summary rephrased.
32	Patrick O'Farrell (PO)	6	188			What is Goal D of the Strategic plan?	Added: Enhance the benefits to all from <i>biodiversity</i> and ecosystem services
33	Benis Egoh (BE)	6	190	6	190	I think this assessment is beyond CBD targets. It is important for SDG and other global comitments such as IPCC. No need to limit to CBD.	Added SDG and IPCC, and rephrased the sentences
34	Patrick O'Farrell (PO)	6	193			People have depended on nature since the beginning of life on earth - this is misleading, inaccurate and inappropriate - sounds like it is promoting creationism beliefs. Life on earth appear 3.5 billion years ago, humans have been a round for about 2-3 million years..... and they are a component of nature...	replaced "since the beginning of life on earth by since the dawn of mankind as suggested by another reviewer (Rael Loon), Line 193
35	Rael Loon (RL)	6	193			"Human beings have depended on nature for their well-being since the beginning of life on earth" rather "since the dawn of mankind" (i.e. life preceded human beings)	replaced "since the beginning of life on earth" by "since the dawn of mankind, Line 193

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36	Benis Egoh (BE)	6	217	6	217	IPBES has a frame work which you use latter. So remove "based on MA typology" as it is not needed.	"based on MA typology" has been removed from the text as suggested
37	Benis Egoh (BE)	7	223	7	223	I am not sure why you start with value? It is more than value. More over I think value should go under the typology of material, non-materila.... The term value is misleading.	the structure and naming of the section has been done in accordance with the guidance given by the MEP and TSU Africa during the Second Author's Meeting
38	CSIR BES	7	223	7	223	As this section 2.2 is on value, it will be very useful to have some tables with monetary/market value of biodiversity, if possible. If processing is included, fermentation could be an entry point for microorganisms	we constructed a table for all NCPs with examples from Africa
39	Patrick O'Farrell (PO)	7	223	43	1756	This section has some interesting information but is has not be appropriately synthesised it is largely an unprocessed information dump requiring extensive rework to be worthwhile including in this chapter.	This section has been reworded by the CLAs of the chapter.
40	Odirilwe Selomane (OS)	7	225	8	274	This section is narrowly focused and gives the impression that values are only economic. See some additional literature on values and valuation from Pascual et al 2017 & Chan et al 2016	Taken care of as the introductory part of the section

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41	TSU Values	7	229	7	233	Important to recognize that values are intrinsic, instrumental and relational, and the focus of this chapter si only on the two latter to be consistent with the IPBES approach to multiple conceptualizations of values	Done using the updated common texts on values of NCP
42	Odirilwe Selomane (OS)	7	230	7	230	A box clarifying the differences between instrumental, relational and maybe instrinsic values might be useful here as these may not be clear for everyone reading this	Done using the updated common texts on values of NCP. A text format used instead of a box
43	TSU Values	7	235	7	240	This paragraph could cite Pascual et al., (2017) Valuing nature's contributions to people: the IPBES approach	Done
44	Benis Egoh (BE)	7	242	7	249	This chapter is about how nature benefit humans, not just about values. Please introduce the different ways in which nature benefit people, particularly in Africa. The dependence of people on nature for food, housing, spiritual well being. How important is this to rural populations and urban areas.	This has been just an introductory subsection conceptualizing on multiple uses of NCPs. In the subsequent section there is an elaboration about how nature benefit humans,
45	TSU Values	7	242	7	249	The text should refer to the right type of value - economic value - do the same all troughout the text to be consistent with the diverse values approach from IPBES	Done
46	Patrick O'Farrell (PO)	7	247	7	249	Not sure these is value in sighting \$ values for arbortary places in Africa.	Discussed with Patrick O'Farrell (PO) and his concerns were taken in consideration

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47	Patrick O'Farrell (PO)	7	251	8	261	Not sure what value these tables provide. These is little value in the actual numbers so that need to be used then to discuss the relative proportional values of monetary vs non-monetary values and then proportions of relative inportance of coal vs fuel wood ... what does this mean? Hoe important s the timber industry compared to other industries? and what is the proportion interms of these economies.... we need a relative understanding - at present these are just numbers.	Discussed with Patrick O'Farrell (PO) and his questions were answered
48	TSU Values	7	251	7	251	The title of the table should refer to the type of value - total annual economic value -	suggested changes made.
49	TSU Values	8	259	8	259	The title of the table should refer to the type of value - total annual economic value -	suggested changes made.
50	TSU Values	8	263	8	274	The text should refer to the right type of value - economic value - do the same all troughout the text to be consistent with the diverse values approach from IPBES	suggested changes made.
51	Odirilwe Selomane (OS)	8	275	8		"Contribution" seems to be treated as a positive throughout the chapter. What about negative contributions from such as impacts of degradation, pollution, etc.?	Sub-section 2.6 created
52	Patrick O'Farrell (PO)	8	275			Why were these heading chosen - so food, NTFP, water, energy.. (I agree but justify....)	Because these are the sub-headings suggested by IPBES framework. (cf. File READ ME). This section describes the instrumental values across NCPs

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							according to IPBES conceptual framework
53	Benis Egoh (BE)	8	276	8	276	Use IPBES typology. I find the use of MA and IPBES confusing	MA is only used introduction and it is not used inter-changeably with IPBES
45	Patrick O'Farrell (PO)	8	276	8	285	What is the relative importance of these contributions for example medicinal plants.... What proportion if the population of an area relies on these and uses these compared to other forms of medicine?	Information related to health have been provided in subsection 2.2.1.4 (cf. WHO, 2002)
55	Odirilwe Selomane (OS)	8	284	8		Comma missing between Heubch ref & "construction"	Comma added.
56	Odirilwe Selomane (OS)	8	291	9	293	Reference needed	References added
57	Benis Egoh (BE)	9	297	15	572	This section is just too long. Too much on NFTP. Sure there is more than that in Africa. What about north and South Africa (SA). What about fodder provision (grazing), crop production etc	Section reframed. Information related to the other regions has been added.

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58	CSIR BES	9	297	15	572	Section “2.2.1.1. Food and feeds” can be organized/split into plants, animals and microorganisms; food collected from the wild (bushmeat, insects), cultivated (subsistence/home garden/leafy vegetable; livestock, large scale agriculture, aquaculture and mariculture) etc. At the moment, a lot on fisheries. See if possible to balance. We have leguminous crops (also sources of proteins; some like Bambara groundnut are underutilized), cereals, a lot of vegetables and livestock in addition to bushmeat, sources of oils/nuts, condiments/spices (taking into account North Africa), drinks e.g. from baobab and bissap (from hibiscus), honey, and many fermented drinks/Fulani.	Section reframed. The table of contents follows the IPBES framework. information requested has been provided. North Africa examples have been added. Agriculture, aquaculture and mariculture are not linked directly to nature but there are rather anthropogenic)
59	Odirilwe Selomane (OS)	9	297	9	297	This section overemphasizes NTFPs and misses out on other sectors which are also important, especially the agricultural sector which is a major source of livelihood for many countries in Africa. Other sectors (fisheries, tourism) are also under represented (at least relative to NTFPs). In general crops, staple or otherwise, are not mentioned here (those grown in agricultural systems)	This part describes the human - nature relationship and not man-made Agriculture
60	Patrick O’Farrell (PO)	9	297			Foods and feeds section discusses medicinal plants..... This seem out of place.	It is under introduction and not under food and feeds as stated

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61	Patrick O'Farrell (PO)	9	298	9	316	These results are very descriptive, are there not further statistics that could be used to make these points more deeply?	Statistics and indicators have been provided.
62	Benis Egoh (BE)	9	308	9	316	Too much details. We only need one example to support a claim.	Details emphasize the importance and current examples of food diversity found in nature
63	TSU Values	9	318	9	329	To be consistent with the IPBES approach to multiple conceptualizations of values I suggest using also the concept of values as importance, NCPs represent importance for trade, for providing employment opportunities, for the industry, etc. This paragraph has many examples of values as importance however this should be reviewed all throughout the chapters.	These values of importance have been considered in the report.
64	Patrick O'Farrell (PO)	9	325	9	325	"accounting for up to 80% of daily fats" - this is great - and exactly the type of info that the paragraphs above are missing.	Such have been considered in the paragraphs above
65	Benis Egoh (BE)	10	338	10	347	This section is about food, why talk about firewood. Indeed remove the feeds in the section title. It doesn't follow the typology	Transferred to Energy subsection
66	Benis Egoh (BE)	10	349	10	366	Please put all write ups about bushmeat in one place. Merge this section with 308-316 and make it shorter	suggested changes made.

