

Comments received during the external review of the Second Order Draft (SOD) chapters and for the First Order Draft Summary for Policy Makers (SPM) of the IPBES assessment of the sustainable use of wild species.
The review period was from 15th April to 27th June 2021.

Nb	Reviewer Name (Last, First)	Chapter (1-6; SPM)	From Page (start)	From Line (start)	To Page (end)	To Line (end)	Comment	Response
1	Germany	4	0	0	0	0	General comment: We realized that there are numerous editorial issues and we expect these to be addressed before the next version is available. We have highlighted some aspects below.	Thank you for your comment, all editorial issues will be considered in the final draft
2	Germany	4	0	0	0	0	Overall chapter 4 is well structured and has a consistent table of contents, i.e. starting all six sections for each category of drivers with a subsection called "overview". However, following the subsection "overview", there is a lack of consistency in the structure of the sections on the respective categories of drivers. Therefore, it is suggested to replicate the structure of the section "4.2.2 Political drivers" with minor additions [in brackets for consideration]: "Overview", followed by "Methodology", "Gaps [and add Limitations here so as to contain "Gaps and Limitations", as appropriate]", "Definitions" [and add references to other (IPBES) assessments], and "Key messages" plus "Key points for policymaking" if appropriate as listed in line 1566 p.41 [alternatively, "Key messages" plus "Key points for policymaking" can be listed upfront of each section - important is to kindly ensure consistency throughout].	Consistency in the structure of the drivers sections will be maintained in the final draft version.
3	Germany	4	0	0	0	0	General comment: Please provide confidence levels to give an indication about the scientific evidence base for important findings. Please cross-check if confidence levels given in the SPM are also given in the chapter.	Thank you for your comment. From the evidence gathered we have tried to provide confidence levels for our messages.
4	Iverson, Sam	4	0	0	0	0	Attempted to check a few references that were included in the text and found the first four that I looked for were not in the References section [Stirling 2008, Stirling 2011, Regehr 2017, Tyrrell and Clark 2014]. Suggests a close review of all references still needs to be conducted.	Thank you for your comment. The references were reviewed and the issues with mentioned references have been resolved.
5	Kumagai, Joy	4	0	0	0	0	GENERAL. Please provide the license of the figure (should be CC-0 or CC-BY) and produce a data deposit package for each figure. This comment applies to all figures produced by authors of the assessment	Thank you for your comment. The license to all figures will be provided in the legend of the figures.
6	Vadrot, Alice	4	0		0		Some literature suggestions: Nie, M. (2004). State Wildlife Policy and Management: The Scope and Bias of Political Conflict. Public Administration Review, 64(2), 221-233. Retrieved June 27, 2021, from http://www.jstor.org/stable/3542615	Thank you for the suggestion. Unfortunately we can not accommodate all the literature suggested given that the chapter is already too long

7	Government of Argentina	4	0	0	0	0	<p>We suggest to add this text, may be as a Text Box, as an example of a case study of sustainable use of biodiversity in Argentina. We can also offer to add pictures to illustrate this case study: Proyecto Uso Sustentable de la Biodiversidad (USUBI) – PNUD ARG 15/G53 INCORPORACIÓN DEL USO SOSTENIBLE DE LA BIODIVERSIDAD EN LAS PRÁCTICAS DE PEQUEÑOS PRODUCTORES PARA PROTEGER LA BIODIVERSIDAD EN LOS BOSQUES DE ALTO VALOR DE CONSERVACIÓN EN LAS ECORREGIONES BOSQUE ATLÁNTICO, YUNGAS Y CHACO, ARGENTINA</p> <p>Las principales amenazas a la biodiversidad en las ecorregiones Bosque Atlántico, Chaco Seco y Yungas de Argentina se derivan de la eliminación, segmentación y degradación de los bosques como resultado del cambio en el uso del suelo por el avance de la frontera agrícola, en regiones previamente utilizadas para la ganadería y producción forestal. Los productos basados en la biodiversidad nativa han desempeñado un papel importante en la subsistencia y el beneficio económico de las comunidades locales. Una solución a largo plazo para evitar la pérdida de biodiversidad consiste en el fortalecimiento del uso sustentable de la biodiversidad, principalmente la recolección y uso de productos forestales no madereros (PFNM) en combinación con sistemas agroforestales en los predios de pequeños productores y comunidades originarias situados en zonas de bosques nativos de Categoría II (conservación que permite el uso sustentable de acuerdo con la Ley N° 26.331 de Protección Ambiental de Bosques Nativos), contemplando su potencial de generar conectividad entre hábitats de bosques de Categoría I (conservación estricta según la misma ley). El objetivo del proyecto USUBI es fortalecer los marcos de gestión para el uso sustentable de la biodiversidad para contribuir a la protección de los bosques de alto valor de conservación en Argentina. La estrategia incluye tres componentes interrelacionados que contribuyen a la conservación de la biodiversidad de importancia global:</p>	Thank you for your comment. We had a meeting with Magda Caretti (MADYS) and the USUBI project coordinator. A box on chaguar use in the Chaco and the USUBI project was added in the Social Drivers section.
8	Government of Argentina	4	0	0	0	0	<p>We suggest to take into consideration this material related to sustainable use of biodiversity and job, organized by the Ministry of Nevironment and Sustainable Development. Here is the link of the activity and the conversation recorded during this event: CONVERSATORIO SOBRE USO SOSTENIBLE DE LA BIODIVERSIDAD Y LA GENERACIÓN DE TRABAJO https://www.argentina.gob.ar/noticias/ambiente-realizo-un-conversatorio-sobre-uso-sostenible-de-la-biodiversidad-y-la-generacion https://drive.google.com/file/d/15ZNcsmll_r-9JldzjHri3y6N3a0Kupdk/view</p>	Thank you for your comment. The USUBI project was included in the Cultural Drivers section. The project coordinator and an ethnobiologist working in the Chaco region wrote a very interesting box about it.
9	Thebaud, Olivier	4	1	1	1	2	<p>It seems to me that understanding when such drivers lead to outcomes that are sustainable (or not) is also included in the scope of this chapter ? As stated in chapter 3 for fisheries, where management has been strong, fish stocks have been increasing in abundance, and fisheries have generated positive economic, social and cultural outcomes. Indeed, the chapter considers these sustainability outcomes associated with key drivers in many ways. I suggest adding "and how they affect the sustainability of this use" at the end of this first sentence to reflect this.</p>	Thank you for your comment. We have clarified this language in this section.
10	Gallagher, Louise	4	1	2	1	8	<p>Recommend adding a line or two on who is the intended audience for this analysis and how the information provided could be used. What problem for analysts does this information solve? Also, I think what's important about what you've done in this amazing amount of work is to say that while drivers and their interdependencies are complex, and while effects on wild species use will depend on that particular species and other contextual factors, what this review is attempting to do is identify universal categories of drivers - based on best available evidence - that any assessment conducted anywhere in the world could look to as an initial analysis framework.</p>	Thank you for your comment. This is a helpful clarification about the scope and purpose of the analysis. We have edited accordingly.
11	Lippai, Christine	4	1	3	1	8	<p>Sentence is unclear and suggest re-write as follows: "In order to manage, or possibly reverse the trend in declining populations and numbers of wild species, it is important to note the factors driving their use. In this chapter, these factors are presented as environmental, political, social, economic, cultural, science, technology, and education drivers."</p>	Thank you for your comment. This is a helpful clarification about the scope and purpose of the analysis. We have edited accordingly.
12	Weiskopf, Sarah	4	1	4	1	6	<p>Delete sentence since this is repeated in definition of drivers section below</p>	The repetitive sentence was deleted in the definitions (Pg. 1 Lines 21-28).

