

Comments received during the external review of the first order draft of the sustainable use of wild species thematic assessment.
The review period was from Monday 26 August to Sunday 20 October 2019

Nb	Reviewer Name (Last, First)	Chapter	From Page (start)	From Line (start)	To Page (end)	To Line (end)	Comments / Feedback	Response from experts of the chapter
1	Molnár, Zsolt	5	0	0	0	0	The chapter is yet weak on issues relevant for Indigenous Peoples and local communities. The scenario chapters usually have this problem in IPBES. I would suggest to review the 5th (scenario) chapters of all the previous IPBES regional, thematic and global assessments to collect the relevant literature, experience, messages. There is also an opportunity to collect new material during consultations with Indigenous Peoples and local communities, both on-line and face-to-face. Grey literature is also important, which are difficult to find using the keywords scenario and pathways that are rarely used in such publications.	Thank you for your comment. All the mentioned points were addressed in the final version of the chapter.
2	Stenseke, Marie	5	0	0			Make sure to harmonize categories of use and other units with the conceptual framing in chapter 1 and chapter 2	Thank you for your comment. These have been harmonized where feasible
3	Stenseke, Marie	5	0	0			Make sure to have a consistent vocabulary across the chapters, for example concerning the expressions on drivers.	Thank you for your comment. This has been harmonized where feasible
4	Stenseke, Marie	5	0	0			There are overlaps with other chapters, especially chapter 6, that needs to be sorted out	Thank you for your comment. All the mentioned points were addressed in the final version of the chapter.
5	Treviño Heres, Sofia	5	0	0	0	0	There are many references to Aichi Targets throughout Chapter 5. Considering that the final report will be presented for consideration of IPBES-8 in February 2021, and that the post-2020 global biodiversity framework will be discussed and approved during CBD COP-15 in China, in October 2020, the elaboration process of this new framework and the final framework approved should be considered for the purpose of this assessment.	Thank you for your message. The Aichi Targets are no longer mentioned.
6	Kathryn Phillips (on behalf of UNEP - WCMC)	5	0	General			Overall the chapter contains some overlap with chapter 3 type of material on status and trends. I would expect that Chapter 3 would be material on past to present and status type synthesis, and chapter 5 would be more clearly only about future looking work that uses scenarios to look at possible sustainable use options and science around timber, fisheries, hunted animals, traded plants, NCP from these wild food and material sources etc. I am aware of some more material on that than is mentioned in this chapter (particularly on fisheries, but also on wild species) and this could be used more. And - I think - that conversations with some of the groups doing future scenarios work might show that there would be work coming (for example through GBO5, Living Planet Report 2020, IIASA work on bending the curve 2) that might provide some concrete further science in time for this assessment	Thank you for your comment. The feedback is greatly appreciated by the chapter authors.
7	Kathryn Phillips (on behalf of UNEP - WCMC)	5	0	General on fish			There is a body of work on fisheries scenarios and multimodal comparisons under FISHMIP https://www.geosci-model-dev.net/11/1421/2018/gmd-11-1421-2018.pdf and https://www.isimip.org/about/marine-ecosystems-fisheries/ that does not seem to be so well captured here. For example see recent papers by Derek Tittensor https://scholar.google.co.uk/citations?hl=en&user=ZrrLPXUAAAAJ&view_op=list_works&sortBy=pubdate	Thank you for your message. This body of work is now captured in the chapter
8	Kathryn Phillips (on behalf of UNEP - WCMC)	5	0	General on wildlife futures			Key paper that outlines scenarios of wildlife in the future using different models. Use of species perhaps not emphasised enough, but its one of the drivers of the changes seen and hence the paper and analysis is relevant to this chapter and is perhaps the most comprehensive analysis of its type so far : http://pure.iiasa.ac.at/id/eprint/15241/ and a paper for Nature in review that should come out in upcoming months. You may be able to talk to this team to run analyses that focus more on sustainable use potentially. I am not sure if they can do that, but they might be able to	Thank you for your comment. The feedback is greatly appreciated by the chapter authors.

9	Kenward, Robert	5	1	1	92	2182	The results obtained from the approach in this chapter will be as representative as the material collected in Chapter 4. It is therefore essential that Chapter 4 addresses adequately the practices in Eurasian and North America temperate zones, where sustainable use of game birds has been long maintained, past unsustainable use of ungulates and fisheries extensively replaced by sustainable use, and the stakeholders concerned are now being encouraged to aid restoration of over-cultivated ecosystems and manage restorative growth in large predator populations. Sets of data on these issues was collected in Europe during two EU-funded projects during 2006-2011 and is available to help the IPBES review in a large database held by European Sustainable Use Group, a spin-out from IUCN that continues to support IUCN's two sustainable use groups. If required, a PDF can be provided to indicate the scope of this material, as Chapter 8 in Kenward, R.E., Papathanasiou, J., Arampatzis, E. & Manos, B.A. (eds) 2013. Transactional Environmental Support System Design: Global Solutions. IGI-Global, Hershey, Pennsylvania, USA.	Thank you for your comment. The feedback is greatly appreciated by the chapter authors.
10	Nishi, Maiko	5	8	7	8	11	This paragraph puts together "possible future scenarios," "exploratory scenarios," "policy-screening scenarios" and "governance pathways" but it's not much clear how the authors relate them to each other to deal with them. Given the goal of the chapter is to present possible future scenarios, it'll be useful for readers to know how these different types of scenarios can lead to this goal more clearly (e.g. a concise explanation of Fig 5.1?)	Thank you for your comment. All the mentioned points were addressed in the final version of the chapter.
11	Germany	5	9	24	9	35	Please include GQL in the list of abbreviations and insert the acronyms behind the terms when used for the first time.	Thank you for your comment. All the mentioned points were addressed in the final version of the chapter.
12	Nishi, Maiko	5	9	25	9	25	wild "species" instead of wild "resources"?	Thank you for your comment. All the mentioned points were addressed in the final version of the chapter.
13	Botchway, Thomas Prehi	5	9	34	9	37	In these lines/sentences, there is the regular use of the acronym GQL (presumably "good quality of life") though its meaning is not indicated in the list of acronyms.	Thank you for your comment. All the mentioned points were addressed in the final version of the chapter.
14	Avdibegović Mersudin	5	9	35	9	35	Please mention and explain the acronym GQL in the list of acronyms above	Thank you for your comment. All the mentioned points were addressed in the final version of the chapter.
15	Kathryn Phillips (on behalf of UNEP - WCMC)	5	9	36			Why only focus on the "downstream impacts" isn't it also important to look at what the scenarios mean for the capacity of ecosystem to supply the resources demanded, this is the other side of sustainability	Thank you for your comment. The feedback is greatly appreciated by the chapter authors.
16	Nishi, Maiko	5	9	40	11	77	It'll be useful if the section numbers of this chapter could be indicated both in text and figure so that the readers can follow the sequences.	Thank you for your comment. All the mentioned points were addressed in the final version of the chapter.
17	Fulton, Beth	5	9	41	9	44	Additional drivers would include space, urbanisation and affluence (and its influence on diet)	Thank you for your comment. The feedback is greatly appreciated by the chapter authors.
18	Germany	5	9	41	10	73	The structure of the ch as presented here seems logical and straightforward.	Thank you for your comment. The feedback is greatly appreciated by the chapter authors.
19	Kathryn Phillips (on behalf of UNEP - WCMC)	5	9	41		49	I realise that you don't want to generate new scenario archetypes here but there is no justification here (perhaps it comes later) as to why these archetypes are suitable/appropriate for the sustainable use assessment	Thank you for your comment. All the mentioned points were addressed in the final version of the chapter.
20	Kathryn Phillips (on behalf of UNEP - WCMC)	5	9	51		51	Is this too species focussed - should it be wild resources? Wild species is used synonymously with nature later (line 59-60) isn't this too narrow a definition for what is being used?	Thank you for your comment. All the mentioned points were addressed in the final version of the chapter.
21	Kathryn Phillips (on behalf of UNEP - WCMC)	5	9	53		58	I don't see how point 3 differs conceptually from point 2	Thank you for your comment. All the mentioned points were addressed in the final version of the chapter.
22	Nishi, Maiko	5	9	55	9	56	It'll be helpful for readers if it is indicated why authors expect to find scenarios fewer for extractive and non-extractive use of wildlife (e.g., data availability, attention to commercial products?).	Thank you for your comment. All the mentioned points were addressed in the final version of the chapter.
23	Nishi, Maiko	5	10	65	10	66	I would expect that the authors would elaborate a bit more here why they avoid generalization and focus on iconic species for illustration of the complex trade-offs (though it is somewhat explained in pages 20-21).	Thank you for your comment. All the mentioned points were addressed in the final version of the chapter.
24	Jun Wang	5	11	91	12	100	SDG 6 (Clean water and sanitation) and SDG 10 (sustainable cities and communities) are also related to the chapter.	Thank you for your comment. The feedback is greatly appreciated by the chapter authors.