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67	TSU Values	10	356	10	356	This is a great example where values are being used as measures that are not economic. And it is well stated in the title of the graph, perhaps to improve it it could be - Volume values of bushmeat consumption in Congo Basin countries -	The title of the table has been changed to value of bushmeat consumption in Congo Basin countries
68	Patrick O'Farrell (PO)	10	367	10	370	Language issues	Section reframed and references arranged
69	Odirilwe Selomane (OS)	10	370	10	374	Sentence is too long and unclear	Section reframed and references arranged
70	Benis Egoh (BE)	11	385	11	393	Please delete this section. Its about a cultural service that doesn't belong here. Its not about FOOD	Insects are consumed as source of protein.
71	Benis Egoh (BE)	11	395	11	405	please explain why this is important for you to single out and discuss..	The insect consumption is becoming more popular in Africa as protein source (cf. section 2211; Van Huis, 2003)
72	Benis Egoh (BE)	11	411	12	423	You already discussed NFTP in 318 to 329. please merge them and shorten. As forest is only a small part of Africa. Please include food in other regions e.g. southern Africa, eastern, northern regions	Information in Southern, Northern and Eastern Africa will be provided
73	Odirilwe Selomane (OS)	11	411	11	445	NTFPs were already addressed above earlier in this section	Section reframed and references arranged

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74	Patrick O'Farrell (PO)	11	411	11	420	Language issues	Section reframed and references arranged
75	CSIR BES	12	425	12	445	Discussion on timber should include Central Africa and discussion on NTFP should cover all the subregions not mainly/only West Africa.	Additional Information have been provided
76	South Africa (SA)	12	445	12	445	There are many more appropriate veld products used by local people in the Kalahari region than named here. There is a book written on it! Please get up-to-date data, reports and other literature.	Additional Information have been provided
77	Benis Egoh (BE)	12	447	12	472	Please remove aquaculture as we are talking about nature's contribution. Except you see aquaculture as a gift from nature. I think you should remove it and concentrate on fisheries from wild. Or make the link with nature explicit as providing habitat form growing of fish	Removed and replaced by artisanal fishermen and natural fisheries
78	Odirilwe Selomane (OS)	12	447	12	448	Reference needed	References added
79	Odirilwe Selomane (OS)	12	450	12	451	Reference needed	References added
80	Odirilwe Selomane (OS)	12	451	12	453	Neglect of what? What flawed development model? How is it flawed?	That is a non-progressive development

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81	Odirilwe Selomane (OS)	12	461	12	467	From which sources do the values in this section come?	Reference: FAO (2016)
82	TSU Values	12	461	13	472	Make sure you use IPBES values terminology. At the begining you're referring to economic value as a measure - Total value added of fishing and aquaculture in Africa is US\$17.4 billion. With a total GDPA of US\$288.4 billion, the fisheries sector contributes 6% of the GDPA for the whole of Africa. The highest contribution is from marine artisanal fishing contributing 1.82% of total GDPA, whereas inland fishing and marine industrial fishing have the same contribution of 1.62 %, and aquaculture contributes almost 1% (FAO, 2014) (Table 2.4). - and then you're referring to the value of fishing and aquaculture for certain countries.	Section reframed and references arranged
83	The Biodiversity Indicators Partnership (BIP)	13	473			African inland fisheries have a major role in nutrition and food security. These dependent countries do not have access to marine fisheries and do not have aquaculture production. This dependence therefore relies on the integrity of freshwater ecosystems.	Section reframed and references arranged

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84	The Biodiversity Indicators Partnership (BIP)	13	473			The Lake Victoria Nile Perch fishery has collapsed compared with earlier productions. There is not a trend towards small pelagic species dominating catches in all the African Great Lakes.	Section reframed and references arranged
85	The Biodiversity Indicators Partnership (BIP)	13	473			Units of production that are expressed as imperial units “tons” rather than the metric units “tonnes”. Since all FAO data (and I presume , almost all other data, except that from the USA) is in “tonnes” this should be corrected throughout.	Corrected
86	Benis Egoh (BE)	13	476	13	488	Please delete	Section reframed and references arranged
87	Odirilwe Selomane (OS)	13	484	13	484	Why cant you cite the study in question, that’s cited by FAO?	References added
88	Benis Egoh (BE)	13	490	13	502	Please make the link with nature. The link is not explicit . How does nature support the fishing industry?	Section reframed and references arranged
89	Odirilwe Selomane (OS)	13	490	14	517	The section is full of values, they could perhaps be better summarised in tables or figures?	Suggestion considered
90	Thomas Brooks (TB)	13	495	13	495	A useful citation on freshwater species harvest in North Africa is: Juffe-Bignoli & Darwall (2012) Assessment of the socio-economic value of freshwater species for the northern African region https://portals.iucn.org/library/node/10192	Reference considered

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91	Benis Egoh (BE)	14	504	14	517	Please delete. Its not balut nature. The fisheries section is also too long. Please make it shorter	Section reframed and references arranged
92	Benis Egoh (BE)	14	519	14	543	please make the link with nature	Linked with nature has been done
93	Patrick O'Farrell (PO)	14	519	14	530	This section has no references - where is this data from?	The reference/ source is USAID (2015)
94	Odirilwe Selomane (OS)	14	520	14	543	References needed in this section	The reference/ source is USAID (2015)
95	Odirilwe Selomane (OS)	14	520	14	543	There is no mention of feed grown in agricultural systems here - is it growing/declining overtime?	Agricultural system is man-made and is not considered here
96	Benis Egoh (BE)	14	545	15	567	please delete	Section reframed. Information related to the other regions has been added.
97	Benis Egoh (BE)	15	573	16	637	Please only use forest as n example. Please also shorten this section.	Section reframed and references arranged
98	Benis Egoh (BE)	15	573	15	573	This heading is weird. What classification is Timber? What about reeds and grasses taken from savannahs and grasslands. Where do they fit? Please change to raw material. And please include NTFP and other non materials from regions like southern Africa. Please make this more general with specific examples.	Section reframed and references arranged
99	CSIR BES	15	573	25	993	Section 2.2.1.2 – cross refer with Chapter 1 on NTFPs	Section reframed and references arranged

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100	Odirilwe Selomane (OS)	15	573	25	993	This is too much text dedicated only to NTFPs. Could this be summarised to the same level of details as the other resources? Maybe add some of the values to Table 2.5? This might also benefit from standardizing the focus on similar issues across regions. For example, Table 2.5 2.6 and 2.7 could be combined into one table showing information for the different regions	Section reframed and references arranged
101	Patrick O'Farrell (PO)	15	573			I would have expected more disaggregation between natural forest and plantation of exotic species.	Plantations are man -made forest as opposed to natural forest
102	Benis Egoh (BE)	15	574	15	594	Is this section about forest? Maybe discuss more general on different benefits, e.g. medicinal plants in all regions, timber and other products from western and central Africa, reeds and poles from Savannah in souther Africa.. There is too much focus on forest.	The other units of analysis (savannah, grassland, etc.) have been considered for grazing
103	CSIR BES	15	995	27	1073	Section 2.2.1.3 – also cross refer with Chapter 1. They have an extensive section on energy.	Section reframed and references arranged

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104	Moha Haddouch (MH)	16	639	16	639	Meta-analysis of valuation of ecosystems and biodiversity for the argan forest in Morocco has been recently conducted by Benchekroun, 2014 and indicate that there is a huge gap between the global benefits that the population receives from the argan ecosystem and what the population is willing to pay for its conservation. Benchekroun, F. 2014 : Evaluation économiques des services écosystémiques dans l'Arganraie. Symposium act PNUE, Université Al Akhawayne and the University of Minnesota. Rabat.	Section reframed and references arranged
105	Benis Egoh (BE)	18	711	18	722	I am not sure how this fits here. Is it about trends? Where is the link with nature? Maybe delete this.	Section reframed and references arranged
106	Benis Egoh (BE)	18		19		Too much on forest. What about other biomes?	The other units of analysis have been considered for grazing
107	Michael Olusegun Ogundele (MOO)	19	733	19	733	This line form a new paragraph. Therefore line 733 should be left an empty space and new paragraph to start from 734	Section reframed and references arranged
108	South Africa (SA)	19	771	19	771	Senegal with small "s" please as it is a species name.	Senegal is a country but not a species name

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109	TSU Values	23	926	23	929	This is an example of value as importance - The Rwanda landscape restoration program has attracted funding from a variety of sources and is helping to restore fertility, integrate trees in production landscapes, control erosion, and protect key wetlands while increasing agricultural productivity. - Make sure you make this types of values explicit all troughout the chapter and the assessment	Section reframed and references arranged
110	CSIR BES	25	995	27	1073	Section '2.2.1.3 Energy' should include biofuels and biogas	The requested information has been provided
111	Odirilwe Selomane (OS)	25	998	25	998	Reference needed	Section reframed and references arranged
112	Michael Olusegun Ogundele (MOO)	25	1010	25	1010	This citation is inadequate unless you state the year.	References added
113	Patrick O'Farrell (PO)	26	1052			Language issues	Section reframed and references arranged