13	Shin, Thant	4	1	6	1	8	It is good to make holistic understanding approach for the assessment. There should add some local or regional similarities for the easy implementation of the practitioners and actors.	Thank you for your comment. An additional sentence was added in this paragraph to highlight how similarities/differences are illustrated in this chapter.
14	Gallagher, Louise	4	1	9	1	37	In discussing causal relationships in the definition of driver, I would recommend some acknowledgement of driver interdependencies and other uncertainties that can make causal relationships difficult to disentangle and quantify in complex systems that are nonstationary. These themes appear in the scope and later in the discussion, and should also be addressed in the definition. Also, some acknowledgement that the authors know that each driver and its effects are context-specific is important.	Thank you for your comment. An added sentence to this paragraph was added to highlight this complexity.
15	Gallagher, Louise	4	1	10	1	37	Recommend that the paragraph should be rewritten for clarity mentioning that the definition is for the purposes of that report alone since the phrase 'drivers' is used in other contexts, i.e., drivers of species loss, drivers of habitat fragmentations etc., in biodiversity. A suggestion: Drivers are defined for the purposes of this report as the factors that directly or indirectly influence the sustainability of wild species use positively or negatively.	Thank you for your comment. This suggestion has been address - suggested text incorporated.
16	Gallagher, Louise	4	1	11	1	16	This seems to belong further down with the text in line 29 that gives a detailed discussion of how the categories were arrived and literature selected for inclusion in the analysis.	This paragraph has been rewritten to add clarity about how core drivers and mediating factors were determined.
17	Gallagher, Louise	4	1	13	1	16	Recommend deleting this sentence or reworking and moving down to discussion in paragraph starting line 29 with the following considerations: Currently the sentence reads as if the quantitative changes for outcomes in use is most important. Is this consumptive use only? The qualitative changes in uses and practices is vague. What is meant by this? The sentence links changes in uses & practices to changes in values, perceptions in a confusing way. Depending on whose they are, values can affect uses and practice and perceptions; and in turn, perceptions of risks, loss/gain trends can affect uses and practices.	This paragraph has been rewritten to add clarity about values and their influence over the definition and evaluation of a driver, use and impact.
18	Perez Gil, Ramon	4	1	21	1	28	As pointed out in some other comments before, I believe the LEGAL category as such, deserves to be treated separately as a driver. Indeed it is openly recognised in other categories (as one can read in this chapter, primarily in the POLITICAL section but I truly believe they are not the same thing. All the information on conventions and agreements belongs in a LEGAL category not in a political one. Also as I mentioned before, scale and time are dimensions that act not only as drivers but also as determinant conditions of sustainability.	Thanks for your comment. The "legality" of use is a cross cutting issue that is addressed in multiple sections including in the political drivers section. What is legal or not legal depends on the institutions of government in different jurisdictions and is thus a political construct.
19	Thebaud, Olivier	4	1	23	1	28	As use of wild species is at the core of this assessment, I suggest re-ordering the main driver categories to mention first what I believe are core direct drivers of human use of wild species considered here, called Economic, Political, Social and Cultural. Even if this order does not reflect a prioritization, I feel placing Environmental (e.g. climate change related) drivers first implicitly downplays the importance of choices made by users, and collective coordination and regulation affecting these choices, when it is well known that these are key. This could be changed here and in the main structure of the chapter. In addition, references to the interactions between these drivers, and the differences in time scales at which they operate could also be introduced (see also my comment on figure 1, below), relying for example on the conceptual framework proposed by O. Williamson (see e.g. figure 1 in https://www.nber.org/system/files/working_papers/w28480/w28480.pdf)	This is an interesting argument. Your comments on structure and reordering were taken into consideration but no changes were made due to other factors in ordering of datasets, case studies etc..
20	Thebaud, Olivier	4	1	24	1	24	I realize the difficulties in coming to an agreement on terms that may be used in very different ways across disciplines of the social sciences. However, I find the term "Political" carries a relatively narrow meaning which does not reflect the scope of what is covered in the chapter. I suggest using the term "governance" instead, with reference to key branches of the literature such as https://doi.org/10.1017/CBO9780511807763	Thank you for your comment. This is a very helpful reference. Given the assessment audience comprises many non-experts and given the range of variables discussed in this section, "political drivers" was determined to be the most useful/appropriate.

21	Thebaud, Olivier	4	1	32	1	32	From the perspective of this chapter, focused on drivers of sustainable use, I believe a comment could be made here on the differences between the categories of resources considered, in terms of their status with respect to the common pool question: fish and game are most often common pool, while access to timber and plants is usually restricted in connection with land ownership and access rules. Non-extractive uses can also be subject to differing sets of rules, depending on the nature of the resources considered. The incentives driving the development of these uses is bound to be strongly affected by these differences in access conditions.	Thank you for your comment. It is very useful, particularly in respect of the discussion on political and economic drivers. An overview of the nature of common pool resources is offered in the political drivers section. Given that this literature on the commons (and your associated comment there) is, at its core, about property rights, this was the best fit. No edit was made to the introduction.
22	Rosenberg, Andrew	4	1	51	1	52	the point about declining fishery yield needs to be reconciled with Ch 3, which concludes the opposite. Also implies this is due to climate change, but I don't think the evidence supports that	This statement - "Between 1930 and 2010, marine fish yield decreased globally, with 52 some regions experiencing far more losses than others (4.2.1.2.4)" has been removed from the executive summary.
23	Rosenberg, Andrew	4	1	53	1	59	this seems a gross understatement. Land use and habitat loss are one of the greatest drivers of biodiversity loss globally in my opinion	Thanks for your comment; this sentence has been edited to add clarity. But note, our assessment and Ch. 4 are not about drivers of biodiversity loss but rather drivers of unsustainable USE of wild species.
24	Lippai, Christine	4	1		1	16	Definition of a driver: A driver is defined as the factor that, directly or indirectly, influences the sustainability of wild species use. Evidence is considered to be the causal relationship between each driver and outcomes such as: DOESN'T MAKE SENSE...	Thanks for your comment. A change has been made to this sentence structure to improve clarity.
25	Lippai, Christine	4	1			22	poor grammar - suggest re-write: These drivers can affect sustainable use of wild species both negatively or positively, and the same driver can influence different components of the wild system (ie the wild species, the practices, nature's contribution to people (NCP). Interactions between the drivers can vary spatially and with time, which again can have negative or positive effects on the sustainability of use. The drivers addressed throughout the chapter are grouped into 6 main categories:	Thanks for your comment. A change has been made to this sentence structure to improve clarity.
26	Lippai, Christine	4	1			37	To understand the influence of drivers on sustainable use of wild species, a desktop review of available data and information on hunting, timber harvesting, fishing, gathering, and non-extractive practices was carried out. To facilitate in-depth analyses of the different practices and their drivers, a database of information sources was compiled according to the above grouping of 6 main drivers. MENTION OF WHAT THE ANALYSIS REVEALED does not seem appropriate here, and is also vague. SUGGEST moving it to the next paragraph where analysis is addressed.	This paragraph has been rewritten to add clarity about how core drivers and mediating factors were determined.
27	Lippai, Christine	4	1			39	Analysis of the drivers revealed the following:	Thank you for your suggested edit. We made made the suggested change.
28	Lippai, Christine	4	1			52	First sentence unclear and needs rewrite...	Thank you for your comment. This sentence has been edited to improve clarity.
29	Lippai, Christine	4	1			60	line 55 repeats 'species'. Suggest that some of the environmental drivers ought to be in italics, so that it is clearer what the driver actually is...ie 'habitat disturbance' in this paragraph. Also, grammar needs addressing	Thank you for your comment. This sentence has been edited to improve clarity.
30	Lippai, Christine	4	1			63	Creation of conservation areas and existence of species conservation/protection plans are critical to ensuring SU of wild species	Thank you for your edit. This sentence has been changed to add clarification.
31	Gallagher, Louise	4	2	40	12	463	In my opinion this is too dense for an executive summary. I find what is most interesting is 1) the conceptual framework diagram - which I would link to or base upon the social-ecological systems framework - showing the theorised list of drivers and system connections, and 2) the categorisation used to show the result of the literature review and synthesis stating whether the driver has been validated as well established, established but incomplete, unresolved. The only concern is that there doesn't seem to have been a driver that was deemed too weak to matter. I would recommend that the executive summary should focus more on describing the conceptualisation of what drivers matter today, what are the current challenges in drivers analysis (including the interactions element, and the uncertainties to be navigated), the contribution an understanding of more universal drivers could make to the world, the method and materials, the suggested list of drivers likely to be relevant in many contexts, a systems thinking view on the interactions issue and some clear recommendations the analysis points to for ways of addressing this in real world assessments.	Thank you for your comment. There are many key insights you offer here that have helped clarify the environmental drivers. This section was reorganized and edited to more clearly articulate the core drivers and the mediating factors.