25	Botchway, Thomas Prehi	5	11	93	11	93	SDG 15 focuses on "Life on Land" not life "below land." Kindly refer to Sustainable Development Goals - UNDP at https://www.undp.org/corporate/brochure/SDGs_Booklet_Web_En OR The Sustainable Development Goals Report 2019 at https://unstats.un.org/sdgs/report/2019/The-Sustainable-Development-Goals-Report-2019.pdf	Thank you for your comment. The feedback is greatly appreciated by the chapter authors.
26	Fulton, Beth	5	11	93	12	100	There will also be synergistic interactions with driving forces that feature in/contribute to: SDG 5 (gender, given relative roles in fisheries production), SDG 9 (infrastructure as facilitator), 11 and 12 (sustainable cities and demand/consumption), 13 (climate will change potential sustainable production levels) and 16 9as insitutions are needed for sustainability)	Thank you for your comment. The feedback is greatly appreciated by the chapter authors.
27	Meera Anna Oommen	5	11	93	11	93	SDG 15: life below land?	Thank you for your comment. All the mentioned points were addressed in the final version of the chapter.
28	White, Michael	5	11	93	11	93	SDG 15 is life 'on' land	Thank you for your comment. All the mentioned points were addressed in the final version of the chapter.
29	Kathryn Phillips (on behalf of UNEP - WCMC)	5	11			11	I don't understand the numbering in the figure I suspect it should refer to subsections of chapter 5 but it refers to 4.X) and then 5), 6) 7)	Thank you for your comment. All the mentioned points were addressed in the final version of the chapter.
30	Germany	5	12	101	12	110	Is there a reason, why the roles played by different types of scenarios corresponding to the major phases of the policy cycles as outlined in Figure SPM.2 in the IPBES methodological assessment report on Scenarios and Models (2016) are not being discussed here? If the Wortelboer & Bishof (2012) scenario types are to be used, how do they converge/diverge with the four types of scenarios discussed in above mentioned Figure SPM.2?	Thank you. This comment is no longer relevant since the last version of the chapter has changed considerably.
31	Germany	5	12	119	13	125	We encourage the authors to also consider the discussions on scenarios in the IPBES methodological assessment of scenarios and models for biodiversity and ecosystem services.	Thank for your comment. Point well taken.
32	Nishi, Maiko	5	13	126	13	133	The term "Balance" in the title of section is ambiguous and the subtitle is more explanatory - probably "Balance" can be deleted. In lines 130-131, it's not clear "each" of what is concerned. Also, it seems that the indication of rationale for the focus on (or choice of) particular species and drivers in the following sections is absent in the current draft.	Thank you for your comment. The text was revised and updated accordingly.
33	Germany	5	14	140	14	142	Is there a reason why the definition of "scenarios" provided in the in the IPBES methodological assessment report on Scenarios and Models (2016) is not being used here? Please check p. 8 of the SPM of Scenarios and Models on the definitions of "Models" and "Scenarios".	Thank you. We now use this definition of scenarios
34	Kathryn Phillips (on behalf of UNEP - WCMC)	5	14	140	14	156	Careful regarding use of scenario vs narrative. Scenarios can be quantitative. I suggest replacing 'scenario' in line 143 with the word 'narrative'.	Thank you for your comment. The text was revised and updated accordingly.
35	Kathryn Phillips (on behalf of UNEP - WCMC)	5	14	141		143	Suggest that this sentence about models is moved into the subsequent paragraph, where there is already a near identical line, and is used to describe how models are used to quantify scenarios	Thank you for your comment. We will evaluate the possibility of inserting your suggestion in the final draft.
36	Fulton, Beth	5	14	152	14	152	Technically many of the models covered with respect to IPBES use are projecting not predicting/forecasting in the strict statistical sense because of the uncertainty involved. Not sure if that is worth reinforcing here or too technical detail?	Thank you for your comment. All the mentioned points were addressed in the final version of the chapter.
37	Nishi, Maiko	5	15	166	15	166	This title is incomplete and it seems that this sections explain different types of scenarios (thus the tile may be "Types of scenarios"?). In the introduction of this section, it would be useful if it is explained how these different scenario(s) are used in this chapter and are related to each other for what purposes.	Thank you for your comment. All the mentioned points were addressed in the final version of the chapter.
38	Sonali, Ghosh	5	15	166	15	175	can scenario archetypes be discussed , especially the one which has been followed in past IBES assessments and the same archetype Van Vuuren et al. 2012.. Be used	Thank you for your comment. We will evaluate the possibility of inserting your suggestion in the final draft.
39	Nishi, Maiko	5	15	187	15	188	It'll be used if the authors could add a few words to explain why this feature is advantageous.	Thank for your comment. Point well taken.
40	Stenseke, Marie	5	15	196			Please clarify how 'target-seeking scenarios' relates to figure 5.2.	Thank for your comment. Point well taken.
41	Kathryn Phillips (on behalf of UNEP - WCMC)	5	15	197	15	197	Confusion of narrative/storyline, model and scenario. Here you suggest that a scenario is equivalent to a narrative which contradicts your previous definition. Suggest that you define at the start and be consistent in terminology.	Thank you for your comment. All the mentioned points were addressed in the final version of the chapter.

42	Fulton, Beth	5	15	201	15	201	Is another box going in here with an example of this kind of scenario? I think one is needed	Thank for your comment. Point well taken.
43	Kathryn Phillips (on behalf of UNEP - WCMC)	5	15	Box 5.1			The tie in to alternate scenarios is not clear, was it different levels of bush meat harvesting or different areas that were harvested? Need better explanation of the link between the text and Box 5.1	Thank you for your comment. All the mentioned points were addressed in the final version of the chapter.
44	Avdibegović Mersudin	5	16	211	16	212	It looks like uncompleted sentence: "Strong dominance of international markets with a...". Please connect it with the text in the next line: "...low degree of regulation"	Thank you for your comment. All the mentioned points were addressed in the final version of the chapter.
45	Botchway, Thomas Prehi	5	16	211	16	211	The sentence on this line seems to be incomplete.	Thank for your comment. Point well taken.
46	Fulton, Beth	5	16	222	16	225	You may need to expand on this logic. People unfamiliar with the scenarios may not understand how these things can hang together. For example, it is reasonably easy to see the chain of logic that increased efficiency and technology may see intensive cultivation, and potentially even invasive spread by trade/cultivar imports. But how does low land use not then help combat climate (and in some degree pollution) given understood feedbacks in climate systems? Now there will be a logic but it needs a bit more spelling out for the uninitiated.	Thank you for your comment. All the mentioned points were addressed in the final version of the chapter.
47	Avdibegović Mersudin	5	16	223	16	224	Please, connect "Direct exploitation will continue but also..." with the text in the next line: "...replaced by cultivation of for example fish and livestock"	Thank for your comment. Point well taken.
48	Botchway, Thomas Prehi	5	16	223	16	223	The sentence on this line seems to be incomplete.	Thank for your comment. Point well taken.
49	Fulton, Beth	5	16	226	16	227	Again needs more explanation as have literally just read "replaced by cultivation" so have likely forgotten what "High demand" above implies... And thus the "a) increased demand for wild species" and "c) increased exploitation" seems to come out of nowhere	Thank for your comment. Point well taken.
50	Stenseke, Marie	5	16	226			It needs to be considered if the scenarios in the chapter is about 'use' or 'sustainable use'. I my reading it is more about 'use scenarios'	Thank you. This comment is no longer relevant since the last version of the chapter has changed considerably.
51	Fulton, Beth	5	17	235	17	236	Again spell out the logic of (a) and (c) as not readily apparent from the dot points if not already familiar.	Thank for your comment. Point well taken.
52	Fulton, Beth	5	18	256	18	259	Any comment on the implications of little reduction in land use? You need to highlight the good and bad of all scenarios of the skeptical audience will think you are rigging the narrative...	Thank you. This comment is no longer relevant since the last version of the chapter has changed considerably.
53	Fulton, Beth	5	18	268	18	271	I know you are simply reporting other people's scenarios but again you need to explain how it does (or does not) hang together. For example, given both the momentum and inertia of the current world how do you simultaneously get slow change (and consequently sub-optimal use) with high rates of land use change and low rates of climate change? It is not an intuitive story so the "naive" reader needs help	Thank you for your comment. All the mentioned points were addressed in the final version of the chapter.
54	Fulton, Beth	5	19	288	19	292	Again you need to help the reader through the story (which does not intuitively hang together)	Thank you for your comment. All the mentioned points were addressed in the final version of the chapter.
55	Avdibegović Mersudin	5	19	290	19	291	Again, "Demand for luxury, energy intensive goods is relatively low, and thus..." should be connected with the text in the next line: "...relatively low climate change is expected"	Thank you for your comment. All the mentioned points were addressed in the final version of the chapter.
56	Fulton, Beth	5	19	305	19	306	... And the climate implications?	Thank for your comment. Point well taken.
57	Fulton, Beth	5	20	313	20	327	I would swap the order of 5.5.1 and 5.5.2. As written it mention steps below after explain dot point 2...	Thank for your comment. Point well taken.
58	Nishi, Maiko	5	20	328	20	328	It's unclear what interactions and interconnections the authors analyze (i.e. interactions and interconnections between what? — drivers, scenarios, status of wild species, NCP and GQL, etc.?).	Thank for your comment. Point well taken.
59	Fulton, Beth	5	20	330	20	331	"for sustainable use was relatively scarce"... Even in the fisheries world? This surprises me given the number of management strategy evaluations and scenario testing exercises done there (e.g. with Ecopath with Ecosim, Atlantis, OSMOSE, MICE, multispecies and single species models).	This sentence is no longer in the chapter