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114	CSIR BES	27	1074	29	1189	Section '2.2.1.4. Medicinal, biochemical and genetic resources' could include cosmetics. Not clear why genetic resources are here bearing in mind that many genetic resources are food crops. I did not find <i>Prunus africana</i> , an important medicinal plant in central Africa/Cameroon. Can we also refer to/describe participation in global trade/market and value of exports	Section reframed and references arranged. <i>Prunus africana</i> has been introduced in the section "Medicinal plants'
115	CSIR BES	27	1074	29	1189	Section 2.2.1.4 – Check on Chapter 1 emerging section on medicinal plants and resources.	Section reframed and references arranged
116	Michael Olusegun Ogundele (MOO)	27	1083	27	1083	"women and men in (in) the African communities". Remove one "in"- repetition- from the statement.	Corrected

Comm ent #	Reviewer Name	From Page (start)	From Line (start)	To Page (end)	To Line (end)	Comment	How to Address
117	Yaw Agyeman Boafo (YAB)	28	1118	28	1149	In the context of Western Africa, Benin's experience in the management of sacred forests leading to immeasurable medicinal , biochemical and genetic values is another good example which I think should be cited in this section. The following references can provide some good information on these issues: (1) http://satoyama-initiative.org/benins-experience-in-the-management-of-sacred-forests-for-biodiversity-conservation/ (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 (available at http://satoyama-initiative.org/wp-content/uploads/2016/08/SEPLS-in-Africa_FINAL_lowres_web.pdf)	The requested information has been provided
118	Michael Olusegun Ogundele (MOO)	28	1127	28	1127	There is repetition of the word "diarrhea". Please remove one.	Corrected
119	CSIR BES	29	1189	32	1280	Can we also consider rainfall in this section '2.2.1.5" Water supply'?	The requested information has been provided
120	Patrick O'Farrell (PO)	30	1233	30	1240	Language issues	Corrected

Comm ent #	Reviewer Name	From Page (start)	From Line (start)	To Page (end)	To Line (end)	Comment	How to Address
121	Patrick O'Farrell (PO)	33	1320			Most of the content in this section does not relate to climate regulation	The content for this section (2.2.2.2) have been revised sustainably to elaborate in depth the role of nature components (e.g. Forests see table 2.9) in regulating climate
122	Patrick O'Farrell (PO)	35	1391	35	1409	Very general at the start not Africa specific. - I would suggest shortening - this applies to the above section too.	The reviewer has done minor observation and suggested to delete this part which is directly linked and support the bellow idea. it's not necessary to delete it.
123	Patrick O'Farrell (PO)	37	1475	38	1561	Trim down on generalised explanations regarding mangrove function and focus on African situation	The reviewer has done minor observation and suggest to trim details regarding mangrove description. If we trim the text as requested, the quality of the report will be affected, we therefore suggest to maintain these relevant descriptions.
124	Thomas Brooks (TB)	41	1666	42	1689	Language is another important aspect to highlight here. One specific example that might be worth discussion could be that of indigenous language names for different species: see, for example, Sagita et al. (1998) Luyha bird names. East Africa Natural History Society Bulletin 28(3): 2–5.	We have completed this with a new short paragraph and cited the reference.

Comm ent #	Reviewer Name	From Page (start)	From Line (start)	To Page (end)	To Line (end)	Comment	How to Address
125	Michael Olusegun Ogundele (MOO)	41	1686	41	1687	" it is included in the religious ceremonies... used in most of ritual ceremonies". This sentence is not appropriately structured and as such don't have a complete meaning. There si an omission in the sentense content. "and other aspects of the Bygos communities' culture used millet seeds meal in most ritual ceremonies".	The paragraph was rewritten as follows: "Shellfish have an important patrimonial and symbolic value in Bijagos communities' culture west of Africa. It is included in their religious ceremonies and other aspects of their life. For example, shellfish along other products such as tobacco, rice, or palm wine are offered by the youngest to the oldest as a form of 'paying respect to the greatness of wisdom. Honey is also connected to the social life of these communities "
126	CSIR BES	42	1691	43	1755	Section 2.2.3.4 – this section needs a good edit. Some of the sentences and titles read a little oddly.	This has been edited and the title revised
127	CSIR BES	43	1170	43	1179	Same comment applies for Box 2.4 – repeats Chapters 1 and 3. Also slightly oddly written. Suggest omit.	We are in agreement with this observation, hence why the box is deleted.
128	CSIR BES	43	1757	46	1833	Section 2.3.1 – definitely check this against Chapter 3 – in particular the statistics (NB!)	The suggestion is taken into consideration!
129	Patrick O'Farrell (PO)	43	1757	59		Good section - good use of graphics (some of these need to be redrawn)...	Thank you!

Comm ent #	Reviewer Name	From Page (start)	From Line (start)	To Page (end)	To Line (end)	Comment	How to Address
130	CSIR BES	43	1758	46	1833	In section 'Regulating contributions according to sub-regions and units of analysis', it will greatly help if you have a para for each subregion and, if needed, an additional para comparing the subregions. Why cultivated areas in Central Africa have only moderate contribution? What are the sources of information in this Table?	The sources are from many references and also based on our own experiences
131	CSIR BES	43	1770	43	1779	Is Box 2.4 relevant to NCP? Not clear	Box 2.4 is more relevant to chapter 1 and 3, hence why it is omitted.
132	Brian Mac Sharry (BMS)	45	1801	45	1801	Map Figure 2.4 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.	The map on Figure 2.4 was not built by ourselves (See reference). We could update it but we do not have the original data used. However, please note that this map was drafted after South Sudan became independent. Despite the relevance of the reviewer comment, we think to maintain this figure as it is because the main objective here is not country dependent but basically to provide assessment at regional level.

Comm ent #	Reviewer Name	From Page (start)	From Line (start)	To Page (end)	To Line (end)	Comment	How to Address
133	Brian Mac Sharry (BMS)	45	1802	45	1802	Map Figure 2.4 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.	The map on Figure 2.4 was not built by ourselves (See reference). We could update it but we do not have the original data used. However, please note that this map was drafted after South Sudan became independent. Despite the relevance of the reviewer comment, we think to maintain this figure as it is because the main objective here is not country dependent but basically to provide assessment at regional level.
134	Michael Olusegun Ogundele (MOO)	45	1802	45	1804	Line 1802 should be cited as reference to the Figure 2.4. Therefore it should be removed from 1802 and be added to be part of line 1804 as reference to the figure	suggested changes made.
135	CSIR BES	45	1838	47	1848	In 'Box 2.3: Case study of material contribution in Miombo and Mopane (Malawi)', you need to adjust the terms i.e. use NCP and corresponding terms	suggested changes made.

Comment #	Reviewer Name	From Page (start)	From Line (start)	To Page (end)	To Line (end)	Comment	How to Address
136	South Africa (SA)	46	1819	46	1819	In Table 2.10, not sure if it is correct that the drylands and deserts in southern Africa only have a "weak" Provisioning ecosystem services? Where is this table published and who are the authors with date please. The same for table 2.11 where drylands and deserts only contribute "moderately" cultural ecosystem services.	Tables 2.10 and 2.11 were not quoted from previously published works. Rather, the tables were built from our own analyses of the trends on the cover and uses of the "unit of assessment". In addition, the importance "color shade" of the contribution of each "unit of assessment" was based on a comparative analysis. For example, in southern Africa Wetlands – peatlands, mires, bogs and Cultivated areas have a better nature contribution to people than drylands and deserts, hence the coloring in the table 2.10. Similar analyses were done for the Non Material contributions (table 2.11).
137	Thomas Brooks (TB)	46	1819	46	1819	Seems inappropriate to refer to units of "analysis" in the legend and title of Table 2.10. IPBES is not supposed to undertake analysis, but rather assessment, and support to policy, knowledge generation, and capacity building. Maybe change "units of analysis" to "units of assessment" or similar? Also Line 1834 (Page 47), Line 1923 (Page 49), and Line 1930 (Page 50).	suggested changes made.
138	CSIR BES	47	1864	47	1867	Cross reference with Chapter 1 writing on the Blue Economy – check that this aligns.	Should be done when synthesizing the whole assessment

Comm ent #	Reviewer Name	From Page (start)	From Line (start)	To Page (end)	To Line (end)	Comment	How to Address
139	CSIR BES	48	1885	48	1901	Box 2.4 on Fish richness and endemism, message conveyed is not clear. Is it about fish richness only? Endemism is not in the Figure. Chapter 2 should be focused on presenting data on NCP. We should also present only maps of Africa. If we are comparing Africa to the rest of the world, then a map of the world can be justified.	This box has been deleted since chapter 3 is already working on the trend in biodiversity.
140	Thomas Brooks (TB)	48	1886	48	1901	An important primary reference for the richness and endemism of freshwater fishes across Africa is Darwall et al. (2011) The diversity of life in African freshwaters : under water, under threat : an analysis of the status and distribution of freshwater species throughout mainland Africa (https://portals.iucn.org/library/node/9409)	Thanks for providing this interesting document. However, as we are no more presenting trend on biodiversity, we have not used it.
141	CSIR BES	48	1902	48	1922	Box 2.5: 'Examples of the Many Uses of the Biodiversity'. Not clear what the map of Africa says	The map (See below) is showing the distribution of Wetlands in Africa. Just under the map we provide examples of the many uses of those wetlands.
142	CSIR BES	49	1923	49	1929	Table 2.11: we need to specify the non-material contribution mentioned in the title; Not clear what material contribution e.g., from deserts; Not clear why drylands same color as wetlands – urban /cultivated	The non-material contributions are now specified. Material contributions of deserts include food, medicine, fodder, fuel wood, energy, fiber and genetic materials (see bidak et al.