32	China	4	2	44	end of the chapter		change "collecting" to "gathering" to ensure that the words are used consistently in each chapter	Thanks. This edit has been made.
33	Hull, Amanda	4	2	44	2	44	consider changing to "gathering," to maintain consistency with other chapters	Thanks. This edit has been made.
34	Horikiri, Tatsuya	4	2	45	2	52	The second half of this paragraph discusses only climate change. It may be better to moved and integrate this part to later paragraphs related to climate change (line 85-96, page 3)	Thank you for your comments. The change has been made.
35	Germany	4	2	55	2	55	Please delete one 'species'.	Thank you for your comment. The word was removed
36	Horikiri, Tatsuya	4	2	55	2	55	remove a word "species" from the text, since the word appears twice.	Thank you for your comment. The word was removed
37	Hull, Amanda	4	2	63	2	63	Consider adding, "or where food provision is understood as a primary motivation for hunting (common among North American recreational hunters)" References: Ljung, P.E., Riley, S.J., Heberlein, T.A. and Ericsson, G. (2012), Eat prey and love: Game-meat consumption and attitudes toward hunting. Wildlife Society Bulletin, 36: 669-675. https://doi.org/10.1002/wsb.208 ; Responsive Management. (2013). Nationwide survey of hunters regarding participation in and motivations for hunting. Harrisonburg, VA.	Thank you for the reference. We have added in the more detailed section.
38	Weiskopf, Sarah	4	2	64	4	72	Unclear how these two sentences are linked. Why is pollution the only impact called out here? It seems like these groups should focus on more than just pollution.	Thank you for this comment. There have been some major edits done on this section to clarify the major drivers and their influence on use patterns in different regions.
39	Horikiri, Tatsuya	4	2	67	2	72	It is not clear whether "state" refers to national government or subnational government.	The wording has been changed to national and sub-national
40	Horikiri, Tatsuya	4	2	67	2	72	It may be more accurate in the context of this paragraph to state that "play instrumental roles for minimizing every possible cause and threat posed by pollution to sustain wild species occurrence . Please check lines from 145 to 159 of page 4 for duplication.	Thank you for your comment. The wording in this section has been clarified so that it is not simply pollution being highlighted as a driver.
41	Germany	4	2	76	2	77	Please specify/name 'the current global crisis'.	Thank you for this comment. There have been some major edits done on this section such that this wording on 'global crisis' no longer appears.
42	Horikiri, Tatsuya	4	2	76	2	81	It may be more accurate to state that Initial indicators reveal the current global crisis has "especially/ disproportionately" impacted the poor, local and indigenous communities. Because the current pandemic have impacted on everyone to varying degrees.	Thank you for your comment. This suggested edit has been incorporated into this paragraph.
43	Caceres, Hernan	4	2	78	2	81	By definition, zoonotic diseases are due to contact between non-human animals (wild or domestic) and humans This sentence should include other major drivers of diseases such as urbanisation, deforestation. Currently, this sentence seems to be unbalanced, while it is explicit about animal product, it groups major environmental changes. See Bogich 2012	Thank you for your suggested edit. We have clarified this section to account for the various drivers of zoonotic diseases.
44	Hull, Amanda	4	2	99	2	99	consider changing to "gathering," to maintain consistency with other chapters	This has been changed throughout this chapter.
45	Orenstein, Ronald	4	3	81	3	84	In what way is the link between use and zoonoses 'unresolved'? There is ample evidence directly linking zoonotic diseases such as ebola and HIV-AIDS to consumption of wildlife. See: Murray, K. A., Allen, T., Loh, E., Machalaba, C., & Daszak, P. (2016). Emerging Viral Zoonoses from Wildlife Associated with Animal-Based Food Systems: Risks and Opportunities. In M. Jay-Russell & .P. Doyle (Eds.), Food Safety Risks from Wildlife. Springer International Publishing. https://doi.org/10.1007/978-3-319-24442-6 Karesh, W. B., Cook, R. A., Gilbert, M., & Newcomb, J. (2007). Implications of wildlife trade on the movement of avian influenza and other infectious diseases. Journal of Wildlife Diseases, 43(3 SUPPL.), 55–59. Can, Ö. E., Cruze, N. D., & Macdonald, D. W. (2019). Dealing in deadly pathogens: Taking stock of the legal trade in live wildlife and potential risks to human health. Global Ecology and Conservation, 17, e00515. https://doi.org/10.1016/j.gecco.2018.e00515	Thank you for your comment. A clarification of this statement has been made on the link between use and zoonotic disease and
46	Caceres, Hernan	4	3	82	3	82	By definition, there cannot be an emergence zoonotic disease without non-human animal and animal contact. Again, a zoonosis is by definition de transmission of diseases from non-human animals to humans	This statement on zoonotic disease has been edited to ensure clarity.
47	Guillemain, Matthieu	4	3	85	3	88	Climate change could probably affect availability of a given species to harvest through changes in species distribution	Thank you for your comment. This sentence has been edited to improve clarity and include this reflection.