60	Nishi, Maiko	5	20	331	20	332	It would be helpful for readers if the authors also explain how they construct plausible future pathways by inferring scenarios from models about plausible futures of drivers of use.	Thank you for your comment. All the mentioned points were addressed in the final version of the chapter.
61	Fulton, Beth	5	21	347			Should be "if these" not "of these" I think	Thank for your comment. Point well taken.
62	Stenseke, Marie	5	21	349	21	353	it is good to be transparent and mention the down-side, but please do also elaborate on how you handle/manage the down-side.	Thank for your comment. Point well taken.
63	Nishi, Maiko	5	21	355	21	356	It would be helpful if the authors elaborate what they mean by "aspirationally, investigate ..." as a method/methodology.	Thank for your comment. Point well taken.
64	Fulton, Beth	5	21	358			"We propose a fixed format for case studies to enable inductive analysis where possible." What does that mean?	This sentence is no longer in the chapter
65	Fulton, Beth	5	24	402	24	403	If there are ranges given the entire range (to show off how uncertainty is handled)	Thank you for your comment. The feedback is greatly appreciated by the chapter authors.
66	Botchway, Thomas Prehi	5	24	409	24	416	The proposals recommended for dealing with identified problems are too general (as the case study example reveals). To avoid such generalization, the authors must propose specific or targeted policies that can effectively address identified problems.	Thank you for your comment. The feedback is greatly appreciated by the chapter authors.
67	Nishi, Maiko	5	25	427	25	427	The title of this section may be reconsidered, as most of the remaining part of this chapter could be results from the assessment. The title may be 'future visions' or 'plausible futures of drivers' etc., while the drivers' section could be separated from the archetypes?	Thank you for your comment. The feedback is greatly appreciated by the chapter authors.
68	Nishi, Maiko	5	25	428	25	448	Though this will be explained in the second order draft, I wonder why the two other scenario archetypes (i.e., B. Reformed markets and D. Regional sustainability) were excluded here (while they are included in Table 5.2.).	Thank you for your comment. All the mentioned points were addressed in the final version of the chapter.
69	Nishi, Maiko	5	25	449	32	613	I assume that this section will be restructured and adjusted in accordance with Chap 4, but wonder how dominant drivers will be chosen. Any explanation for this would be appreciated (also in consideration of the IPBES conceptual framework such as direct v.s. indirect).	Thank you for your comment. The feedback is greatly appreciated by the chapter authors.
70	Stenseke, Marie	5	25				The information on this page repeats what has already been mentioned on p.15-19	Thank you for your comment. The feedback is greatly appreciated by the chapter authors.
71	Fulton, Beth	5	26	452	26	462	Is the general idea here to provide a framework others can follow, a worked example or ??? Little confusing in this draft form.	Thank for your comment. Point well taken.
72	Nishi, Maiko	5	26	456	25	456	"beneficiaries" instead of "benefits"?	Thank for your comment. Point well taken.
73	Fisher, Sue	5	28	507	28	507	I'm not sure where to put this but I'd like to see an acknowledgement of changing social norms, accelerated and exacerbated by social media. The surge in demand for wild baby otters for selfies is a good example. See : https://www.theguardian.com/environment/2019/aug/26/endangered-otters-cites-appendix-i	Thank you. This comment is no longer relevant since the last version of the chapter has changed considerably.
74	Timoshyna, Anastasiya	5	28	507	28	507	Please do contact TRAFFIC by all means - this sub-chapter and the whole chapter 5 needs a very through review and additional information. Please contact: thomasina.oldfield@traffic.org , steven.broad@traffic.org or anastasiya.timoshyna@traffic.org	Thank you for your comment. The feedback is greatly appreciated by the chapter authors.
75	Jungwiwattanaporn, Megan	5	28	510	28	511	Sharks should be included with sea turtles and whales as transnational migratory species	Thank you for your comment. The feedback is greatly appreciated by the chapter authors.
76	Fulton, Beth	5	29	514	29	522	In this section I think you would want to mention how to think about putting in technology effects/technology creep even when not sure exactly what the tech will be? This is a means of helping with uncertainty handling and robustness checking of projections and strategies being trialled in the modelling work.	Thank you for your comment. All the mentioned points were addressed in the final version of the chapter.
77	Kenward, Robert	5	31	557	31	558	Abrupt jump in context from general governance to ivory	Thank for your comment. Point well taken.
78	Kenward, Robert	5	31	557	31	558	The jump in context from general governance to ivory is so abrupt that one wonders whether intervening material has been lost or if this paragraph is out of place (and see Box 5.5).	Thank for your comment. Point well taken.

79	Fisher, Sue	5	31	558	31	559	CITES specifically seeks demand reduction efforts. Parties adopted by consensus Resolution 17.4 on demand reduction strategies in order to curb illegal trade in specimens. CITES, Demand Reduction Strategies to Combat Illegal Trade in CITES-listed Species, Resolution Conf. 17.4.	Thank you for your comment. The feedback is greatly appreciated by the chapter authors.
80	Fulton, Beth	5	31	558	31	565	Want to mention how to think about putting in technology effects/technology creep even when not sure exactly what the tech will be? This is a means of helping with uncertainty handling and robustness checking of projections and strategies being trialled in the modelling work.	Thank you for your comment. The feedback is greatly appreciated by the chapter authors.
81	MOE, JAPAN Wildlife Division	5	31	558	31	565	The sources of this paragraph is not clear, If BOX5.11 is the sources of this paragraph, the stockpiles of ivory is not taken into account. there is a lot of stockpiles of ivory harvested in the past. Furthermore, governments tighten ivory trade regulations, and supply and demand of ivory will be controlled. Considering these points, there isn't enough information for determining that managing the ivory market is unrealistic.	Thank you for your comment. All the mentioned points were addressed in the final version of the chapter.
82	Kenward, Robert	5	31	561	31	561	It may not unrealistic with DNA forensics, as was documented within when a resolution on ivory was proposed at IUCN's World Conservation Congress in 2016.	Thank you for your comment. All the mentioned points were addressed in the final version of the chapter.
83	Germany	5	31	564	31	565	The "conditions" should be explicitly described: increasing militarisation and professional organisation of poachers for the demand of international markets are dangerous to the parties mentioned. It is also important to stress that these activities undermine sustainable development and livelihoods for IPLCs.	Thank you for your comment. The feedback is greatly appreciated by the chapter authors.
84	Fulton, Beth	5	31	569			Example coming for "Human values and ethics"?	Thank you. This comment is no longer relevant since the last version of the chapter has changed considerably.
85	Fisher, Sue	5	31	570	31	570	This should also consider the similarity (visual, flavor, etc) to a current target species as this is likely to increase the likelihood of it being targeted in the future, particularly as the target species becomes rarer. Similarly, a species heavily trafficked in one region is likely to be targeted in another region as the initial population becomes rarer. The trade in pangolins moved as the species became rarer.	Thank you for your comment. The feedback is greatly appreciated by the chapter authors.
86	Fulton, Beth	5	31	584			Missing bracket after "remain stable or decrease"	Thank you for your comment. The feedback is greatly appreciated by the chapter authors.
87	Stenseke, Marie	5	31	586	32	600	Unclear why item j, on Global, national, regional and local governance contexts is separate from item e, on governance.	Thank for your comment. Point well taken.
88	Fulton, Beth	5	31	587	32	600	It would be worth commenting on situation for high seas given expanding interest in that domain.	More text has been added around high seas fisheries and sustainability
89	Baker, Michael	5	32	596	32	596	Common property principles in fisheries may not be synonymous with terrestrial-based property systems or rights, with contested 'rights' often different between different fishing sectors (commercial, recreational, Indigenous, artisanal), and are likely different between jurisdictions.	This text is no longer included
90	Stenseke, Marie	5	32	601	32	613	item k, on predictors is not consistent with the other items. It is not a driver as such, but includes drivers.	Thank for your comment. Point well taken.
91	Fulton, Beth	5	32	607	32	613	It would be good to bring in parallels around multispecies fisheries here - they face very similar issues and it would be good to seem more marine examples dotted through.	Thank for your comment. Point well taken.
92	Nishi, Maiko	5	33	614	55	1327	I would expect that the subsection titles and the ways of subdividing the sections could be streamlined for readability, for instance, in accordance with management/use modes, kinds of species being used/managed, etc. — Otherwise, any introductory explanation about how the authors describe them at the beginning would be appreciated so as to easily follow the text.	Thank you for your comment. The feedback is greatly appreciated by the chapter authors.