Comm ent #	Reviewer Name	From Page (start)	From Line (start)	To Page (end)	To Line (end)	Comment	How to Address
							2015, Global Ecology and Conservation p 433-447)
143	CSIR BES	50	1864	59	2346	Section 2.4 – also needs a good edit; including its title.	The Section is now edited and its title as well.
144	Patrick O’Farrell (PO)	50	1957	59	2346	Good section - clear and the focus is good - this section and 2.5 work well together but there could be a little more linking backwards and forwards in these sections	Done
145	CSIR BES	50	1980	54	2120	Section 2.4.3 Trends of NCPs should be combined with 2.4.2 bcs they are both describing the decline or loss in NCP.	Different drivers affect different status and trends of NCPs in different regions and these need to be highlighted
146	CSIR BES	50	1981	52	2022	Regarding status of NCP in section ‘2.4.2.1 Habitat creation and maintenance’, chapter 2 is not meant to describe the status of biodiversity (what chapter 3 is doing) but status of contributions of the different components of biodiversity to the good quality of life that you covered (I think) in sections 2.2. and 2.3 above. This means that a lot of information you have here should be left for chapter 3. As I indicated earlier, this section could be focussed on trends and future dynamics of NCP.	I have shared information with ch.3. A new text has also been developed for this subsection.

Comment #	Reviewer Name	From Page (start)	From Line (start)	To Page (end)	To Line (end)	Comment	How to Address
147	CSIR BES	51	1981	52	2022	Section 2.4.2.1 – check these figures against forest facts and figures in Chapter 1 and Chapter 3.	This information has been shared with ch.3
148	CSIR BES	51	1992	51	1994	Table 2.13 would be better in chapter 3 on trend in forest areas. More recent data exist.	This information has been shared with ch.3

Comm ent #	Reviewer Name	From Page (start)	From Line (start)	To Page (end)	To Line (end)	Comment	How to Address
149	CSIR BES	52	2023	53	2066	Section '2.4.2.2 Regulation of freshwater quantity' has a lot of information on invasive alien species. Information on IAS should be considered in chapter 4 and to some extent in chapter 3. In chapter 2, we can say for example that IAS such as xxx have been reported to reduce water filtration, erosion control and sedimentation retention in Ruanda, xx and xx. Their impacts will likely be maintained and increased because eradication of these IAS have not been undertaken due to lack of funds (this is just an example of what can be said and how). Another example of what needs to be said, instead of reporting on overexploitation of plants, is loss of availability of medicines, or food during times of hunger etc. Overharvesting of mangroves increases occurrences of flood, erosion in the coast of West Africa with loss of homes and livelihoods. Data can be presented if available. Also see if heading corresponds to content.	These thoughts have been incorporated in the text.
150	CSIR BES	54	2120	59	2346	Section 2.4.3 – Check against the loss and degradation facts and figures in Chapters 3 and 4.	The areas of overlaps have been discussed and recinciled with chapter 3
151	Michael Olusegun	55	2178	55	2178	"Liekwise"- a spelling mistake insetad; "Likewise"	No longer relevant

Comm ent #	Reviewer Name	From Page (start)	From Line (start)	To Page (end)	To Line (end)	Comment	How to Address
	Ogundele (MOO)						
152	Michael Olusegun Ogundele (MOO)	58	2274	58	2275	This subtitle is misleading. The content under it have no correltation with the title stated in 2.4.3.4. I suggest the title should be changed to "THREAT POTENTIALS AND DISPERSALS OF INVASIVE ALIEN SPECIES".	Title revised accordingly
153	Michael Olusegun Ogundele (MOO)	58	2291	58	2291	The statement beginning from; " Thus, extreme climate events.." should be moved down to form a new paragraph	Done
154	Michael Olusegun Ogundele (MOO)	58	2326	58	2332	Doesn't fit other paragraphs. I suggests it should be moved up to page 52 under the sub-title 2.4.2.2 as a new paragraph entirely.	Deleted
155	Patrick O'Farrell (PO)	59	2347	64	2592	This is a good section - and speaks to issues I would expect to find in the chapter	Thank you!
156	Patrick O'Farrell (PO)	60	2368			maintain....	changed man on line 2368 to maintain
157	CSIR BES	60	2371	60	2371	Section 2.5.1 – I suggest rewrite the title.	Title has been changed

Comm ent #	Reviewer Name	From Page (start)	From Line (start)	To Page (end)	To Line (end)	Comment	How to Address
158	Yaw Agyeman Bofo (YAB)	60	2390	61	2436	To garner empirical examples/cases from differeny ecological zones and unit of analysis in relation to this particular section, recent study findings in the savannah semi-arid of Ghana on the decline, awareness and compliance of different social groups of TEK/ILK provides additional perspective and insight to this critical issue in the context of Africa and should be considered : Please see ' Bofo YA, Saito O, Kato S, Kamiyama C, Takeuchi K, & Nakahara, M (2015): The role of traditional ecological knowledge in ecosystem services management: the case of four rural communities in Northern Ghana, International Journal of Biodiversity Science, Ecosystem Services & Management, DOI: 10.1080/21513732.2015.1124454	Case study utilized, paragraph summarized
159	Michael Olusegun Ogundele (MOO)	61	2424	61	2424	should be left empty. And new paragraph should begin with line 2425 such as other paragraph method	comment not clear
160	Patrick O'Farrell (PO)	62	2472			Grief?	Grief replaced with grave

Comm ent #	Reviewer Name	From Page (start)	From Line (start)	To Page (end)	To Line (end)	Comment	How to Address
161	Patrick O'Farrell (PO)	62	2493			sustenance?	Sustenance changed to livelihood
162	CSIR BES	65	2593	66	2686	Conclusion – could you provide some bridging text to the next chapter?	Conclusion has been reworded taking into consideration this particular comment and many others relevant to influencing the content of this section.
163	Odirilwe Selomane (OS)	65	2593	65	2642	Any particular reason why the whole conclusion is focused almost exclusively on NTFPs? Hoe about the other resources?	Conclusion has been reworded taking into consideration this particular comment and many others relevant to influencing the content of this section.
164	Patrick O'Farrell (PO)	65	2593	67	2686	Conclusion - Incomplete nad not structured in an effective manner takehome messages only linked to a few components of the analysis and other newly introduced areas (like gender) reading like a summary of key references	Key messages and conclusion revised to reflect the entire scope of the chapter

Comment #	Reviewer Name	From Page (start)	From Line (start)	To Page (end)	To Line (end)	Comment	How to Address
165	Susan Ringrose (SR)	507 onwards				<p>1. With extensive coastlines and rich, nutrient filled ocean current convergence zones South Africa (SA) and Namibia should be among the largest marine fish producers in the world. Anecdotally Namibia had transferred all (or most) of its marine fishing rights to Russia for their assistance in the struggle towards independence. Inshore fishing along this coast is (now) non-existent - except for some shell-fish and recreational activities. (2) No mention is made of the Okavango delta fisheries - see Kgathi, Mmopelwa and Mosepele 2005 Natural Resource Assessment in the Okavango Delta, Botswana: Case studies of some key resources. Natural Resources Forum 20:70-81.</p>	Information considered and reference added

Comm ent #	Reviewer Name	From Page (start)	From Line (start)	To Page (end)	To Line (end)	Comment	How to Address
166	Patrick O'Farrell (PO)	All	All	All	All	General comment - there is a fortune of information presented. To mush in fact, and it comes across as something of a data dump, and that undistilled and refined for the purpose of the chapter. Refinement and focus would help create clarity in this chapter. In particular sections 1 and 2 are the areas requiring extensive synthesis and reflection back on what the chapter is aiming to achieve. 3,4,5 and good with only minor adjustment needed. section still needs to be written. Finally the chapter failed to effectively engage with the Values guide. This was presented to the authors and explained on a number of occasions. The concepts of understanding and thinking about multiple values and who's perspective all this work has been done from and is recognising has not been considered. At the least the authors should please consider the different types of value and integrate these into sections 2 and 3 of the chapter.	This has been addressed in the new section on values and valuation taking into account all multiple values.
167	Nadia Sitas (NS)	General	General	General	General	General: The authors should have a look at the following site for more information on the links between GQL and NCP: tp://www.africaevidencenetwork.org/what-do-we-know-about-the-link-between-ecosystem-and-poverty-alleviation-in-africa-an-interactive-map-of-the-evidence/	Thanks for suggesting this informative links. The links have been visited and relevant information synthesised.