48	Orenstein, Ronald	4	3	85	3	96	These statements miss a critical aspect of the way climate change may affect use. The assumption that it will affect human harvesting patterns is only part of the story. More crucial may be the way it affects species' ability to recover from the effects of use. If climate change lowers a species' ability to rebuild its population, then harvest and management approaches that may have been sufficient for sustainability in the past may no longer be so in present or future circumstances. Please consult Niiranen, S., Yletyinen, J., Tomczak, M. T., Blenckner, T., Hjerne, O., MacKenzie, B. R., ... Meier, H. E. M. (2013). Combined effects of global climate change and regional ecosystem drivers on an exploited marine food web. <i>Global Change Biology</i> , 19(11), 3327–3342. https://doi.org/10.1111/gcb.12309 ; Le Bris, A., Mills, K. E., Wahle, R. A., Chen, Y., Alexander, M. A., Allyn, A. J., Schuetz, J. G., Scott, J. D., & Pershing, A. J. (2018). Climate vulnerability and resilience in the most valuable North American fishery. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 115(8), 1831–1836. https://doi.org/10.1073/pnas.1711122115	Thank you for your comment. This suggested edit has been incorporated into this paragraph and links suggested for these references.
49	Caceres, Hernan	4	3	89	3	93	Very clear statement	Thank you.
50	Weiskopf, Sarah	4	3	108	3	109	How is impact defined here? Economic/social costs of invasives, or that these are hotspots of invasion?	This sentence has been simplified so this ambiguity about hotspot impacts has been removed.
51	Guillemain, Matthieu	4	3	115	3	118	plus game for hunting and fish to catch	This edit has been made to clarify this statement.
52	Weiskopf, Sarah	a	3	121	4	123	More explanation needed on how urbanization has increased commercial fisheries and hunting pressure. Is this an artifact of growing populations/greater demand for hunted products, or does it mean that land use change from urbanization exacerbates pressures from hunting?	Thank you for your comment. We have clarified how urbanization (in the case of environmental) driver is leading to unsustainable use. Additional detail on urbanization can be found in the social driver section.
53	Guillemain, Matthieu	4	4	123			Agreed, but urban way of life may also decreased harvest activity	Thank you for your comment. The statement on urbanization as a dimension of habitat loss and degradation has been clarified. Your comment, however, deals with the lifestyle aspects of urbanization. This discussion is in the section on social drivers.
54	Hull, Amanda	4	4	123	4	123	This term should be defined.	Thank you for your comment. The definition is provided in the glossary
55	Horikiri, Tatsuya	4	4	130	4	133	Commercially traded species are not only ones which have experienced population decline due to deforestation. Decline in other species in use due to deforestation also impacts on sustainable use.	Thank you for your comment. We agree and the text has been revised.
56	Hull, Amanda	4	4	135	4	136	Land conversion in more temperate regions has also resulted in habitat loss, degradation, and fragmentation, thus negatively impacting the population of recreationally harvested species and negatively impacting sustainable use of those species. This is partly addressed in the next point.	Thank you. Text revised as noted above.
57	Horikiri, Tatsuya	4	4	137	4	140	There could be an offset, in terms of biomass actually removed from forest, between decrease in hunting success rate and increase in bushmeat hunting. It may be necessary to indicate that combination of these may lead to unsustainable use (overhunting) of decreased population in a fragmented area in isolation of other fragmented areas.	Thank you for your comment. Text has been suitably modified.
58	Germany	4	4	139	4	140	The following seems contradictory: 'decrease rate of hunting success and increase bushmeat hunting'? Please explain what should be increased exactly - bushmeat hunting intensity? Hunting pressure on the remaining forest (fragments)?	Thank you for your comment. Text has been revised.
59	Germany	4	4	142	4	142	'affects' instead 'affect'	Thank you for your comment. Text updated.
60	Horikiri, Tatsuya	4	4	145	4	159	It may be more accurate in the context of this paragraph to state that "play instrumental roles for minimizing every possible cause and threat posed by pollution to sustain wild species occurrence". Please check lines from 67 to 72 of page 2 for duplication.	Thank you for your comment. Suggestion was considered. Duplication was addressed and repeated parts were removed.
61	Weiskopf, Sarah	4	4	149	4	159	These paragraphs are repeated from above. Authors should aim to be as concise as possible and not repeat material.	Thank you for your comments. The change has been made and repeated parts were removed.

62	Vadrot, Alice	4	4	160	5	185	Legal order is missing, but is an important factor, too. Maybe it would be good to make that explicit already in the summary of the political factors. In some cases the constitution of a country would need to be changed to allow for more successful management of wild species, but this requires substantive legal changes to be made (e.g. in Austria each federal state is in charge of species management and conservation, which significantly challenges measures for sustainable use). Furthermore political culture/political and administrative systems (voting systems etc.) may be important especially regarding decision-making processes, the recognition of experts, and the acceptance of participatory processes and stakeholder involvement at diverse levels. Temporal logics of governments/voting cycles also challenge the development of long-term measures for sustainable use. Trade-offs between different forms of use and the way these are addressed by policy-makers at different levels (by favoring extractive policies) are also problematic. Often there needs to be a vibrant civil society and activist groups that	Thanks for your reflection on the various dimensions of governance that impact sustainable use. Much of the depth and the detail of the discussion is in the political drivers section. It was not possible to relay at this detail in the executive summary.
63	Horikiri, Tatsuya	4	4	170	4	180	It may be a prerequisite or foundation that all the actors engaging pluralistic governance arrangements mentioned in this paragraph share the sustainability in use as an overarching common goal for their longterm benefit.	Thank you for your comment. You have identified a critical success factor that is not well established in the literature but is intuitive. The role of governments in managing different use patterns and conflicts between users was the key point here.
64	Török, Katalin	4	5	19	5	21	sentence fragment	Comment is unclear on what it is referring to.
65	Orenstein, Ronald	4	5	165	5	169	Any realistic discussion of governance with respect to species conservation or sustainability of use must take the role of corruption into account, including corruption relating to the role of organized criminal networks trading in wildlife and wild products. Thus far, these chapters appear to be either avoiding this issue or tiptoeing around it. Please consult Kassa, S., Costa, J., Baez, C., & July, C. (2019). Corruption and wildlife trafficking: exploring drivers, facilitators and networks behind illegal wildlife trade in East Africa (Issue Working Paper 30). https://baselgovernance.org/publications/working-paper-30-corruption-and-wildlife-trafficking-exploring-drivers-facilitators Van Uhm, D. P., & Moreto, W. D. (2018). Corruption Within the Illegal Wildlife Trade: A Symbiotic and Antithetical Enterprise. <i>British Journal of Criminology</i> , 58(4), 864–885. https://doi.org/10.1093/bjc/azx032 Africa, S. (n.d.). Environment for Development Abalone Conservation in the Presence of Drug Use and Corruption. Van Uhm, D. (2019). Chinese wildlife trafficking networks along the silk road. In T. Wing Lo, D. Siegel, & S. Kwok (Eds.), <i>Organized Crime and Corruption Across Borders: Exploring the Belt and Road Initiative</i> (pp. 114–133). https://doi.org/10.4324/9780429031045-7 Estrada, A., Garber, P. A., Mittermeier, R. A., Wich, S., Gouveia, S., Dobrovolski, R., Nekaris, K. A. I., Nijman, V., Rylands, A. B., Maisels, F., Williamson, E. A., Bicca-Marques, J., Fuentes, A., Jerusalinsky, L., Johnson, S., de Melo, F. R., Oliveira, L., Schwitzer, C., Roos, C., ... Setiawan, A. (2018). Primates in peril: The significance of Brazil, Madagascar, Indonesia and the Democratic Republic of the Congo for global primate conservation. <i>PeerJ</i> , 2018(6), 1–57. https://doi.org/10.7717/peerj.4869 Manzi, F. (2020). The Correlation Between Illegal Wildlife Trade and Illicit Financial Flows: A Case of Indonesia. <i>SSRN Electronic Journal</i> , 1–12. https://doi.org/10.2139/ssrn.3661981 Shapiro, P., Verónica, D., Ferrer, J., Challenger, D., & Macmillan, D. (2016). overlapping mandates can be avoided, but conflicts cannot. Maybe change to "conflicts need to be properly addressed/managed and overlapping mandates avoided"	Thank you. There is a discussion on corruption in the main text of the chapter. The opposite narrative about effective governance is included in the executive summary messages. No changes made.
66	Vadrot, Alice	4	5	179	5	180	overlapping mandates can be avoided, but conflicts cannot. Maybe change to "conflicts need to be properly addressed/managed and overlapping mandates avoided"	Thank you for this comment. It was taken into consideration
67	Horikiri, Tatsuya	4	5	181	5	185	It might be better to state, for example, : "Different levels of governance are often poorly aligned and coordinated, which undermines keeping the use within a sustainable level"	Thank you. The paragraph was re worded
68	Horikiri, Tatsuya	4	5	187	5	188	It might be better to state, for example, "Various demographic and social factors influence sustainability of the use in wild species"	Thank you. Your point was taken
69	Horikiri, Tatsuya	4	5	191	5	194	It might be better no to mention "aging population in some countries" together with population growth and youth bulges. As the current sentence gives an impression as if aging population also contributes to the increase of demand and expansion of habitat encroachment.	Thank you. This sentence has been clarified to explain more clearly how demographic factors impacts wild species use. Your comment that the sentence is ambiguous was helpful to this clarification.