93	Nishi, Maiko	5	33	614	55	1327	In this section, it is often difficult to understand which scale is referred to in description of a particular scenario or trajectory (though it says "We look for global as well as local scenarios" - Page 33 Lines 624-625, and more clarity about scales of scenarios in the description would be appreciated. For instance, Box 5.5 points to China, but it sounds very specific and a bit awkward in the flow of the text and more narrative explanations for box examples would be helpful. Also, Box 5.7 could be situated as a national-scale scenario in a more specific way (page 48 — also, the box text is a repetition of the main text).	Thank you for your comment. The feedback is greatly appreciated by the chapter authors.
94	Kathryn Phillips (on behalf of UNEP - WCMC)	5	33	619		621	I think that there is a lot of information from the BES-SIM results presented in the Global Assessment Ch4 that you could make use of here. A range of biodiversity models projected biodiversity responses to land use (and climate change in some instances) following SSP-RCP combinations. These results could be used in conjunction with the driver information to inform how biodiversity might be managed. Areas of severe biodiversity decline might expect to be more closely managed than other areas - the coincidence between these and other drivers, such as spatially explicit projections of population growth could be informative	Thank you for your comment. The feedback is greatly appreciated by the chapter authors.
95	Nishi, Maiko	5	33	620	33	620	"5.6.2." or somewhere else instead of "<5.3.7>?"	Thank for your comment. Point well taken.
96	Kathryn Phillips (on behalf of UNEP - WCMC)	5	33	622			There is information in the SSP scenarios and there IAM quantification on the assumed extraction of timber and forest products - these are global projections that could be useful here. It would also be useful to review the SSP interpretations by the IAM teams to understand the assumptions made for meeting dietary needs within each IAM - did any rely on wild-sourced foods, or is everying the product of agriculture?	Thank you. This comment is no longer relevant since the last version of the chapter has changed considerably.
97	CAMARENA, Maria	5	34	626	34	641	Rather than "CITES network", mention "CITES trade records", and include a reference to the CITES Trade Database. The closing line, regarding the example for scenario D, is inaccurate, since while all primates (at an Order level) are listed in the Appendices, only the trade (for commercial purposes) of Appendix I primates is "prohibited" (around 144 species); whereas the remaining primates (around 266 species) are listed in Appendix II, which allows REGULATED trade. So be careful not to equal CITES listings to bans, since this is rarely the case. For more info, please refer to the CITES Appendices.	Thank you for your comment. The feedback is greatly appreciated by the chapter authors.
98	Kenward, Robert	5	34	626	34	641	Box 5.3 addresses the main comment for this chapter: much material is available on C.	Thank you for your comment. The feedback is greatly appreciated by the chapter authors.
99	't Sas-Rolfes, Michael	5	34	645			Reference is missing from final reference list. 't Sas-Rolfes, M., Challender, D.W.S., Hinsley, A., Verissimo, D., Milner-Gulland, E.J., 2019. Illegal Wildlife Trade: Scale, Processes, and Governance. Annual Review of Environment and Resources 44, 201–228. https://doi.org/10.1146/annurev-environ-101718-033253	Thank you for your comment. The feedback is greatly appreciated by the chapter authors.
100	Fulton, Beth	5	34	645			"identified five groups of mitigation measures"... Does this refer to a-c and then i) and ii) or did I miss something?	Thank you. This comment is no longer relevant since the last version of the chapter has changed considerably.
101	Nishi, Maiko	5	34	645	34	645	"three groups" instead of "five groups"?	Thank you. This comment is no longer relevant since the last version of the chapter has changed considerably.
102	Bates, Peter (TSU for ILK on behalf of the ILK Dialogue in Montreal)	5	34	749	41		Invasive alien species may also disrupt ecosystems, making it harder for IPLC to forecast and manage their use sustainably.	Thank for your comment. Point well taken.

103	Bates, Peter (TSU for ILK on behalf of the ILK Dialogue in Montreal)	5	34	749	41		Scenarios for cumulative impacts of climate change and extractive use on terrestrial species should consider the impacts of climate change and the reduced ability of elders and communities to predict the weather and phenology (i.e., life stages of wild species) using ILK, making it harder for communities to plan their activities such as sowing or harvesting, and leaving them more exposed to climate related risks such as droughts. Climate change may also lead to a greater reliance on wild species, rather than cultivated species which can need more water and be less resilient, and if crops fail or domesticated animals die, people may turn increasingly to wild species to supplement diets. This can have both positive and negative consequences for sustainable use and IPLC culture (e.g. declines in wild species, or a resurgence in traditional gathering and hunting).	Thank you for your comment. The feedback is greatly appreciated by the chapter authors.
104	Jungwittanaporn, Megan	5	35	664	35	675	This paragraph mentions how CITES has been used in nontrade conservation measures. It should also be mentioned that a no trade/trade ban can also be a 0 quota for species where a non-detriment finding (NDF) cannot be produced or is produced and shows that there is impact to the wild populations or because that is what is easier for developing countries, who lack capacity and resources for complex management plans or enforcement.	Thank you for your comment. The feedback is greatly appreciated by the chapter authors.
105	Fulton, Beth	5	35	682			"Trade bans can have unintended negative consequences"... Such as?	Thank you. This comment is no longer relevant since the last version of the chapter has changed considerably.
106	Stenseke, Marie	5	35	684			The title of the box says that it is about central Africa, but half of the text concerns North America	Thank you. This comment is no longer relevant since the last version of the chapter has changed considerably.
107	CAMARENA, Maria	5	36	685	36	717	While referring to the objective of CITES, rather than paraphrasing it, please use the terminology in the CITES website, specifically: "Its aim is to ensure that international trade in specimens of wild animals and plants does not threaten their survival."; this to avoid referring to concepts that are foreign to the CITES community.	Thank for your comment. Point well taken.
108	Freyer, Daniela	5	36	686	36	702	This paragraph is taken from the abstract of one scientific publication (Weber et al., 2015) which represents a rather one-sided view. Indeed, a number of reports question the sustainability of polar bear offtakes. They warn that the negative effects of (trophy) hunting in Canada, like reduced genetic diversity and mating success for polar bears as well as increasing pressure for higher hunting quotas among settlements need to be considered (see Liodden, Ole J., 2019. Polar Bears & Humans, Naturfokus). Just recently, Nunavut put in place a new polar bear hunt management regime, introducing a one-to-one male-female harvesting ratio for all subpopulations. While the previous regulation, that required hunters to take two males for every female was also seriously questioned on conservation grounds (see reference above), the new regulation is described also as ill-advised, given the potential negative consequences on polar bear populations, ecosystem stability, Inuit culture and tourism (see Sonne, C. et al., 2019. Nunavut's ill-advised hunting proposal. Science, Vol. 364, Issue 6440, pp. 539 DOI: 10.1126/science.aax3322) Already in the past the Canadian federal authorities criticized hunting quotas established by Nunavut because these were lacking a scientific basis. Also, Greenland has stopped issuing licenses for trophy hunting and exports of polar bears in 2008, as a result of unsustainable quotas, the inability to make a non-detriment finding under CITES (see http://www.natur.gl/en/communication/news/article/a/new-procedure-for-cites-non-detriment-assessments-from-the-greenland-institute-of-natural-resources/) and previous import bans established by the EU. Moreover, another recent publication makes the case that Canada's interpretation of the International Agreement on the Conservation of Polar Bears and Their Habitat is critically flawed. Canada is the only one of the five polar bear range states that continues to permit hunting for trophies and for commercial use. (see Simpson, M., 2019. Polar Bear Sports Hunting:	Thank you for your comment. The feedback is greatly appreciated by the chapter authors.
109	Fulton, Beth	5	36	702	36	704	Rather than a throw away line it would be good to hear more on this.	Thank you. This comment is no longer relevant since the last version of the chapter has changed considerably.
110	Fulton, Beth	5	37	721	37	723	This doesn't make sense as written, I think some numbers are missing?	Thank you for your comment. All the mentioned points were addressed in the final version of the chapter.
111	Kenward, Robert	5	37	721	37	723	Something, perhaps a number of elephants, is missing in this first sentence of Box 5.5 - and see comment in row 83.	Thank you for your comment. All the mentioned points were addressed in the final version of the chapter.

112	Fulton, Beth	5	37	729	37	738	If you have this section on ivory in this box then I think you need different text or example above as the 1:1 repetition here does not work in your favour	Thank you for your comment. The feedback is greatly appreciated by the chapter authors.
113	Mulà, Anna	5	37	739	37	740	A very important case about the banning of the ivory trade should be included: "Case studies. The banning of the ivory trade" Background Global ivory markets collapsed after all African elephants were listed in Appendix I in 1989, ending the prevailing poaching crisis. Many elephant populations subsequently recovered. However, the weakened protection of elephants and exemptions for trade since 1997, when CITES approved national down-listings of elephants, are associated with a reversal of this positive trend, notably after CITES allowed ivory stockpile sales from southern Africa to China and Japan in 2008, which coincided with a jump in demand for ivory, rise in poaching and illegal trade. There have been several high-level initiatives by CITES in recent years in an attempt to contain poaching and illegal trade, including a 9-year moratorium on ivory trade proposals from 2008 to 2017, 4 country-specific NIAPs (National Ivory Action Plans) in ivory source, transit and destination countries, and a recommendation in 2016 to close certain domestic ivory markets. However, the split-listing of African elephants, and persistent markets, mean these safeguards have not stopped poaching. Hence, these measures have failed to stop poaching or illegal trade. According to some African countries, transfer of the Appendix II elephant populations (Botswana, Namibia, South Africa and Zimbabwe) to Appendix I is the essential and urgent step (See CoP18 Doc.44.2). Biological Criteria Throughout Africa, elephant populations are shared across international borders. According to an analysis of numbers and range areas in the IUCN African Elephant Status Report (AESR) 2016, some 76% of Africa's elephants are in transboundary populations shared between at least two, and sometimes as many as five, countries. In southern Africa, these	Thank you for your comment. The feedback is greatly appreciated by the chapter authors.
114	Kathryn Phillips (on behalf of UNEP - WCMC)	5	37	749		749	Why does this section only focus on the interaction between climate change and extractive use - surely this should be "global change"	Thank you. This comment is no longer relevant since the last version of the chapter has changed considerably.
115	Fulton, Beth	5	38	760			shifting ranges - do not just do plants cover animals, especially give some marine examples (which are generally light on in this chapter). For example, Cheung et al work or FISH-MIP examples for fisheries and fished species globally.	Both Fish-MIP and Cheung et al. work are now cited
116	Fulton, Beth	5	39	781			Under the climate change influence section, in the marine space you also have marine extreme events which can also influence wild capture species and their long term robustness to exploitation - see Babcock et al 2019 paper in Frontiers or (to a lesser degree) the FISH-MIP and Galbraith et al work.	These references are now included
117	Fulton, Beth	5	40	817			"can significantly influence climate change." In what way?	This sentence is no longer in the chapter
118	Stenseke, Marie	5	41	820	42	873	Unclear how box 5.6 relates to sustainable use of wild species	Thank you for your comment. All the mentioned points were addressed in the final version of the chapter.
119	Fisher, Sue	5	41	821	41	821	Please consider that large-bodied migratory oceanic species have the same potential. Rewilding of the oceans would not involve reintroductions but conservation efforts (including bans on hunting) to allow diminished populations to recover to pre-exploitation levels faster.	The link between rewilding and sustainable use in terms of scenarios remains unclear.
120	Bates, Peter (TSU for ILK on behalf of the ILK Dialogue in Montreal)	5	42	847	43		Scenarios for fishing could consider how education and economic forces can shift IPLC aspirations for harvests - for example, a change from fishing for immediate consumption to fishing for storage or sale.	We agree, but need specific examples to review
121	Bates, Peter (TSU for ILK on behalf of the ILK Dialogue in Montreal)	5	43	901	45		Scenarios for non-timber forest products harvest should consider that the future of conceptualizations of nature are connected to loss of language (e.g. conceptualization of "wild") and the future of sustainable use by IPLC is based on customary laws (e.g. mushroom collection, leave some mushrooms for animals or for other people).	Thank you for your comment. The feedback is greatly appreciated by the chapter authors.