Comm ent #	Reviewer Name	From Page (start)	From Line (start)	To Page (end)	To Line (end)	Comment	How to Address
168	TSU Values	General	General	General	General	The MEP will submit further guidance to support the integration of multiple values in all assessments. We advise you to take this guidance into consideration.	This has been taken into account
169	TSU Values	General	General	General	General	There is a need to contextualize from the beginning the approach to multiple conceptualizations of values in all assessments according to the proposal in the guide on values.	The new section takes into account multiple conceptualizations of values according to the guide on values.
170	TSU Values	General	General	General	General	There is a need to synthesise assessed economic values of NCP within the broader multiple types (instrumental, relational) and dimensionality of values (social, health, etc.). This could be shown by means of a table which provides key information about the values assessed, including those pertaining to economic values. It is important to make explicit what values are being assessed and identify gaps (e.g., lack of information on some types of values). This should ideally be done in Chapter 2 of the assessment.	The new section and table on values and valuation presents economics, social, biophysical and health values as well as methods.

Comment #	Reviewer Name	From Page (start)	From Line (start)	To Page (end)	To Line (end)	Comment	How to Address
171	TSU Values	General	General	General	General	While economic values are not to be prioritized viz-a-viz other types of values (social, health, etc.) it is clear that this is one value dimension that will be sought by many governments. As part of a pluralistic value framing, it is important to not disregard economic values. Economic values would need to be contextualized under the multiple conceptualizations of values approach. This should ideally be done in Chapter 2 of the Regional assessments. In this assessment is present in section 2.2.1 however it is not strong enough and it does not translate in relevant messages for the SPM. This is something that should be done.	The new section covers all relevant evidence on multiple values and methods from all regions.
172	CSIR BES	General comments				Regarding the structure, this suggestion is just for improvement in the headings and packaging without really changing the current structure (You may wish to refer to the IPBES chapter outline on Sheet 2.	Suggestion considered

Comm ent #	Reviewer Name	From Page (start)	From Line (start)	To Page (end)	To Line (end)	Comment	How to Address
173	Neil Burgess (NB)	p21	834			Demand for wood as charcoal is a major driver of forest loss in Eastern, Central and Western Africa. There is a considerable literature on charcoal and also a paper on the impact of Dar es Salaam city by Antje Ahrends and others in 2010 in PNAS https://scholar.google.co.uk/citations?view_op=view_citation&hl=en&user=dPkHXWsAAAJ&citation_for_view=dPkHXWsAAAJ:_FxGoFyzp5QC	Section reframed and references arranged
174	Neil Burgess (NB)	p21	Figure 2.1			This is not a good map of forests in Africa. It also has no legend. There are better ones published in peer reviewed papers, and numerous papers on the forests in different regions of Africa (papers on Madagascar, Tanzanian Eastern Arc, Eastern African Coastal Forests, Congo Basin, West Africa Forests, and so on). Some further synthesis required here I think	The map is already changed and needs to be improved (infographics??)
175	Neil Burgess (NB)	p24	946	p24	973	This is rather poor on the miombo woodlands. See papers by Chidumayo, Timberlake, Frost on this region and summaries on the miombo region in WWF ecoregion reports and the Conservation International Wilderness Areas book	Information and reference added

Comment #	Reviewer Name	From Page (start)	From Line (start)	To Page (end)	To Line (end)	Comment	How to Address
176	Neil Burgess (NB)	p27				Useful review of medicinal plant use in eastern and Africa in Cuni-Sanchez 2017 in Economic Botany https://scholar.google.co.uk/citations?view_op=view_citation&hl=en&user=jYztZIEAAAAJ&sortby=pubdate&citation_for_view=jYztZIEAAAAJ:WC9gN4BGCRcC . And others by same author for western Africa in same Journal. There is a huge literature on African medicinal plant use and trade in general terms that is not well captured here	Reference considered
177	Neil Burgess (NB)	p46	Table 2.10			Nice table, but I don't really understand what it is telling us	The table is intended to portray how materials goods are from different ecosystem units of analysis do contribute to human well-being at sub-regional level.
178	Neil Burgess (NB)	p48	Box 2.4			There is a map just of Africa in the book on African freshwater ecoregions by Michele Thieme and others in 2005 (see weblink above)	Box 2.4 together with the map have been omitted as deemed relevant to chapter 1 and 3.
179	Neil Burgess (NB)	p49	Table 2.11			Nice table, but I don't really understand what it is telling us	The table is intended to portray how non-materials goods are from different ecosystem units of analysis do contribute to human well-being at sub-regional level.

Comm ent #	Reviewer Name	From Page (start)	From Line (start)	To Page (end)	To Line (end)	Comment	How to Address
180	Neil Burgess (NB)	p7	242	p7	249	There is a whole series of papers valuing nature from the Eastern Arc Mountains of Tanzania by Marije Schaafsma and colleagues (see https://scholar.google.co.uk/citations?hl=en&user=CvKgdYwAAAAJ&view_op=list_works&sortby=pubdate and https://scholar.google.co.uk/citations?view_op=view_citation&hl=en&user=mOqVpGUA AAAJ&cstart=20&citation_for_view=mOqVp GUAAAAJ:Zph67rFs4hoC)	This paper has been reviewed and considered.
181	Neil Burgess (NB)	p8	276	p8	285	I think that all the refernces in this chapter should be from Africa. There are plenty available so this is not a challenge really.	Many studies have been done about Africa. Subsequently, the references related to the thematic should be ON Africa but not only from Africa.

Comm ent #	Reviewer Name	From Page (start)	From Line (start)	To Page (end)	To Line (end)	Comment	How to Address
182	Neil Burgess (NB)	p9	308			See papers by Lauren Coad, Martin Nielsen, Sylvia Ceppi and others on bushmeat hunting in central and eastern Africa. Much is published that can help update this section. As examples https://scholar.google.co.uk/citations?view_op=view_citation&hl=en&user=IN4_mf4AAA AJ&sortby=pubdate&citation_for_view=IN4_mf4AAAAJ:YFjsv_pBGBYC and https://scholar.google.co.uk/citations?view_op=view_citation&hl=en&user=IN4_mf4AAA AJ&sortby=pubdate&citation_for_view=IN4_mf4AAAAJ:4JMBOYKVnBMC and https://scholar.google.dk/citations?view_op=view_citation&hl=en&user=dJXcnW8AAAAJ &sortby=pubdate&citation_for_view=dJXcn W8AAAAJ:Wp0glr-vW9MC	Section reframed and references arranged
183	Susan Ringrose (SR)		94			Revise key messages so that they help - rather than confound - the overall intent	Key messages revised.
184	Susan Ringrose (SR)		132			No such thing as the Africa region	taken cared of in the revision of the key messages for the chapter
185	Susan Ringrose (SR)		493			Red Sea please..	Corrections implemented.
186	Susan Ringrose (SR)		519		543	Section needs upgrading by including references to essential facts	Section reframed and references arranged

Comm ent #	Reviewer Name	From Page (start)	From Line (start)	To Page (end)	To Line (end)	Comment	How to Address
187	Susan Ringrose (SR)		596		626	Needs references	Section reframed and references arranged
188	Susan Ringrose (SR)		600			This is neem trees and holm oak	Comments no longer valid because the paragraph has been deleted
189	Susan Ringrose (SR)		779		786	Needs references	Reference : Maisharou and Larwanou (2015)
190	Susan Ringrose (SR)		830		Fig 2.1	Figure needs legend and detailed explanation in text	Figure 2.1 has been replaced
191	Susan Ringrose (SR)		1009		Fig 2.2	Is very welcome is located in the wrong section - section here is dealing with wood and charcoal. Need to explain why North Africa's fossil fuel consumption is so high	Figure 2.2 has been deleted
192	Susan Ringrose (SR)		1030			Reference needed for the Burkino Faso example	Reference : Wood and Baldwin, 1985
193	Susan Ringrose (SR)		1037			What are these incentives for using renewable energy resources? Expand with references	Already developed with references (OECD/IEA, 2014; Energypedia 2016)
194	Susan Ringrose (SR)		1099			All the useful plant speices and references should be compiled as a table.	Suggestion considered
195	Susan Ringrose (SR)		1109			Koranic	Corrected