70	Orenstein, Ronald	4	5	240	5	241	This is a very weak way of saying that many of the actors in the wildlife trade are either criminals or are otherwise involved in illegal activities. Illegal trade is a severe threat to sustainability because in many cases it is impervious to management. See references in previous comment.	The lines mentioned are not referring to illegal activities.
71	Ebora, Juan B.	4	5	1, 464	271	10025	(Apologies for this edit-type comment.) Although the term "driver" is well-defined in the introductory part of the Chapter, when used in "drivers of sustainable use of wild species" there is already an expectation that the driver is positive in character. The discussions in the entire chapter particularly in the framework in page 464 clearly focus on negative factors. Maybe instead of "drivers of the sustainable use of wild species" "factors affecting the sustainable use of..."	Thank you for your comment which is well taken. A driver seldom singly but most often in interactions with other drivers influences a practice or a use of a wild species and the outcome whether sustainable or not is determined by the local context and mediating factors. We are attempting to highlight instances where outcomes can be sustainable.
72	Lippai, Christine	4	6	70	6	72	insert 'including the private sector, can'	Thank you for your comment. we have added the suggested part.
73	Horikiri, Tatsuya	4	6	207	6	211	Is it possible to replace "women's" with "local" (or household)? Do women mentioned here mean Indigenous and local women, or women as a whole? In combination with the text before, it is difficult to understand the intention of using women here. Gender issue can be integrated into paragraph of line 242-244 in page 7	Thank you. This statement on gender and the importance of women's knowledge and users has been clarified. We are actually referring to women (indigenous and non-indigenous).
74	Horikiri, Tatsuya	4	6	216	6	217	due access to → due to access to ?	Thank you for your comment. The section has been restructured to highlight the major drivers and underlying drivers.
75	Horikiri, Tatsuya	4	6	224	6	227	major driver → underlying driver to address ? This is one of the indirect drivers of biodiversity loss and it is of a value to adopt tiered approach when considering interactions or relationship between drivers.	The section has been restructured to highlight the major drivers and underlying drivers.
76	Hull, Amanda	4	6	227	6	227	An excellent and important articulation.	Thank you.
77	Orenstein, Ronald	4	6	254	6	256	This statement suggests that illegal trade is nothing to worry about because local institutions can handle it. Such a statement would be a surprise to enforcement officers worldwide. In fact illegal trade in wildlife presents a serious threat to governance. Please consult Kassa et al. (2019) cited above and Kideghesho, J. R. (2016). Reversing the trend of wildlife crime in Tanzania: challenges and opportunities. In Biodiversity and Conservation (Vol. 25, Issue 3, pp. 427–449). Springer Netherlands. https://doi.org/10.1007/s10531-016-1069-y Dumenu, W. K. (2019). Assessing the impact of felling/export ban and CITES designation on exploitation of African rosewood (Pterocarpus erinaceus). Biological Conservation, 236(January), 124–133. https://doi.org/10.1016/j.biocon.2019.05.044	Thank you for your comment! We agree that the key message has not been carefully formulated. It has been rewritten in light of your comment.
78	Lippai, Christine	4	7	87	7	87	the word 'especially' is not necessary here as climate change could potentially impact on global and local fisheries as well as on non-extractive uses such as ecotourism	Thank you the word has been removed.
79	Lippai, Christine	4	7	97	7	102	it might be useful to note that it has been postulated that the rate of future zoonotic disease emergence or reemergence will be closely linked to the evolution of the agriculture–environment nexus (Jones et al 2013) https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3666729/	Thank you for your comment. Our Focus is on how the emergence of Zoonotic disease might influence the use of wild species through the practices outlined in assessment (see Chapter 1), and if the emergence of Zoonotic disease will lead to sustainable or unsustainable outcomes. The role of the agriculture–environment nexus is out of the scope of the current assessment.
80	Horikiri, Tatsuya	4	7	246	7	246	Once the term "driver" is defined in a paragraph stating from line 9 of page 1, no need to mention "unsustainable" in addition to "sustainable" in line 246.	Thank you. the word has been removed.
81	Horikiri, Tatsuya	4	7	246	7	270	There are overlaps and duplications (redundancy)in contents among paragraphs here and could be better streamleind and consolidated .	Thank you for your comment, but we can see no connection between the highlighted text and the comment, so we are unable to respond appropriately.
82	Miller, Carly	4	7	254	7	256	There is room to add a bullet point perhaps after line 256 that global incentive mechanisms sourcing funds from remote players could lead to improved sustainability and protection of wild species. Existing examples include Rhino Impact and Rebalance Earth.	Thanks for the comment! This is captured in the key message that come slater "Micro-credits and foreign investments can play a positive role in enabling sustainable uses if properly combined with wider enabling factors."
83	Horikiri, Tatsuya	4	7	271	7	273	Is it possible to restate that "Strictly regulated trade including trade bans have payled overall an important role in halting unsustainabele use of threatened species, but in some cases balnket trade bans have unintended consequences on sustainability outcomes" ?	Thanks for the comment! That is a good suggestion and we have included it.
84	Lerambert, Adeline	4	7	271	7	273	Omits the outright ending of all use.	Thanks for the comment! We have rephrased the key message as suggested in comment 88, which hopefully also adress your point.

85	Miller, Carly	4	7	271	7	271	Citation to include in support of trade bans: Mweetwa, Thandiwe, David Christianson, Matt Becker, Scott Creel, Elias Rosenblatt, Johnathan Merkle, Egil Droge, Henry Mwape, Jones Masonde, and Twakundine Simpamba. "Quantifying lion (Panthera leo) demographic response following a three-year moratorium on trophy hunting." PLoS one 13, no. 5 (2018): e0197030.	Thanks for the suggestion! The article is cited in the assessment.
86	Horikiri, Tatsuya	4	7	279	8	282	Is it necessary to mention the second half of this sentence? Is it possible delete it and add "properly" before the word "combined" ?	Thanks for the suggestion! We have followed it.
87	Török, Katalin	4	8	107			HAVE proven to be effective for supporting..	Thank you for your comment, but we can see no connection between the highlighted text and the comment, so we are unable to respond appropriately.
88	Horikiri, Tatsuya	4	8	283	8	285	Is it possible to replace "alleviate" with "reduce"? Does the word "remittance" mean some family members live apart and away from the area of their attachment ?	Thanks! We have followed your suggestion. Yes, the meaning of 'remittance' becomes clear in the relevant section.
89	Miller, Carly	4	8	286	8	287	We request to add to this sentence this reference below. It offers options of auditing and monitoring of tourism to avoid deleterious effects and achieve responsible tourism practices. INTOSAI, the International Organization of Supreme Audit Institutions; Working Group on Environmental Auditing: http://iced.cag.gov.in/wp-content/uploads/2014/02/2013_wgea_Wild-Life_view.pdf (found in this website: https://www.environmental-auditing.org/publications/studies-guidelines/)	Thanks! We have no references in the key message, but we have cited that piece in the relevant section.
90	Horikiri, Tatsuya	4	8	292	8	292	Delete the word "tourism" after "in some cases". The word (subject) appears twice.	Thank you for the comment. The repeated word was removed.
91	Lerambert, Adeline	4	8	292	9	294	More accurate and less misleading to depict certain types of tourism as problematic from the outset, rather than 'tourism' as a whole. Suggest rewording: "At the same time, certain tourism related activities, such as the sale of wildlife parts and the use of live animals in entertainment, incentivizes unsustainable and sometimes illegal practices."	Thanks for the suggestion! We have followed it.
92	Stewart, Davyth	4	8	292	8	294	It would be better for this section to more accurately describe the certain types of tourism that are problematic, rather than 'tourism' as a whole. It should clarify that certain tourism related activities, such as the sale of wildlife parts and the use of live animals in entertainment, incentivizes unsustainable and sometimes illegal practices.	Thanks for the comment! That part has been reworded in line with comment 95.
93	Horikiri, Tatsuya	4	8	293	8	293	Is it possible to replace "when (parts) of species" with "when species or parts thereof" ?	Thank you for comment. The exact phrasing has changed, so the comment no longer applies.
94	Horikiri, Tatsuya	4	8	295	8	295	Is it possible to add a word "trophy" before "hunting" to become "trophy hunting" ?	Thank you for comment. we have made the suggested change.
95	Hull, Amanda	4	8	295	8	295	This might be better stated as, "tourism linked with extractive practices (e.g. hunting)". Otherwise, there is potential for a reader to misunderstand hunting, which does not by definition necessitate travel-related tourism, as "an extractive form of tourism."	Thank for this comment, we agree and have updated the sentence accordingly.
96	Horikiri, Tatsuya	4	8	297	8	298	Is it possible modify the second sentence to read "However, the revenues do not reach local communities and conservation projects in many cases, resulting in its contribution to sustainability in question.	Thank you for this comment. We agree the meaning could have been somewhat unclear, so we have modified the sentence as follows: "However, in most cases the revenues do not reach local communities, limiting its contribution to conservation projects, and making extractive tourism is unsustainable."
97	Hull, Amanda	4	8	297	8	297	Are we certain this is true for "most cases"? If so, this statement should be well-supported by multiple references. Consider changing to, "many cases".	Thanks for the comment. We have changed to 'many'.