122	CAMARENA, Maria	5	43	901	49	1143	These sections on NTFP and timber extraction overlap with similar sections included in Chapters 3 and 4. The comments made to those sections apply here (e.g. include mention to CITES Secretariat's latest assessment on NTFP, and give proper recognition on the growing role that CITES has in ensuring at a global scale the legal/sustainable/traceable trade in timber producing species). What added value or recommendations, building from what has already been reflected in previous chapters, will this section aim to provide for these plant-trade sectors?	Thank you. This comment is no longer relevant since the last version of the chapter has changed considerably.
123	Finnish national IPBES panel (Nieminen, Tiina M.)	5	43	901	45	972	Although the title of the chapter is non-timber-forest-product harvesting, the text deals only with medicinal plants without any linkages to forest species and only the lines 903-923 and lines 959-972 describe sustainability issues related to the use of wild species for medicinal purposes. Wild meat, fruits, nuts, berries, forest honey, mushrooms, etc which comprises an important source of nutrition for millions of people worldwide are also NTFPs, as well as gum extracted from forests trees, and also fuel wood harvested for domestic use is usually included in NTFPs.	The chapter has moved away from NTFP terminology towards PAF (plants, algae and fungi) / gathering. The chapter also now indicates the range of products that may be gathered.
124	Finnish national IPBES panel (Nieminen, Tiina M.)	5	43	901	50	1179	The contents of subchapters "NTFPsharvesting", "Timber extraxtion" and "Biomass collection /biofuels" do not correspond to their titles, are poorly linked to the overarching Chapter 5 title "Futute scenarios", as well as to the focus of the assessment, sustainable use of wild species. In addition, the three subchapters are overlapping with each other and contain inaccurate expressions and use of terms. Citation practices used do not meet the criteria of scientific writing, such as the need to refer to the 1st hand paper/statistics.	Thank you for your comment. The feedback is greatly appreciated by the chapter authors.
125	Fulton, Beth	5	43	901			NTFPs section - beginning with medicinal plants. As written it is generic description of the medicinal plants issue and doesn't seem to explicitly cover scenarios or models - so does not seem to contribute much to the aim of the chapter? The next example on wood is similar (though it does go on to discuss specific scenario projections). Perhaps it is the style and formatting. A table laying out the relevant drivers, plausible futures derived and implications might help the writer keep the infirmation tight and the reader to see how the text is describing the content of the scenarios or model results.	Thank you for your comment. The feedback is greatly appreciated by the chapter authors.
126	Timoshyna, Anastasiya	5	43	901	45	972	This sub-chapter needs a very serious re-write. It uses extremely old references, and is positioned on the premise that medicinal plants need to be moved to cultivation - this is not a correct or logical way to handle this in the sustainable use of wild species assessment (while a colution in some cases, move to cultivation often has detrimental conservation and livelihoods consequences for plants and people depending on their harvesting, around the world). Many plants are and will be harvested sustainably and legally in future. Please do get in touch with me for a through review! I can offer these as a specialist on medicinal plants trade and use https://www.traffic.org/what-we-do/species/wild-plants/ and co-chair of the IUCN SSC Medicinal Plant Socialist Group; At the moment gathering/NWFP/NTFP is in-consistent across chapters 2, 3, 4, 5, 6	This sub-chapter has been substantially revised, reorganized, and updated to include more recent literature
127	Botchway, Thomas Prehi	5	43	905	43	914	Most of the references including, Lange (2001), Vines (2004), and FAO (2005), as cited by the authors, may be a bit outdated for the issues been discussed. In order to get clearer understanding of the situation, it is recommended that the authors update these references so as to reflect the current situation, especially since figures and attitudes of people are involved.	This sub-chapter has been substantially revised, reorganized, and updated to include more recent literature
128	Kenward, Robert	5	45	952	45	975	Considerations in Jenkins et al (2018), cited in Chapter 3, are very relevant here.	Thank you for your comment. The feedback is greatly appreciated by the chapter authors.
129	Nishi, Maiko	5	45	963	45	963	Some words seem to be missing in "... as well as local, national and contribution to global trades" — this may change to "...local, national distribution and its contribution to global trades."?	Thank you for your comment. All the mentioned points were addressed in the final version of the chapter.

130	Finnish national IPBES panel (Niemiuvuo-Lahti, Johanna)	5	45	973	48	1102	In this section there is a need for a more analytic assessment with specific connection to the theme of this thematic assessment on the issues concerning illegal trade of tropical wood (FLEGT and CITES) as well as the deforestation aspect due to land use change. FLEGT is mentioned in the row 1000 but the connection to the biodiversity and especially wild species is missing.	Thank you for your comment. All the mentioned points were addressed in the final version of the chapter.
131	Finnish national IPBES panel (Niemiuvuo-Lahti, Johanna)	5	45	973	50	1179	Referring to the chapters 5.7.7. as well as 5.7.8. Finland in general would like to highlight that the linkage to the whole IPBES assessment "Future scenarios of sustainable use of wild species" is obscure and unfocused. We would like see more specific connection to the theme of this thematic assessment.	Thank you for your comment. All the mentioned points were addressed in the final version of the chapter.
132	Finnish national IPBES panel (Niemiuvuo-Lahti, Johanna)	5	45	973	50	1179	Referring to the chapters 5.7.7. as well as 5.7.8. the criteria of the scientific writing is not here fully fulfilled or met. I.e. instead referring the WWF there should be a citation/reference to the original source.	Thank you for your comment. All the mentioned points were addressed in the final version of the chapter.
133	Fulton, Beth	5	45	973			Restructure as discussed for pt on line 901 and try to keep repetition of specific stats (e.g. for forest production) to a minimum (not to hide it but because it really is repetition)	Thank you for your comment. The feedback is greatly appreciated by the chapter authors.
134	Germany	5	45	973	45	973	The title "Timber Extraction" does not sufficiently reflect the content of the chapter. Proposal: "Timber demand and Forest Management"	Thank you for your comment. The feedback is greatly appreciated by the chapter authors.
135	Stenseke, Marie	5	45	973	49	1143	This section needs to be clearer when it comes to the relation wild species-timber-forests. Far from all timber is produced of wild species. Forests often comprises both wild and planted trees. Maybe it would help to discussing more region by region?	Thank you for your comment. The feedback is greatly appreciated by the chapter authors.
136	Finnish national IPBES panel (Niemiinen, Tiina M.)	5	45	974	45	990	The paragraph is somewhat confusing to the reader and contains vague statements, such as the first lines that simply state that timber extraction is influenced by demand of diverse timber-based products. (and this does not even hold for domestic fuel wood listed here, since it follows a different demand-supply pattern than timber.) Current trends and future scenarios are not described for the different timber uses and paper products, of which some are currently decreasing (printing) while others are increasing (packaging, hygiene products).	Thank you for your comment. The feedback is greatly appreciated by the chapter authors.
137	Finnish national IPBES panel (Niemiinen, Tiina M.)	5	45	974	49	1143	The relevance in terms of "sustainable use of wild specie2 remains somewhat unclear.	Thank for your comment. Point well taken.
138	Avdibegović Mersudin	5	46	1000	46	1006	Apart of FLEGT, the Timber Regulation (EUTR) has to be mentioned as EU initiatives to combat illegal logging and prevent import of wood-products from illegal sources on EU markets.	Thank you for your comment. The feedback is greatly appreciated by the chapter authors.
139	Fulton, Beth	5	46	1004	46	1005	Have already started down this path in fisheries	Thank for your comment. Point well taken.
140	Fulton, Beth	5	46	1026			has the dip mentioned for 2008 since reversed post the global financial crisis (which I am assuming drove the 2008 dip)?	Thank you. This comment is no longer relevant since the last version of the chapter has changed considerably.
141	Nishi, Maiko	5	46	1026	46	1027	What is the driver(s) for increase in Russia?	Thank you. This comment is no longer relevant since the last version of the chapter has changed considerably.
142	Fisher, Sue	5	48	1103	48	1103	Please consider a case study for Gabon's forests. Under a recent agreement, Norway will pay Gabon to preserve its forests in an effort to fight climate change. According to the contract, Norway will pay Gabon \$10 for every ton of carbon not emitted, relative to the Central African country's annual average between 2005-2014, and up to a maximum payout of \$150 million over ten years. See: https://phys.org/news/2019-09-gabon-minister-hails-country-responsibility.html	Text has been added that cites a paper which includes this: 'Payment for avoidance of carbon emission through limiting deforestation may also affect land-use decisions (Fuss et al. 2020), though it is important to recognize that for these climate mitigation approaches, considerations of equity and implementation remain crucial (Demaze et al. 2020; Dieterle & Karsentry 2020).'
143	Fulton, Beth	5	48	1106			Eventually may need to go further than two drivers if you're going to consider cumulative effects	Thank for your comment. Point well taken.
144	Bates, Peter (TSU for ILK on behalf of the ILK Dialogue in Montreal)	5	49	1144	50		Scenarios on biomass collection / biofuels should consider that the future of conceptualizations of nature are connected to loss of language (e.g. conceptualization of "wild") (loss of knowledge on wild herbs collection) and the future of sustainable use by IPLC is based on customary laws (e.g. mushroom collection, leave some mushrooms for animals or for other people).	Thank you for your comment. The feedback is greatly appreciated by the chapter authors.
145	Finnish national IPBES panel (Niemiinen, Tiina M.)	5	49	1144	50	1179	Biomass for biofuels is produced and harvested also outside forest, the content focusing solely on forest does not correspond to the title	Thank you for your comment. The feedback is greatly appreciated by the chapter authors.