Comm ent #	Reviewer Name	From Page (start)	From Line (start)	To Page (end)	To Line (end)	Comment	How to Address
196	Susan Ringrose (SR)		1133			Reference needed for Nigeria's ethno-botanic studies	Reference added
197	Susan Ringrose (SR)		1222		1231	This is repetition of previous paragraph - either combine parts or omit entirely	Repetition deleted
198	Susan Ringrose (SR)		1242			Diagram needs definitions and integration into text	Diagram integrated in the text
199	Susan Ringrose (SR)		1391		1402	Impacts of extreme climate events on ecosystems needs referencing e.g. Parmesan, 2006 and Parry 2007	Parmesan, C., (2006). Ecological and evolutionary responses to recent climate change. Annu. Rev. Ecol. Evol. Syst., 37,637-669. Parry, M.L., (2007). Climate change 2007-impacts, adaptation and vulnerability: working group II contribution to the fourth assessment report of the IPCC (Vol 4). Cambridge University Press.
200	Susan Ringrose (SR)		1582			Is this meant to be ammonium nitrate? NH4+ NO3	NH4+ and NO3-
201	Susan Ringrose (SR)		1640		Table 2.9	Table tells us nothing about tourist disruptions of ecosystems (as inferred) Tourists are keen to see rhinos and elephants because they are threatened species - but NB the presence of tourists tends also to keep poachers away. Tourists do not adversely impact wildlife numbers generally and they tend not to threaten local communities.	The Table was not intended to show the magnitude of the negative impact of tourism, it was intended to show the trend of the tourism from 2010 to 2014 in the top African countries as indicated by the international tourist arrivals in million. The table was removed and Figure xxx was included showing the share of African

Comm ent #	Reviewer Name	From Page (start)	From Line (start)	To Page (end)	To Line (end)	Comment	How to Address
							<p>in the International tourist arrivals in 2015 in million and the international tourism income in UDS.</p> <p>2. Regarding the positive impact of ecotourism the following paragraph was added: "However, ecotourism managed by indigenous and local communities can promote biodiversity conservation and improve community development. This is contingent upon improving the management and marketing skills of the local communities and provisioning of the necessary infrastructure (Coria et al., 2012). The success of the ecotourism in Botswana and Namibia is clear example where local communities have benefited from the government policies that promoted community-based ecotourism and banned the commercial hunting (Robin et al., 2016)."</p>
202	Susan Ringrose (SR)		1685			Where are the Bijagos communities, west of Africa??	the exact location of the Bijagos communities was included in the text as follows: "...symbolic value in Bijagos communities' culture, located in the island of Orango Grande, off the coast of Guinea, west of Africa."

Comm ent #	Reviewer Name	From Page (start)	From Line (start)	To Page (end)	To Line (end)	Comment	How to Address
203	Susan Ringrose (SR)		1759		1769	Very confusing text - needs considerable clarification	The section has been revised
204	Susan Ringrose (SR)		1803			Better references needed	We only provide the website from which we obtained the map. Further comments came from our own analysis of the map.
205	Susan Ringrose (SR)		1819			Summary tables may have been better placed at the beginning of chapter to provide some clarity and direction	This issue can be easily addressed while the chapter is being formatted and edited by members of Technical Support Unit.
206	Susan Ringrose (SR)		1902			Map is too small to read and requires referencing (source)	Larger map is now provided
207	Susan Ringrose (SR)		2104			Botswana does have a climate change policy - which you reference in line 2776	This error has been corrected
208	Susan Ringrose (SR)		2177			Species need to be italicised	This text has been shared with chapter 3
209	Susan Ringrose (SR)		2187			Use correct referencing conventions	This text has been shared with chapter 3
210	Susan Ringrose (SR)		2593			Conclusions are merely a continuation of bits of previously omitted text. You need to write a proper conclusion summarising the important issues	Conclusion rewritten
211	Susan Ringrose (SR)		1049 onwards			References needed for Madagascar examples	Reference added

Comm ent #	Reviewer Name	From Page (start)	From Line (start)	To Page (end)	To Line (end)	Comment	How to Address
212	Susan Ringrose (SR)		1073 onwards			Energy section should emphasise the great potential over the continent for solar and wind energy and you need to consider why there is little or no uptake. In Botswana this is largely due to the GoB's subsidisation of expensive, imported fossil fuels.	The information has been supplied
213	Susan Ringrose (SR)		573 onwards			Needs maps showing distribution of timber products	Maps of timber products in Africa not available
214	CSIR BES					Pages 23-24 – cross reference with Chapter 1 and Chapter 3 on mangroves	Information would be provided
215	CSIR BES					See with chapter 1 if you or they should use the short text on IPBES treatment of values and valuation. Also, maybe the discussion on stakeholders in chapter 1 can be of interest to chapter 2.	Comments considered
216	Dan Faith (DF)					Chapter 2 is to address how biodiversity (and ecosystem functions and services) contribute to good quality of life and address the trends in nature's contribution and the link between nature's contributions to people and their quality of life. The scoping notes links to CBD Strategy/Goal D – enhancing benefits to all, and with reference to intergenerational equity issues. Thus, it is important to discuss NCP 18.	This has been addressed in the new section on values and valuation taking into account all multiple values.

Comm ent #	Reviewer Name	From Page (start)	From Line (start)	To Page (end)	To Line (end)	Comment	How to Address
217	Dan Faith (DF)					In chapter 2, the assessment relating to good quality of life arising from NCP18’s “Benefits (including those of future generations) associated with the continued existence of a wide variety” could begin by noting recent examples. The chapter could point to some of the actual recent discoveries and benefits that have emerged from “maintenance of options”. For example, Chassagnon et al (2017) reported this year that the venom of the Darling Downs funnel web spider (<i>Hadronyche infensa</i>) is the unlikely source for a drug to ward off brain damage caused by strokes. Also this past year, Peel et al (2016) reported that the milk from Tasmanian devils surprisingly provides a weapon against antibiotic-resistant bacteria. There are many more recent examples in all the regions of these unanticipated benefits that fit under NCP18. These stories and others have been reported in the popular press, reinforcing people’s relational value linking biodiversity to welfare of future generations (see Faith 2017).	This has been addressed in the new section on values and valuation taking into account all multiple values.
218	Diane Douglas (DD)					Good integration of cultural values and ILK	Thank you!

Comm ent #	Reviewer Name	From Page (start)	From Line (start)	To Page (end)	To Line (end)	Comment	How to Address
219	Neil Burgess (NB)					Overall this chapter contains a lot of open text / review and not that much synthesis and boiling down of material into informative maps tables and graphs. It could be a lot of work to re-work the available material though, so I am not sure what to advise. But I dont think its really good enough as it stands	More information on lacking information like on socio-economic values of biodiversity have synthesis, though not exhaustive, as our synthesis was guided by references suggested by external reviewers.
220	Susan Ringrose (SR)					General:Chaper 2 little improved over previous version - still too verbose and repetitive with excessive detail. In many cases you state the obvious - e.g. people need water to maintain their livelihoods..certain issues can be taken as a given. Would be useful to create infographics showing the interconnected issues and how these were playing out in the African regions. Generally the text is obtruse and difficult to read even as there are many diverse fields covered. The extent of detail is good but problems lie with its transfer to the reader. NB a number of natural resources throughout Africa have been taken over by foreign enterprises (with government consent) leading to local impoverishment in some cases (see commnets in line 507 below). Text wise, still great shortage of illustrative material - great need to improve on use of maps/infographics and make better use of those provided. Editorial needs	The sugessted infographic has been developed by cahpter 1 authors. Please kindly see Figure 1.4: Nature’s contribution to people in Africa is related to complex social ecological, economic and political challenges that are interrelated and, at times, nested into each other. Things happening in one area of policy have repercussions on, or implications for other areas. This is why each of the illustrated issue can potentially be considered both as entry points for, and outcomes of public policies. For instance, interrelated water, food and energy issues are influenced by, and impact population, poverty and health, which in turn show mutual influences with governance, trade and tenure. In part of Africa, problems related for instance, to land tenure and access to natural

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						include a range of grammatical issues and the need to ensure sentences are complete etc.	resources are known to have spilled into grave problems of peace and security, severely affecting biodiversity and ecosystem services to people. This is amplified by climate change that impacts all of these factors and future economic options. Indigenous and local knowledge and the role of women and gender relations have proved to be essential to understanding these interrelated challenges and to addressing them positively. This roles and mutual influences will be essential to the development of sustainable trajectories for livelihood and ecosystems and to ecological gains in the social transformation of the African economy, an underlying goal of Africa’s major international commitments, including Agenda 2063, the SDGs and the Aichi biodiversity targets.
221	Dan Faith (DF)					*Faith 2017 summarised: “this link between biodiversity and human well-being actually traces back to the “pre-history” of “biodiversity” (roughly, the history of the term before it was invented). Haskins (1974: 646) summarised an important discussion	The importance of biodiversity to pharmaceutical industry has been integrated in Table 2.7: Some medicinal plants used in treatments of some ailments in Africa.