98	Miller, Carly	4	8	297	8	298	<p>This point is crucial and should be referenced further. A report by the United States Democratic staff of the House Committee on Natural Resources, "Missing the Mark" examined the trophy hunting of African elephants, black and southern white rhinoceros, leopards and lions in Zimbabwe, Tanzania, South Africa and Namibia. It found "many troubling examples of funds either being diverted from their purpose or not being dedicated to conservation on the first place", and concluded that "corruption within governments or organizations can prevent trophy hunting revenues from funding conservation activities and can even lead to the mismanagement of hunted populations."</p> <p>"Missing the Mark: African trophy hunting fails to show consistent conservation benefits", a report by the Democratic staff of the House Committee on Natural Resources, 2016; Endangered and Threatened Wildlife and Plants; Listing Two Lion Species, 80 Fed Reg. 246 (December 23, 2015). Federal Register; Economists at Large, 2013. The \$200 million question: How much does trophy hunting really contribute to African communities?, a report for the African Lion Coalition, prepared by Economists at Large, Melbourne, Australia.; http://www.ecolarge.com/work/the-200-million-question-how-much-does-trophy-hunting-really-contribute-to-african-communities/. To download the report: https://www.conservationaction.co.za/wp-content/uploads/2013/09/The-200-Million-Question-How-Much-Does-Trophy-Hunting-Really-Contribute-to-African-Communities.pdf; https://corpwatch.org/article/panama-papers-leak-reveals-safari-companies-africa-use-tax-havens; Leader-Williams, Nigel, Rolf D. Baldus, and Robert J. Smith. "The influence of corruption on the conduct of recreational hunting." <i>Recreational hunting, conservation and rural livelihoods: Science and practice</i> 7 (2009): 296-316</p>	Thanks for the comment! We have included that reference.
99	Ryan, Mark	4	8	297	8	299	<p>What is meant by local communities? Are those who own the hunting rights on a given land considered part of the "local communities"? What is meant by "conservation projects"? To say that "... In most cases the revenues do not reach local communities and conservation projects..." shows a clear lack of understanding of how hunting can and does benefit people and conservation. The population regulation and wildlife management aspects of hunting can, in their own rights, be considered part of a "conservation project". Benefits will mostly go to locals in most instances.</p>	Thanks for the comment! The potential positive impacts of hunting are addressed in the first part of the key message. The negative impacts, we have rephrased 'However, in many cases the revenues do not reach local communities, do not contribute to conservation', which is widely supported by our findings.
100	Miller, Carly	4	8	300	8	300	<p>There needs to be a bullet point discussing cultural values as they relate to animal rights (intrinsic value of animal life) and the sentience of wild animals (and other animals)</p> <p>Sentience: Low, P., Panksepp, J., Reiss, D., Edelman, D., Van Seinderen, B., and Koch, C. (2012). The Cambridge Declaration on Consciousness. In: Proceedings of the Francis Crick Memorial Conference 2012, UK. http://fcmconference.org/; World Animal Protection (2018), Sentience Mosaic. World Animal Protection USA. https://www.worldanimalprotection.us/discover-animal-mosaic.</p> <p>The need for humane consideration in conservation: The need to use wildlife in a humane way is also highlighted in the Convention on Biological Diversity's Addis Ababa Principles and Guidelines for the Sustainable Use of Biodiversity, Practical Principle 11, Operational guidelines, last line: "Promote more efficient, ethical and humane use of components of biodiversity, within local and national contexts, and reduce collateral damage to biodiversity" (https://www.cbd.int/doc/publications/addis-gdl-en.pdf).</p> <p>Consideration of intrinsic value of nature when engaging in sustainable use practices: the Convention on Biological Diversity's Addis Ababa Principles and Guidelines for the Sustainable Use of Biodiversity (Practical Principle 10(b): https://www.cbd.int/doc/publications/addis-gdl-en.pdf (page 17)</p>	Thank you for your comment and the essence of it has been incorporated in the text.
101	Horikiri, Tatsuya	4	8	302	8	302	<p>Is it possible to simplify the language by removing "sustainable or unsustainable" before the word "use" ?</p>	Thank you for the suggestion, though we have kept the wording in for consistency across the document.
102	Horikiri, Tatsuya	4	8	304	8	305	<p>Is it possible to modify wording here to read "interact with nature including wild flora and fauna"?</p>	Thank you. The suggestion was considered.

103	Horikiri, Tatsuya	4	8	334	8	337	IS it possible to put quotation marks around the word "family " and full stop? Can it be interpreted that the "family" encompasses humans and nature especially wild species.?	Thank you for the comment. This indeed highlights the family relationships that can exist between humans and animals and plants.
104	Miller, Carly	4	9	331	9	333	Please add language from chapter 1 page 24 offering more insights into this worldview: "In this worldview, the social and ecological dimension of wild species uses are inseparable (Nadasdy, 2007; Polfus et al. 2016; Robinson & Raven, 2019). To be sustainable, wild species uses should ensure the wellbeing of both humans and other species (Sangha et al., 2015; Stephenson et al., 2014). Seen through this lens, to choose between human wellbeing and that of wild species is both unethical and untenable." There are other examples as well for indigenous people being against certain sustainable use practice: https://www.raincoast.org/great-bears/	Thank you for your comment, we think that the excerpt below conveys accurately what is stated in the literature and for reasons of space limitations choose not to go into further detail
105	White, Michael	4	9	338	9	338	Technological	Thank you. The word was corrected
106	Horikiri, Tatsuya	4	9	356	9	356	Is it possible to replace the word "sustainability" with "use". Sustainability may be achieved as a result of the implementation of policies and legislations that regulate use including trade.	Thank you for your comment. The word was replaced.
107	Horikiri, Tatsuya	4	9	373	9	373	Is it possible to modify the sentence here to read " who depend on those species to make a living in a range country" ? As this issue may imply loss of opportunity for global south to make use of their natural resources in a sustainable manner.	Thank you for your comment. requested change was made.
108	Horikiri, Tatsuya	4	10	383	10	386	The sentence starts with "It is well established" but end with "established but incomplete". There is logical inconsistency.	Thank you - we have made changes.
109	Török, Katalin	4	11	270		273	this is also a bullet point	Thank you for your comment. requested change was considered.
110	Török, Katalin	4	12	290		291	1st Q also a bullet point	Thank you for your comment. requested change was considered.
111	Horikiri, Tatsuya	4	12	438	12	438	Technology here is treated as it were one of mediating factors, not as a part of a driver. This may be inconsistent with Figure 4.1 where technology innovation (not use) is suggested as a mediating factors.	Thank you for your comment. To clarify, science, technology and education is a driver while scientific and technological innovation is a mediating factor.
112	Horikiri, Tatsuya	4	12	453	12	453	It would be "drivers" rather than "rivers".	Thank you for your comment. requested change was made.
113	Horikiri, Tatsuya	4	12	456	12	456	Is it possible to remove "use" before "drivers" ?	Thank you for your comment. The word was removed
114	Germany	4	223	8470	223	8471	Please clarify/specify what the "central challenge" is and what policy options can be derived from it for referred "science-based decision-making on sustainable use".	Thank you for your comment. We will evaluate the possibility of inserting your suggestion in the final draft.
115	Thebaud, Olivier	4	12	464	12	464	I have difficulties understanding figure 4.1. First, "Drivers" are represented outside the system, when I feel they should be considered internal (as the feedbacks from the system to the drivers clearly illustrate). Second, the examples of "Mediating factors" provided can all be related to one or another of the driver categories, so this "Mediating Factors" box seems redundant. I suggest removing it and replacing it by the "Drivers" box only, with arrows internal to this box illustrating the interactions / feedbacks between drivers, which are of course very important to consider.	Thank you for your comment. The dependent variable in our assessment is the sustainability or otherwise of wild species use. The outcome is determined by the practices related to and uses of the wild species by people. The drivers are the independent variables impacting on the practice and use and hence considered outside the system for the purpose of analysis. The most important drivers are categorized for gathering evidence and the mediating factors operating within the local, regional or national context influence the impact of the drivers.
116	Török, Katalin	4	13	314			not clear why use of wild sp is 2 times here. Or is it sustainable and unsustainable comparison?	Thank you for your comment. It should read: 'Show linkage between drivers of use of wild species, sustainable use of wild species and human well-being.'
117	Török, Katalin	4	13	327			what is this? (+ve/-ve)	Thank you for your comment. It means 'positively/negatively', we have changed that in the text