146	Nishi, Maiko	5	50	1154	50	1154	Evidence would need to be provided for the description "many of which are beneficial for biodiversity."	Thank you for your comment. The feedback is greatly appreciated by the chapter authors.
147	Finnish national IPBES panel (Nieminen, Tiina M.)	5	50	1160	50	1170	The study by Heinonen et al. (2017, missing from the references list) described in these lines is not relevant for bioenergy / biofuel context. It is a scenario analyses for the effects of harvesting intensity on development of forest resources, timber supply, carbon balance and biodiversity of Finnish forestry.	Thank you for your comment. The feedback is greatly appreciated by the chapter authors.
148	Kathryn Phillips (on behalf of UNEP - WCMC)	5	50	1180		1180	References in section 4.2.4.4 of the IPBES global assessment might be useful here	Thank you for your comment. The feedback is greatly appreciated by the chapter authors.
149	Stenseke, Marie	5	50	1181	51	1205	Box 5.8 is interesting, but it might fit better in chapter 2 than in the scenario chapter	Thank for your comment. Point well taken.
150	Nishi, Maiko	5	51	1196	51	1196	It would be helpful if the authors elaborate what "dilemmas" (e.g., moral, economic, etc?) are inherent in the management of introduced species in a clearer manner.	Thank you. This comment is no longer relevant since the last version of the chapter has changed considerably.
151	Fulton, Beth	5	51	1206	53	1294	There are examples of using models to explore different futures for tourism in coastal planning too - for example on the Ningaloo coastline of Western Australia (Fulton et al 2015 paper or the technical report referenced within). Such efforts don't just highlights the benefits and pitfalls of alternative tourism developments but also the trade-offs with other uses and values.	We have now added a reference to this paper
152	Nishi, Maiko	5	51	1207	51	1207	"5.5" (methodology section?) instead of "5.1"?	Thank for your comment. Point well taken.
153	Stenseke, Marie	5	51	1211			The first sentence could be written in a more nuanced way, since tourism also can be part of the solution, as is also elaborated later in the section.	Thank for your comment. Point well taken.
154	Kenward, Robert	5	51	1220	52	1221	There is another disconnect from general to specific here: is a Box intended? Indeed, much of the (very useful) material on tourism, indicators of sustainability and governance should probably be in chapters 3 and 4.	Thank you for your comment. The feedback is greatly appreciated by the chapter authors.
155	Kathryn Phillips (on behalf of UNEP - WCMC)	5	52	874			Suggest that you make contact with the FISH-MIP consortium (via derek.tittensor@dal.ca) who are involved in the development of ocean capture fishing and aquaculture scenarios	Fish-MIP material is now included
156	Tonon, Kylie	5	52	1221	52	1229	This section highlights that in developing countries, cetacean-watching develops with little barriers and governance oversight, which may impact the viability of the cetacean populations. This point should somehow be reflected in the box in Chapter 3 to simply highlight the risks of unsustainable cetacean-watching.	Thank you for your comment. The feedback is greatly appreciated by the chapter authors.
157	Fisher, Sue	5	52	1227	52	1227	Higham et al argued in 2015 for "the need for a paradigm shift in the regulation and management of commercial whale-watching, and present the case for a unified, international framework for managing the negative externalities of whale-watching" (James E.S. Higham, Lars Bejder, Simon J. Allen, Peter J. Corkeron & David Lusseau (2016) Managing whale-watching as a non-lethal consumptive activity, Journal of Sustainable Tourism, 24:1, 73-90, DOI: 10.1080/09669582.2015.1062020). It would be appropriate to note that, since this paper was published, the IWC has developed a strategic plan for whale watching. See: https://iwc.int/document_3666.download It would also be appropriate to acknowledge that whale watching provides a more sustainable (for the cetaceans) alternative to whaling/hunting. See for example, Tobias Schwoerer, Duncan Knowler, Salvador Garcia-Martinez. The value of whale watching to local communities in Baja, Mexico : A case study using applied economic rent theory. Ecological Economics, 2016. Available at: https://www.sciencedirect.com/science/article/pii/S0921800915300136	These suggested citations and considerations have all been integrated into the text.
158	Fulton, Beth	5	55	1324			Possible marine example could come from among Arctic peoples	New section on ILK / scenarios has been added
159	Stenseke, Marie	5	56	1328	67		The subsections in 5.8 needs to be more consistent, in order to make the structure of the section more logic. Now, some are about activities, others about resources, one about species etc.	Thank you for your comment. All the mentioned points were addressed in the final version of the chapter.

160	Minter, David	5	56	1332	56	1332	animals, plants, fungi, and bacteria? - this order implies that use of fungi is less important than use of plants, and that use of bacteria is least important - there is no mention of chromists (for example many seaweeds) for which there is ample evidence of use of wild species, and no mention of protists, for which there is some evidence of use of wild species.	Thank you. This comment is no longer relevant since the last version of the chapter has changed considerably.
161	Fulton, Beth	5	56	1345	56	1356	Comment on progress in fisheries (or lack there of) in this same space/topic area...	This text is no longer in Chapter 5
162	Kenward, Robert	5	57	1368	57	1387	Great to see that questions 7 & 8 of Chapter 1 (233-237) are to be addressed. However, please do not forget the comments at the start of this chapter about sustainable use of wildlife in Europe and North America. This necessitates a section and case study on use that is more "Cultural/recreational extractive use of fish and wildlife" than subsistence and commercial.	Cultural elements are now specifically identified for each practice, and recreational uses are discussed.
163	Fulton, Beth	5	57	1392	57	1394	include text on IUU fishing and trade...	We now have expanded text on the wildlife trade
164	Fisher, Sue	5	57	1393	57	1393	This is a good example of the impact of trade in one species impacting another. The population of critically endangered vaquita porpoises numbers less than 20 as a direct consequence of illegal fishing of totoaba for the swim bladder trade. See https://www.biologicaldiversity.org/species/mammals/vaquita/pdfs/Totoaba_Pelly_Petition_9_29_14.pdf	We now have expanded text on the wildlife trade
165	Fulton, Beth	5	57	1395	58	1402	Dependence of fish in local diets (nutritional for micro-nutrients not just volume)... but how some nations are looking to combine that with building economic income off the back of selling access rights to some stocks to international fleets (e.g. tuna in the pacific), that might need to change under climate due to change in stock structures locally and need for tunas to be used locally.... all Johann Bell's work in the Pacific	Sentence on micronutrients has been added, and climate change and equity elements are revised
166	Nishi, Maiko	5	57	1395	57	1402	The title "b) Scenarios for wild meat in local diets" does not seem match the contents of the text that follows this title.	Thank you for your comment. The feedback is greatly appreciated by the chapter authors.
167	Fulton, Beth	5	58	1403	58	1411	How does aquaculture fit into this discussion... what about sea-ranching? Or stocking of salmon stocks etc?	This text is no longer in Chapter 5
168	't Sas-Rolfes. Michael	5	58	1412			Tensen's representation of criteria is flawed and I recommend omitting it from this review. Table 5.3 presents the criteria mostly as binary absolutes, whereas in fact most criteria need only be partly met to have significant effects. The assessment of captive breeding's ability to contribute to conservation should be ascertained by marginal analysis, not be simplistic binary rules of thumb. I am aware of a rebuttal paper that is in process.	Thank you for your comment. The feedback is greatly appreciated by the chapter authors.