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						<p>meeting where participants called for “an Ethic of Biotic Diversity in which such diversity is viewed as a value in itself and is tied in with the survival and fitness of the human race”. Haskins (1974: 646) warned, “Plants and animals that may now be regarded as dispensable may one day emerge as valuable resources” and that extinction “threatens to narrow down future choices for mankind”. Roush (1977: 9) similarly argued that “diversity increases the possibility of future benefits” (for review, see Farnham 1997). IUCN’s (1980: section 3) arguments for the conservation of diversity (referring to “the range of genetic material found in the world's organisms”) echoed Haskins: “we may learn that many species that seem dispensable are capable of providing important products, such as pharmaceuticals, or are vital parts of life-support systems on which we depend.” Later philosophical discussions supported these perspectives. Norton (1986) argued that diversity itself has utilitarian value. Randall (1986: 103) similarly considered unit species and proposed that all species not already distinguished in having recognised human-use values “would be treated as having a positive but unknown expected value.” These ideas flowed on to discussions around</p>	

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						<p>the new term “biodiversity”. McNeely (1988) and Reid and Miller (1989) referred to “option values” of biodiversity. E. O. Wilson (1988) highlighted values for biodiversity reflecting our lack of knowledge about the components of life's variation and their importance to humankind. The MEA (2005a: 32) concluded that “the value individuals place on keeping biodiversity for future generations— the option value—can be significant.” Gascon et al. (2015) reviewed the many, sometimes surprising, benefits of species to argue for the importance of option value (and pointed to PD as a candidate measure of option value). The Encyclical Letter “On Care for Our Common Home” (Francis 2015) addressed the loss of biodiversity, arguing for the importance of not only intrinsic values of species but also the option values of biodiversity: "The loss of forests and woodlands entails the loss of species which may constitute extremely important resources in the future, not only for food but also for curing disease and other uses. Different species contain genes which could be key resources in years ahead for meeting human needs and regulating environmental problems....Maclaurin and Sterelny concluded: “The crucial point about option value is that it makes diversity</p>	

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						valuable. As we do not know in advance which species will prove to be important, we should try to conserve as rich and representative a sample as possible” (2008:154).”	
222	Dan Faith (DF)					*Technical comment – tabulations for all groups focus on so-called ED values (evolutionary distinctiveness: the total PD is divided up among the species where the ED score for a species is the sum of its ancestral branch lengths, each divided by the number of descendants of that branch). Thus, each species gets partial credit for overall PD ..this is dominated naturally by terminal branch length....but includes a fractional part of each deeper ancestral branch. Available tabulations of ED scores for species therefore are informative – the total of all ED scores is the total PD and the total of the ED scores for all imperilled species approximates nicely the total imperilled PD (an estimate of expected loss of PD). This use of the available tabulations, with its links to red list categories, is more informative that popular simple summing up in a region of all ED values (this has been shown to be a relatively weak indicator of total regional PD (Faith 2016)).	This comment was not addressed in this chapter. It was found to be more relevant to chapter 3 as it is on different categories of conservation status of biodiversity.
223	Dan Faith (DF)					Arrieta et al 2010 has explored how recent discoveries link to phylogenetic diversity.	Relevant to chapter 3

Comment #	Reviewer Name	From Page (start)	From Line (start)	To Page (end)	To Line (end)	Comment	How to Address
224	Dan Faith (DF)					Below, are the draft assessments for multiple taxonomic groups. The portion of imperilled PD allocated to the region is notional in these draft diagrams; it is not yet tabulated as a portion of the overall tabulated global imperilled PD for a given group. adding links to NCP 18 would help here	I will suggest that Dan Faith may be invited as a Contributory Author to the assessment.

Comment #	Reviewer Name	From Page (start)	From Line (start)	To Page (end)	To Line (end)	Comment	How to Address
225	Dan Faith (DF)					Comments specific to particular lines follow further below, but the following initial comments I think are relevant to both chapters 2 and 3. The scoping for chapter 2 indicates that it will assess NCPs including the status/trends of the NCPs. The scoping for chapter 3 indicates that it will build on the chapter 2 assessment of NCPs and look at the status/trends of biodiversity and ecosystems with an eye to how that influences NCPs. These tasks normally are a close fit, but are in fact overlapping in the case of NCP18. NCP18 is mostly about the contribution of biodiversity itself in providing “maintenance of options” or “option value”. For example, NCP18 refers to “Benefits (including those of future generations) associated with the continued existence of a wide variety...” Living variety is of course another way of saying “biodiversity”. This NCP18 benefits statement echoes the oldest discussions of the value of biodiversity itself as a benefit (following e.g. Haskins 1974; reviewed in Faith 2017*).	The economic values of biodiversity have been synthesised.
226	Dan Faith (DF)					Maintenance of options, or option value, has been described well in the IPBES conceptual framework, in the preliminary guidelines, and in the IPBES catalogue of assessments. NCP 18 nicely echoes the Millennium Ecosystem Assessment (MEA; Biodiversity	Chapter 6 elaborates on available options (at government level) to safeguard degrading biodiversity.

Comment #	Reviewer Name	From Page (start)	From Line (start)	To Page (end)	To Line (end)	Comment	How to Address
						synthesis): “Biodiversity loss is important in its own right because ... it represents unexplored options for the future (option values).” and “The loss of biodiversity in some instances is irreversible, and the value individuals place on keeping biodiversity for future generations—the option value—can be significant.”	
227	Dan Faith (DF)					Mouillot et al (2016) found hotspots areas having lots of poorly protected PD, for fish and for corals	This paper is indeed valuable and many thanks for suggesting it. We however did not incorporate it in particular chapter as its content overlaps well with section 4.51.2 in chapter 4 of the assessment report.
228	Dan Faith (DF)					Option value of biodiversity has been promoted well by conservation NGOs (for perspective see Gascon et al. (2015) who provide many examples of surprising benefits from biodiversity). Gascon et al. also noted the measurement problem and point to “phylogenetic diversity” as a likely good measure of option value (see below).	Examples of benefits provided by species to humanity have been integrated in the chapter. Please see Box 2.1, 2.2, & 2.3

Comment #	Reviewer Name	From Page (start)	From Line (start)	To Page (end)	To Line (end)	Comment	How to Address
229	Dan Faith (DF)					Over the past decade or more, a strong case (reviewed in Faith 2017) has been made for an indicator of “maintenance of options” as the estimate, over multiple taxonomic groups, of the maintenance of phylogenetic diversity (“PD” sensu Faith 1992). Larsen et al. (2012) argued that a big challenge in biodiversity conservation is to find a “robust proxy” for global option values that effectively captures potential future values to society. They concluded that “maximizing the retention of phylogenetic diversity (PD) should also maximize option value.” Cadotte and Davies (2010) argued that “maximizing the preservation of PD will also tend to maximize the preservation of feature diversity.” Jetz et al (2014) argued “While any particular trait may be phylogenetically labile, PD captures the integrated genotype and phenotype of a lineage and so represents both measured (e.g., present) and unmeasured (e.g., future) function and capacity.” (see also Laity et al 2015; Mouillot et al 2016; Pollock et al 2017). Support for PD as a measure of option value is found also in philosophy of science work (e.g. Maclaurin and Sterelny 2008) and among economists (e.g. Nehring, K., and C. Puppe 2004).	This comment was not addressed in this chapter. It was found to be more relevant to chapter 3 as it is on phylogenetic diversity.

Comm ent #	Reviewer Name	From Page (start)	From Line (start)	To Page (end)	To Line (end)	Comment	How to Address
230	Dan Faith (DF)					So, from the NCP18 perspective, any status report on biodiversity is also a status report on NCP18 – because variety is the benefit. My comments below therefore link to both chapters 2 and 3. The reference list for all comments is provided at the bottom.	Thank you for sharing this important piece of information.
231	Dan Faith (DF)					The current drafts of chapters 2 and 3 report on the status and trends of biodiversity broadly – e.g. reporting red list status for many different species – but these assessments regarding global biodiversity are not yet well-linked to NCPs. This would be accomplished by linking the red list status to the status of NCP18 (see below).	Thank you for sharing this important piece of information.