118	Korwin, Marie	4	13	477	13	481	<p>At the same time, other key drivers include the growing demand for bushmeat, including aquatic wild meat and the illegal trade in these species for use as pets, or in their body parts for other purposes.</p> <p>Although it is mentioned elsewhere in Chapter 4 (lines 6134-6144, 6275-6277, 6294-6302, 6311-6315), the introduction to Chapter 4 should make it clearer that legal trade can also be unsustainable (not just illegal trade) and is also one of the main drivers of biodiversity loss, threatening not only species extinction and ecosystem collapse but the loss of the very resources on which many indigenous and local communities depend (Kassa, S., Costa, J and Camargo, C-B (2019) Corruption and wildlife trafficking: exploring drivers, facilitators and networks behind illegal wildlife trade in East Africa. Working Paper 30, Basel Institute on Governance; Guynup, S., Shepherd, C. R., & Shepherd, L. (2020). The True Costs of Wildlife Trafficking. Georgetown Journal of International Affairs, 21(1), 28–37. https://doi.org/10.1353/gia.2020.0023).</p> <p>In its workshop report on biodiversity and pandemics, the IPBES emphasises that, “wildlife trade has expanded significantly in the last few decades ...the international legal wildlife trade has increased 500% in value since 2005, and 2,000% since the 1980s”, (also referenced on p.165 of this chapter) and that, “This information, case study data and analysis of trends suggest that the legal wildlife trade is, in many cases, unsustainable and a continuing threat to biodiversity conservation”. It goes on to say that, “Consideration of the totality of wildlife trade, including domestic and international, legal and illegal trades suggests that much of it is unsustainable, i.e. with demonstrated evidence that it is driving the loss of abundance, biodiversity and increasingly threatened status of traded species. For example, analysis of CITES and IUCN databases show that traded wildlife species are in higher threat categories than non-traded species (especially among mammals and birds). Of those listed as threatened or near threatened, 72% (6,241) have been over-exploited for commercial recreation or subsistence.”</p>	Thank you for this suggestion, we have deleted "illegal" here and only left "trade".
119	Lindsay, Keith	4	13	477	13	481	<p>At the same time, other key drivers include the growing demand for bushmeat, including aquatic wild meat and the illegal trade in these species for use as pets, or in their body parts for other purposes.</p> <p>Although it is mentioned elsewhere in Chapter 4 (lines 6134-6144, 6275-6277, 6294-6302, 6311-6315), the introduction to Chapter 4 should make it clearer that legal trade can also be unsustainable (not just illegal trade) and is also one of the main drivers of biodiversity loss, threatening not only species extinction and ecosystem collapse but the loss of the very resources on which many indigenous and local communities depend (Kassa, S., Costa, J and Camargo, C-B (2019) Corruption and wildlife trafficking: exploring drivers, facilitators and networks behind illegal wildlife trade in East Africa. Working Paper 30, Basel Institute on Governance; Guynup, S., Shepherd, C. R., & Shepherd, L. (2020). The True Costs of Wildlife Trafficking. Georgetown Journal of International Affairs, 21(1), 28–37. https://doi.org/10.1353/gia.2020.0023).</p> <p>In its workshop report on biodiversity and pandemics, the IPBES emphasises that, “wildlife trade has expanded significantly in the last few decades ...the international legal wildlife trade has increased 500% in value since 2005, and 2,000% since the 1980s”, (also referenced on p.165 of this report) and that, “This information, case study data and analysis of trends suggest that the legal wildlife trade is, in many cases, unsustainable and a continuing threat to biodiversity conservation”. It goes on to say that, “Consideration of the totality of wildlife trade, including domestic and international, legal and illegal trades suggests that much of it is unsustainable, i.e. with demonstrated evidence that it is driving the loss of abundance, biodiversity and increasingly threatened status of traded species. For example, analysis of CITES and IUCN databases show that traded wildlife species are in higher threat categories than non-traded species (especially among mammals and birds). Of those listed as threatened or near threatened, 72% (6,241) have been over-exploited for commercial recreation or subsistence.”</p>	Thank you for this suggestion, we have deleted "illegal" here and only left "trade".

120	Stewart, Davyth	4	13	477	13	481	<p>There is an emphasis here on illegal trade. However, even legal trade can be unsustainable.</p> <p>Although it is mentioned elsewhere in Chapter 4 (lines 6134-6144, 6275-6277, 6294-6302, 6311-6315), the introduction to Chapter 4 should make clear that legal trade does not necessarily mean sustainable trade. Legality and sustainability are different metrics. Even legal trade can drive biodiversity loss, threatening not only species extinction and ecosystem collapse but the loss of the resources on which many indigenous and local communities depend (Kassa et al., 2019; Guynup et al., 2020).</p> <p>In its workshop report on biodiversity and pandemics, the IPBES emphasises that, "wildlife trade has expanded significantly in the last few decades ...the international legal wildlife trade has increased 500% in value since 2005, and 2,000% since the 1980s", (also referenced on p.165 of this report) and that, "This information, case study data and analysis of trends suggest that the legal wildlife trade is, in many cases, unsustainable and a continuing threat to biodiversity conservation". It goes on to say that, "Consideration of the totality of wildlife trade, including domestic and international, legal and illegal trades suggests that much of it is unsustainable, i.e. with demonstrated evidence that it is driving the loss of abundance, biodiversity and increasingly threatened status of traded species. For example, analysis of CITES and IUCN databases show that traded wildlife species are in higher threat categories than non-traded species (especially among mammals and birds). Of those listed as threatened or near threatened, 72% (6,241) have been over-exploited for commerce, recreation or subsistence."</p>	<p>Thank you for your comment. We agree that legal wildlife trade is not always sustainable. This is stressed in many sections of the report. However, see Marsh et al 2021 or Natusch et. al 2014. Conservation Biology, doi: 10.1111/cobi.13716</p>
121	Thebaud, Olivier	4	13	492	13	505	<p>This distinction between direct and indirect drivers seems to consider drivers of biodiversity change, when the focus of the assessment is on drivers of sustainable use, as explicitly stated line 493. With this focus in mind, drivers should be those that influence uses and their sustainability, thus being first and foremost about user behaviour and the collective arrangements which influence / regulate such behaviour; changes in the resources and supporting ecosystems (in response to uses of wild species, and of environmental changes) of course also being important. I suggest rephrasing this section to emphasize the importance of understanding drivers of the uses of wild species.</p>	<p>Thank you for comment. The distinction has been made only to highlight that some drivers impact directly on the practices and uses of wild species while a set of other drivers influence the sustainability of resource use more diffusely.</p>
122	White, Michael	4	13	496	13	499	<p>Armed conflict and war; explosives & pollution</p>	<p>Thank you for your comments. Suggestions have been considered.</p>
123	Miller, Carly	4	14	523	14	525	<p>When value is expanded upon in the parenthesis please add "intrinsic" value.</p>	<p>Thank you for your comment. Suggestions have been considered.</p>
124	Gallagher, Louise	4	15	566	16	587	<p>I expected to see more detail of the literature review design (is it systematic or not?), search terms used and potential weaknesses or gaps in the underlying literature base given imbalances between social science and natural science in the field of biodiversity conservation science, and the fact that historical work does not necessarily have a lot to say about emerging concerns like climate change impacts. Some discussion about the various uncertainties that your literature base can not address seems important to emphasise to the reader. Particularly as I see later on statements like: "Although climate change and associated hazards will be a significant driver of biodiversity and wild species loss, there is little direct evidence to show how this driver will affect wild species use." Just because there's not many studies currently doesn't mean that this driver will not be important.</p>	<p>This section on methodology in the introduction has been clarified to add more of the suggested detail.</p>
125	Kumagai, Joy	4	15	566	15	575	<p>The database described here and the literature search should be included in a data deposit package with a data management report specifying the methodology and bibtext files for the literature review. Please see some of the values assessment data management reports for an example.</p>	<p>The literature review and associated methods have been submitted to the TSU.</p>