169	Fisher, Sue	5	58	1412	58	1412	<p>Captive breeding is not possible for coastal marine mammal species (sirenia and cetaceans) targeted in African as wild meat, Recognising that this use is not sustainable, the Abidjan Aquatic Wildlife Partnership seeks to end the unsustainable use of endangered marine and other aquatic species. See: https://abidjanconvention.org/west-central-african-conservationists-launched-new-effort-save-aquatic-wildlife</p> <p>At the 12th Conference of the Parties to the Convention for Cooperation in the Protection, Management and Development of the Marine & Coastal Environment of the Atlantic Coast of the West, Central and Southern Africa Region (hereafter Abidjan Convention) (ABC COP12) in March 2017, Parties considered the direct consumption and other uses of endangered, threatened, or protected coastal and marine species in western Africa and the African Strategy to Combat Illegal and Unlawful Trade in Wild Fauna and Flora in Africa (ABC 2017). There was strong support for the development of a programme to assess wild meat harvest of aquatic mammal, reptile, and amphibian species on sale in markets; the origins of the meat; and which species are traditionally caught and consumed (ABC 2017). ABC COP12 invited representatives of the CMS, the CMS Memorandum of Understanding concerning Conservation Measures for Marine Turtles of the Atlantic Coast of Africa, Western African Aquatic Mammals MOU, CBD, FAO, CPW, CITES, World Bank, and other partners, led by the Abidjan Secretariat, to develop an Abidjan Convention Action Plan to Combat Trade, Direct Consumption, Illegal Logging, and Other Uses of Endangered, Threatened or Protected Coastal and Marine Species (ABC 2017). This work is being undertaken by the multi-stakeholder Abidjan Aquatic Wildlife Partnership (AAWP), formed in 2018. The AAWP will work with Parties to the Abidjan Convention to identify and address the key issues driving aquatic wild meat consumption and use in</p>	Thank you for your comment. The feedback is greatly appreciated by the chapter authors.
170	Kenward, Robert	5	58	1412	59	1414	<p>Are welfare considerations relevant in table 5.3? Also though farming may produce meat, what about the Cultural/Recreational aspect? Should this and the next table actually be in Chapter 4, albeit with considerations regarding domestication in the scenario-building here?</p>	Thank you. This comment is no longer relevant since the last version of the chapter has changed considerably.
171	Stenseke, Marie	5	58		63		<p>Table 5.3 and table 5.4 seems to overlap with chapter 6</p>	Thank you for your comment. The feedback is greatly appreciated by the chapter authors.
172	Nishi, Maiko	5	64	1437	64	1443	<p>It would be helpful if the authors clarify the distinctions between direct drivers from indirect driers and infer or identify the connections between them.</p>	Thank for your comment. Point well taken.
173	Kenward, Robert	5	64	1450	64	1450	<p>Is the estimate of 1360 elephants here relevant to the missing figure in Box 5.3?</p>	Thank for your comment. Point well taken.
174	Stenseke, Marie	5	64	1450	65	1463	<p>Box 5.11 is interesting, but might fit better in another chapter since it does not say much about future scenarios.</p>	Thank for your comment. Point well taken.

175	Mulà, Anna	5	65	1463	65	1464	<p>The data contained in the BOX 5.11 Ivroy trade in China is not complete. There should be add some important data: To address the growing demand for elephant ivory in China, a one-year ban on the import of African elephant ivory carvings (not including pre-Convention items) was announced in February 2015, which was extended in October 2015 to African elephant hunting trophies. In March 2016, China declared the suspension of the import of elephant tusks and ivory carvings (including pre-Convention tusks and other ivory products, and tusks obtained in Africa as hunting trophies). Since then, China has taken further significant steps to closing its domestic ivory market. In December 2016, a Notice by the General Office of State Council on the Orderly Cessation of Processing and Sale of Ivory and Ivory Products was released declaring, inter alia</p> <ul style="list-style-type: none"> - A phase-out of commercial processing and sale of ivory and ivory products, with a portion of registered ivory sale and processing sites ceasing activities on 31 March 2017 and all sites by 31 December 2017; and - The strengthening of management of legal collection of ivory and ivory products. Prohibiting trading ivory through their display for sale in markets or transactions on the internet. Legally- sourced ivory and ivory products may be officially labelled for display in museums and art galleries for non-commercial purposes or on exhibition, and can be transported, gifted and inherited. Legally-sourced ivory relics certified by professional institutions can be auctioned under strict monitoring after administrative approval. 	Thank you for your comment. The feedback is greatly appreciated by the chapter authors.
176	Nishi, Maiko	5	65	1465	65	1473	<p>It would be useful if the authors could include the brief description of the study results to make this box more comprehensive and explanatory — Box 5.13 (page 66) is a good example in this regard.</p>	This table is not in Chapter 5 now
177	Fulton, Beth	5	65	1492	66	1509	<p>This literature is older than I would have expected to be covered in an "up to date" report. While the newer results may not be too much different to this in some instances it would be preferable to see more recent papers referred to here (at least something in the last decade given all the work going on). There is the Shared Ocean Pathways of Maury et al (2017), the benefits of fitting in with Paris agreement work of Cheung et al (2016), interaction of land and sea production by Blanchard et al (2017), FISH MIP production scenarios Lotze et al (2019), work by Costello and others on benefits of sustainable management etc. Please do not cite the Worm et al 2006 paper it has been refuted and much better analyses by Worm and others have since come out.</p>	These references are now included
178	Fulton, Beth	5	66	1526	67	1533	<p>It would be good to see new sensor technology for monitoring mentioned (like eDNA)</p>	Thank you for your comment. The feedback is greatly appreciated by the chapter authors.
179	Fulton, Beth	5	66	Box 5.13			<p>This is example is dated. It would be better to point to much newer work. The ensemble model approach of ACLIM in NOAA would be a better example, or even the CEATTLE work by Hoslman et al (2016). Other scenarios work exist for NE US (Gaichas, Fay etc), Europe (out of ICES working group), Australia (e.g. Fulton and Gorton 2014, Fulton et al 2018)</p>	This example is no longer included
180	Fulton, Beth	5	70	1548	70	1549	<p>Lots to mention here in the marine space such as Blanchard et al (2017) All the fisheries work on the fact you can't achieve maximum sustainable yield simultaneously across multiple species (e.g. work by Mueter, Gaichas et al, Gamble et al) Perhaps even touch on the "balanced harvest" debate which is trying to tackle these tradeoffs in the marine space - Garcia and Zhou are pro people like Froese, Pauly are anti - there are special issues on it and the implications for future catch patterns and sustainability</p>	Blanchard paper is included; MSy and balanced harvest text no longer included.
181	Zisenis, Marcus	5	72	0	75	0	<p>The Discussion and Conclusions of expected scenarios are still too thin, but the focus of Chapter 5 should be on them to provide some new innovative information and proposals.</p>	Thank you for your comment. All the mentioned points were addressed in the final version of the chapter.