Comm ent #	Reviewer Name	From Page (start)	From Line (start)	To Page (end)	To Line (end)	Comment	How to Address
232	Dan Faith (DF)					<p>The IPBES catalogue of assessments illustrates the link of PD to option value, based on the many foods and medicines discovered in plants.</p> <p>http://catalog.ipbes.net/assessments/144</p> <p>“Phylogeny and the sustainable use of biodiversity: an assessment based on the Survey of Economic Plants for Arid and Semi-Arid Lands.” Forest et al. (2007) explored PD and option value using an estimated phylogenetic tree for genera found in the Cape hotspot of South Africa (SA). Forest et al. (2007) demonstrated that, if we did not know about those medicinal, food, and other uses, then preserving sets of species with high PD would be a good way to preserve these unknown benefits. PD captures option values well because it reflects “feature diversity”. This link is well corroborated through the many tests (moderate to high confidence based on many published PTP tests that corroborate the PD model; e.g. Slowinski and Crother (1998); Wilkinson et al 2002). A well-established framework for quantifying such global option values of biodiversity is “phylogenetic diversity”. Status and trends in biodiversity and NCP18 could look at status and trends in PD in two ways.</p> <p>1) How well is PD represented well in the</p>	<p>The information given in the suggested literature is indeed valuable for chapter 4 and 4. Chapter4 and 3 could use it to comments on gains (at taxonomic groups level) associated with expansion of Protected reas in Africa. Ongoing IPBES global assessment could also benefit from this paper.</p>

Comment #	Reviewer Name	From Page (start)	From Line (start)	To Page (end)	To Line (end)	Comment	How to Address
						<p>regional and global protected areas system? 2) How much PD is in peril given the known imperilled species from red list assessments? Pollock et al (2017; Extended Data Figure 3) show the global and regional priorities for expanding protected areas to benefit the bird versus mammal phylogenetic diversity.</p> <p>The studies above address the “maintenance of options” challenge of securely representing PD in protected areas. A complement to those efforts is to assess, for many taxonomic groups, how much PD currently is imperilled (based on red list assessments of imperilled species). The assessment of imperilled PD is well-established in the EDGE program. The value to people of NCP18 is illustrated well by this successful global program, EDGE (see references), based on preservation of PD. The EDGE of Existence programme highlights and conserves phylogenetically distinctive species that are “imperilled” or on the verge of extinction. This program and the many related regional and global studies (listed in references) provides the existing data useful for this assessment of NCP18. Typically these studies, over many different taxonomic groups, integrate red list assessment with estimates of Evolutionary Distinctiveness</p>	<p>This comment was not addressed in this chapter. It was found to be more relevant to chapter 3.</p>

Comm ent #	Reviewer Name	From Page (start)	From Line (start)	To Page (end)	To Line (end)	Comment	How to Address
						(ED) of species. Evolutionary Distinctiveness (ED) measures the proportion of total phylogenetic diversity (PD; measured as the sum of branch lengths in millions of years) by giving the species credit for a branch inverse-weighted by the number of species sharing that branch) (Isaac et al., 2007). Globally, for multiple taxonomic groups, we now have tabulated published lists of ED associated with good phylogenies, and have red list assessments of the species. We could add-up total ED values or count number of EDGE species in the region. But the most useful summary of this available information is simply sum of the tabulated ED values of the threatened species, as this approximates threatened or “imperilled” PD	
233	Dan Faith (DF)					thus, providing information linking biodiversity status and change to change in NCP18 Thus, NCP18 can be assessed through the integration of two bits of existing information: the accepted core indicator information on red list, and information on a recognised measure of biodiversity that links to option value..	This comment reads incomplete. Therefore making it difficult to grasp what it is on.
234	Dan Faith (DF)					References <ul style="list-style-type: none"> • Arrieta, Jesús M., Sophie Arnaud-Haondb, and Carlos M. Duartea (2010) What lies underneath: Conserving the oceans’ genetic resources. PNAS 	Some of the reference are incorporated in the chapter and some shared with other chapter, in particular chapter 3.

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						<p>www.pnas.org/cgi/doi/10.1073/pnas.0911897107</p> <ul style="list-style-type: none"> • Barker, GM 2002 Phylogenetic diversity: a quantitative framework for measurement of priority and achievement in biodiversity conservation BIOLOGICAL JOURNAL OF THE LINNEAN SOCIETY Volume: 76 Issue: 2 Pages: 165-194 • Brooks TM, Akçakaya HR, Burgess ND, Butchart SHM, Hilton-Taylor C, Hoffmann M, Juffe-Bignoli D, Kingston N, MacSharry B, Parr M, Perianin L, Regan EC, Rodrigues ASL, Rondinini C, Shennan-Farpon Y, Young BE (2016) Analysing biodiversity and conservation knowledge products to support regional environmental assessments. Scientific Data 3: 160007. http://dx.doi.org/10.1038/sdata.2016.7 • Brooks TM, Akçakaya HR, Burgess ND, Butchart SHM, Hilton-Taylor C, Hoffmann M, Juffe-Bignoli D, Kingston N, MacSharry B, Parr M, Perianin L, Regan EC, Rodrigues ASL, Rondinini C, Shennan-Farpon Y, Young BE (2016) Data from: Analysing biodiversity and conservation knowledge products to support regional environmental assessments. Dryad Digital Repository. http://dx.doi.org/10.5061/dryad.6gb90.2 • Bruford, Michael W., Neil Davies, Mohammad Ehsan Dulloo, Daniel P. Faith, 	

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						<p>Michele Walters (2017) Monitoring Changes in Genetic Diversity. In: The GEO Handbook on Biodiversity Observation Networks. pp 107-128. available at: http://link.springer.com/chapter/10.1007/978-3-319-27288-7_5/fulltext.html</p> <ul style="list-style-type: none"> • Cadotte MW and JT Davies (2010) Rarest of the rare: advances in combining evolutionary distinctiveness and scarcity to inform conservation at biogeographical scales. <i>Diversity and Distributions</i>, 16, 376–385 • Chassagnon, Irène R., Claudia A. McCarthy^{b,c}, Yanni K.-Y. China, Sandy S. Pinedaa, Angelo Keramidas^d, Mehdi Moblie, Vi Phamb^c, T. Michael De Silvab^c, Joseph W. Lynch^d, Robert E. Widdop^{b,c}, Lachlan D. Rasha^{f,1}, and Glenn F. Kinga, (2017) Potent neuroprotection after stroke afforded by a double-knot spider-venom peptide that inhibits acid-sensing ion channel 1a 1114 no. 14 3750–3755, doi: 10.1073/pnas.1614728114 • Daru, B.H., Bank, M. & Davies, T.J. (2015) Spatial incongruence among hotspots and complementary areas of tree diversity in southern Africa. <i>Diversity and Distributions</i>, 21(7), 447 769-780. • Daru, B.H., Yessoufou, K., Mankga, L.T. & Davies, T.J. (2013) A global trend towards the loss of evolutionarily unique species in 	

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						<p>mangrove ecosystems. PLoS ONE, 8, e66686.</p> <ul style="list-style-type: none"> • EDGE of Existence https://www.edgeofexistence.org/ ZSL, London. • Faith, D. P. (1992). Conservation evaluation and phylogenetic diversity. <i>Biological Conservation</i>, 61, 1–10. • Faith DP, Ferrier, S., Williams, KJ (2008) Getting biodiversity intactness indices right: ensuring that "biodiversity" reflects "diversity" <i>Global Change Biology</i> 14, 207-217. • Faith, D. P. (2011). Higher-Level Targets for Ecosystem Services and Biodiversity Should Focus on Regional Capacity for Effective Trade-Offs. <i>Diversity</i> 2011, 3, 1-7; doi:10.3390/d3010001 • Faith Daniel P. (2014) Ecosystem services can promote conservation over conversion and protect local biodiversity, but these local win-wins can be a regional disaster. <i>Australian Zoologist Online</i> pp1-10. DOI 10.7882/AZ.2014.031 available at: http://catalog.ipbes.net/system/assessment/141/references/files/710/original/Faith_Australian_Zoologist_2014.pdf?1422606347 • Faith DP (2017) A general model for biodiversity and its value. in <i>The Routledge Handbook of Philosophy of Biodiversity</i> (Eds. J Garson, A Plutynski, S Sarkar) 	


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						<p>https://www.routledge.com/products/9781138827738</p> <ul style="list-style-type: none"> • Faith, D.P., Magallón, S., Hendry, A.P., Conti, E., Yahara, T., Donoghue, M.J., 2010. Ecosystem services: an evolutionary perspective on the links between biodiversity and human well-being. <i>Current Opinion in Environmental Sustainability</i> 2, 66–74. • Forest, F., Grenyer, R., Rouget, M., Davies, T.J., Cowling, R.M., Faith, D.P., Balmford, A., Manning, J.C., Proches, S., van derBank, M., Reeves, G., Hedderson, T.A. & Savolainen, V. (2007) Preserving the evolutionary potential of floras in biodiversity hotspots. <i>Nature</i>, 445, 757–760. • Francis (2015) Encyclical Letter <i>Laudato Si'</i> of the Holy Father Francis: On Care for Our Common Home [English language version]. The Vatican. • Gascon C., Thomas M. Brooks, Topiltzin Contreras-MacBeath, Nicolas Heard, William Konstant, John Lamoreux, Frederic Launay, Michael Maunder, Russell A. Mittermeier, Sanjay Molur, Razan Khalifa Al Mubarak, Michael J. Parr, Anders G.J. Rhodin, Anthony B. Rylands, Pritpal Soorae, James G. Sanderson, Jean-Christophe Vié (2015) "The Importance and Benefits of Species," <i>Current Biology</i>. 25: R431–R438. 	

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