182	Fulton, Beth	5	72	1557			Discussion section. One type of modelling glaring in its omission in the chapter is in qualitative loop analysis - as done by Dambacher et al (2015) Ecological Applications. I would try to cover it somewhere so the discussion might be a good place.	Thank you for your comment. The feedback is greatly appreciated by the chapter authors.
183	Stenseke, Marie	5	72		73		There seems to be overlaps between what is planned for these sections and chapter 6. If these sections are to stay in chapter 5, then the content needs to be more profiled in line with chapter 5.	Thank you for your comment. The feedback is greatly appreciated by the chapter authors.
184	Bates, Peter (TSU for ILK on behalf of the ILK Dialogue in Montreal)	5	all	all	all	all	Hunting and harvesting of marine species in the tropics can be done sustainably, especially when subsistence-harvest areas are established and enforced.	Thank you for your comment. The feedback is greatly appreciated by the chapter authors.
185	Bates, Peter (TSU for ILK on behalf of the ILK Dialogue in Montreal)	5	all	all	all	all	Impacts of global markets (e.g. palm oil), business exploitation (e.g. pharmaceutical companies) and large scale-infrastructure development (e.g. dams and roads) should be considered, including how these interact with IPLC customary management of resources.	Thank you for your comment. The feedback is greatly appreciated by the chapter authors.
186	Bates, Peter (TSU for ILK on behalf of the ILK Dialogue in Montreal)	5	all	all	all	all	Impacts of tourism on IPLC customary management of resources should be considered- e.g. in Hawaii, sharks no longer respond to traditional knocking on the canoe but respond to the sound of motors due to chumming from tourist boats.	Thank you for your comment. The feedback is greatly appreciated by the chapter authors.
187	Bates, Peter (TSU for ILK on behalf of the ILK Dialogue in Montreal)	5	all	all	all	all	The future impacts of policies that prohibit traditional IPLC practices like rotational agriculture, hunting or ceremonies involving childbirth should be considered	Thank you for your comment. The feedback is greatly appreciated by the chapter authors.
188	Bates, Peter (TSU for ILK on behalf of the ILK Dialogue in Montreal)	5	all	all	all	all	The impacts of the current education system will have a big future impact on sustainable use by IPLC. The current system teaches aspirations based on financial gain, and gives high prestige to jobs in offices etc, while small scale farming (which generates 70% of our food) or hunting and gathering may be given very low prestige. The mind-set this creates in the youth is a driver for many youth to either exploit resources unsustainably (mostly to gain income), or to leave their communities to live easiest life in cities.	Thank you for your comment. The feedback is greatly appreciated by the chapter authors.
189	Bates, Peter (TSU for ILK on behalf of the ILK Dialogue in Montreal)	5	all	all	all	all	The role of research in the future should be considered - many communities do not want genetically modified animals and plants to be released, and they want the precautionary principle to be applied, including for synthetic biology.	Thank you for your comment. The feedback is greatly appreciated by the chapter authors.
190	Fulton, Beth	5	Figure 5.1				Why does it say 4.1, 4.2 etc? Old chapter number? Regardless, the process in the diagram should be an iterative process (or have the capacity to be iterative)	Thank you. This comment is no longer relevant since the last version of the chapter has changed considerably.
191	Kathryn Phillips (on behalf of UNEP - WCMC)	5	General comment	More on Fish			The NEREUS programme https://nereusprogram.org/ is also doing a lot of future of oceans work and fisheries work. See William Cheung, Chris McOwen and others working on that programme for more details of what they will soon have available.	Elements of the Nereus outputs are now cited
192	Meera Anna Oommen	5	General comment	NA	NA	NA	I am not proficient enough to review most sections of this chapter. However, the intend to discuss 'decision-making under uncertain conditions' does not seem to be followed up adequately. Decision-making in systems of uncertainty or imperfect or unavailable information (as opposed to systems of risk where there is perfect information) is a formal field of analysis that has its typical set of analytical pathways. For instance optimisation models (such as those involving OLS regression) tends to perform poorly when used for prediction in uncertain systems. Unfortunately, despite having identified issues of sustainable use as falling within the category of wicked-problems, the report does not address this adequately, though the beginnings of such an analysis can be seen in references within these chapters to the work of key contributors such as Elinor Ostrom. This is significant because eventually policy and governance responses in such systems are more likely to succeed if they are of a procedural than of a substantive nature. It would be useful for authors to take a look at this scholarship.	Thank you for your comment. The feedback is greatly appreciated by the chapter authors.
193	MOE, JAPAN Wildlife Division	5	General comment				As pointed out in Chapter 4 Line 2567-2596, wildlife trade contributes wildlife conservation, Such contents should also be described in Chapter 5.	Thank you. This comment is no longer relevant since the last version of the chapter has changed considerably.

194	Molnár, Zsolt	5	General comment				During the preparation of the Global Assessment we started to build a database on indicators of nature developed and used by Indigenous Peoples and local communities. The database contains >1300 indicators from ca. 250 publications. If useful we can help with a specific summary on how drivers were perceived locally by IPLC (Zsolt Molnár and Daniel Babai, Centre for Ecological Research, Vacratot, Hungary).	Thank you for your comment. The feedback is greatly appreciated by the chapter authors.
195	Sandra Lavorel	5	General comment				The effort and results for sections up to section 5.8 are very encouraging and promise some excellent results. The following sections and until pathways for sustainable use are not at all developed. This makes it impossible to assess 1) which methods will be used to draw from the exploratory scenarios and from other sources (dedicated target seeking work - how much of that is available for SU of wild species?), 2) which conclusions are anticipated. In particular, what one would like to see here is a vision from the authors of how this will refine / add to the very generic leverage points identified by the global assessment. How is the work organised within the chapter, and are there dedicated lead authors for these sections?	Thank you for your comment. The feedback is greatly appreciated by the chapter authors.
196	Sandra Lavorel	5	General comment				The strategic vision for the chapter is excellent, as is its structure. The vision laid out in Section 5.3 is in particular highly relevant and promises high impact. The comment on how this adds to the GA scenarios is particularly important. The use of case studies and more generally the interplay between information from different scales is well justified by the difficulty (and non relevance) of attempting to identify generic solutions.	Thank you for your comment. The feedback is greatly appreciated by the chapter authors.
197	Serge Michel Garcia	5		514		514	What about technological progress in the use of biodiversity that may increase/reduces the impact. E.g. non-entangling FADs in tuna fisheries, Medina panel to protect dolphins in purse-fisheries; circle hooks to protect turtles; Scary lines and night setting to protect seabirds; underwater video equipment and net sensors allowing real time control and vision of the trajectory and "jumping" over protected biodiversity structures, etc.	Thank you for your comment. The feedback is greatly appreciated by the chapter authors.
198	Serge Michel Garcia	5		523		523	Population growth may be global (global food demand) but may also result locally as a result of demography (as the global one) or as a result of human migrations due to various factors (wars, droughts (like in Sènegal and Mauritania generating massine moves towards the coast) and fishing as last resort.	both globally and in individual regions' has been added to the text
199	Serge Michel Garcia	5		883		884	NO. The expression "safe biological limits" is used for stocks and translated in reference levels of biomass (e.g. Blim, Bpa). The expression "safe ecological level" is used for a similar concept applied to the ecosystem as a whole, adding significant complications. A synthesis on the scientific reporting of Target 6 is being published by the CBD in its Technical Series and it could be consulted. Draft reference is: Garcia, S.M: and Rice, J. 2019. Assessing progress towards Aichi Target 6 on sustainable marine fisheries. CBD Technical Series.	This sentence is no longer in Chapter 5.
200	Serge Michel Garcia	5		885		888	This is confused. Plea consider the following draft: In the FAO system of stock status categories, a stock of a species considered to be 'harvested sustainably' should have a fishing mortality or a biomass around a target reference point related MSY (between 0.8-1.2 MSY level) as required by UNCLOS. 'Overfishing' occurs when fishing pressure is above that target. The stock is "overfished" when its biomass is below the target. If the stock has fallen well below the biomass target (e.g. 20% of Bmsy) the stock is considered "depleted" or "collapsed".	This is no longer in Chapter 5
201	Serge Michel Garcia	5		886		666	Yes, but most importantly, according to UNCLOS the target reference points should be defined with reference to the Maximum Sustainable yield (i.e. in reference to the level of fishing mortality or biomass corresponding to the MSY of the stock). The chosen target should be equal but preferably lower than the MSY level (for the precaution recommended in the UNFSA) (e.g. Btarget =>MSY). The maximum Economic Yield level is compatible with UNCLOS too as long as Bmey > Bmsy	This sentence is no longer in Chapter 5.

202	Serge Michel Garcia	5		897		897	"...fisheries work..." please specify "fisheries assessment work" otherwise the statement is incorrect.	Thank you for your comment. The feedback is greatly appreciated by the chapter authors.
203	Serge Michel Garcia	5		1221	nchard	1229	While all the section is generic, this paragraph on "tourism" is very specific to fisheries-related tourism. This should be specified. i.e. The rapid growth of the fishery-related industry across...	This sentence is no longer in Chapter 5.
204	Serge Michel Garcia	5		1224		1225	The following sentences are not logically linked. It is said that: Typically local people lack the capacity, framework and institutions required to manage the industry. Thus, tourism tends to grow rapidly and is managed without close controls. The first sentence is generally true; capacity is lacking. And that does not explain at all why then tourism develops rapidly and without control. The point of the ecotourism or fishing tourism is often therefore funded and developed externally to the local communities, on a profit basis, not a sustainable use basis and the profits often fly away from the communities concerned, suppressing any incentive to conserve stocks.	These sentences are no longer in the chapter
205	Serge Michel Garcia	5		1351		1356	Fisheries assessments are a good example of model-based. Science-based adaptive approach but they are still (unfortunately) MSY-related strategies and have not impeded overfishing 30% of the world stocks, for various reasons (poor science, poor research, illegal fishing, market prices)	This text is no longer in chapter 5
206	Serge Michel Garcia	5		1505		1507	In the Mediterranean (and other enclosed seas) northerwards migrations of coastal resources will be close to impossible. Vulnerable species will have to adapt or disappear (like in East-West rivers)	This sentence is no longer in Chapter 5
207	Sandra Lavorel	5		1536		1545	Section 5.9: whilst this is the key section for bringing the wealth of information from exploratory scenarios of the outlined drivers of sustainable use, its forms and its impacts on nature, the methodology for weaving with results from previous chapters to integrate towards NCP and GQL is not outlined here. it is therefore hard to assess what the process of integration and its results will look like. Which are intended key results / outputs?	Thank you. This comment is no longer relevant since the last version of the chapter has changed considerably.
208	Morgan, David (on behalf of CITES)	5		2664		2665	That sentence should be "ideally trade bans should be accompanied. All too often this is not the case. Pangolins are a prime example, where after the species were transferred into App I of CITES only little effective conservation action has been implemented on the ground.	Thank you for your comment. The feedback is greatly appreciated by the chapter authors.
209	Avdibegović Mersudin	General					The chapter is well structured with clear narrative, and I find it very important at this stage of the assessment (FOD). As the chapter intends to provide scenarios determining future interactions between society and nature, I recommend to the assessment team to cooperate closely with TSU Scenario and Modeling as well as fellow's group on scenarios and models. I also suggest (at least for some members of the assessment team who may act as liaison experts in a way it is proposed in other task forces) to participate to the forthcoming workshop ("From narratives to scenarios for nature and nature's contributions to people for the 21 st century") to be held in early 2020.	Thank you for your comment. The feedback is greatly appreciated by the chapter authors.