126	Thebaud, Olivier	4	16	592	16	597	This statement emphasizes factors contributing to ecosystem degradation, which is not equivalent to discussing drivers of sustainable use of wild species. It also emphasizes the role of only two driver categories (technological advances and social dimensions), with a reference to the MEA and another categorisation of drivers, which I find confusing. I suggest removing the sentence?	Thank you for your comment. We have revised this section and rewritten this part.
127	Gallagher, Louise	4	16	599			General comments on the Environmental drivers section: The amount of discussion on invasive species compared to the other aspects is unbalanced. The pollution discussion has key messages while the preceding sections do not, which was confusing. The content of the terrestrial animal harvesting subsection does not seem to fit in the environmental hazards section. Suggest adding overarching key messages upfront. The trends in environmental drivers section seems a little redundant given that most of these are being influenced by the other drivers to be discussed. Suggest rewriting to focus on major conclusions about what we know about shifting environmental regimes and their effects on wild species use, what we don't know.	This summary on environmental drivers has been edited to better reflect that balance of drivers.
128	Aebischer, Nicholas	4	18	685	23	908	Nearly all of the references cited on these six pages are missing from the list of references starting on p. 268	Thank you for your comment. The reference list will be updated in the final draft.
129	Lerambert, Adeline	4	16	599	56	2171	Illicit wildlife trafficking should be added as an environmental driver, as it not only causes environmental, economic and social distress undermining sustainable development, but it also challenges the achievement of sustainable use of biodiversity by driving some species towards extinction, damaging the ecological integrity and functioning of ecosystems, as well as posing threats to public health. See the World Bank's 2019 report Illegal Logging, Fishing, and Wildlife Trade : The Costs and How to Combat it. https://openknowledge.worldbank.org/handle/10986/32806	Thank you for the comment. We have considered trade (not only illegal) as a driver, Please see it in line 2666 and in 6046 (There is entire section about the trade)
130	Scanlon, John	4	16	599	56	2171	In addition to climate change, land/ecosystem degradation, invasive alien species etc., illicit wildlife trafficking should be included as an environmental driver, as it threatens the survival and sustainable use of countless species. In the assessment, drivers are defined as "the factors that, directly or indirectly, influence the sustainability of wild species use" (line 543); as reported by the World Bank (Illegal Logging, Fishing, and Wildlife Trade : The Costs and How to Combat it, 2019), illicit wildlife trafficking directly causes declines in species population, heavily influencing the opportunity to use them legally and sustainably. Immediate action is needed to tackle this serious form of organised crime, which is why the Presidents of Costa Rica and Gabon have recently called for the adoption of a Fourth Protocol under the UN Convention against Transnational Organized Crime (UNTOC) against the illicit trafficking of wild fauna and flora. More about the joint statement can be found here: https://endwildlifecrime.org/wp-content/uploads/2021/05/Gabon-and-Costa-Rica-Joint-Statement-on-Wildlife-Crime-Press-Release-and-Statements-May-2021-.pdf	Thank you for the comment. We have considered trade (not only illegal) as a driver, Please see it in line 2666 and in 6046 (There is entire section about the trade)
131	Svizzero, Serge	4	17	639	17	910	In section 4.2.1.2. the impacts of bushfires are presented only in 4.2.1.2.5, which is about timber harvesting, while of course they also have impacts on gathering, hunting.	Thank you for this comment, this has been clarified in section 4.2.1.2.5
132	Anissimoff, Michael and Corbeil, Lise Anne	4	17	641	18	683	Add a comment on the effects of climate change on habitat for wild species, especially the wild species living in Artic area like polar bears. Increasing temperatures due to climate change have been linked to other threats facing polar bear, for example exposure to disease. Unusually warm weather in winter has also been known to cause dens to collapse, which females build to birth and protect their young	This is already referred to in species ranges, but a phrase has been added to emphasize this.
133	Orenstein, Ronald	4	18	673	18	675	See comment 94 above and references cited therein.	Unfortunately it is not clear what comment #94 refers to, so cannot respond to this comment.
134	White, Michael	4	18	678	18	681	Increased ultraviolet radiation as stratospheric ozone layer degrades is causing pollen in some species to become sterile, as will high temperatures (e.g. tomato pollen above 32C)	As this comment is referring to agricultural productivity, it is beyond the scope of this assessment to deal with this.
135	Guillemain, Matthieu	4	52	1996	52	2023	unclear why this paragraph is in this section. Move to next one?	Thank you for your comment. The paragraph was moved to the section on 'Pandemics and sustainable use of wild species' in accordance with your suggestion.
136	Biondo, Monica V.	4	18	690	18	690	Marine ornamental fishes, coral reef fishes, are especially susceptible to climate change as their habitat is critically changing fast (IPPC).	Please note there is a general statement to fish and coral reef habitat in section in 1.2.1.2.2.

137	Marcoux, Marianne	4	18	691	18	704	This section could also mention how climate change is changing ice regime in the Arctic and how it is affecting Arctic fish populations (potential reference Huserbråten, M.B.O., Eriksen, E., Gjøsøter, H. et al. Polar cod in jeopardy under the retreating Arctic sea ice. <i>Commun Biol</i> 2, 407 (2019). https://doi.org/10.1038/s42003-019-0649-2)	Please note that there is a general statement to fish mortality in this section. The reference by Huserbråten et al. 2019 has been added.
138	Orenstein, Ronald	4	20	751	20	755	Climate-related northward shifts in kelp communities off Japan threaten uses based on both fishing and seaweed harvesting. Please consult Vergés, A., Steinberg, P. D., Hay, M. E., Poore, A. G. B., Campbell, A. H., Ballesteros, E., Heck, K. L., Booth, D. J., Coleman, M. A., Feary, D. A., Figueira, W., Langlois, T., Marzinelli, E. M., Mizerek, T., Mumby, P. J., Nakamura, Y., Roughan, M., van Sebille, E., Gupta, A. Sen, ... Roughan, M. (2014). The tropicalization of temperate marine ecosystems: climate-mediated changes in herbivory and community phase shifts. <i>Proc. R. Soc. B</i> , 281(1789), 1–10. https://doi.org/10.1098/rspb.2014.0846 ; Kumagai, N. H., García Molinos, J., Yamano, H., Takao, S., Fujii, M., & Yamanaka, Y. (2018). Ocean currents and herbivory drive macroalgae-to-coral community shift under climate warming. <i>Proceedings of the National Academy of Sciences</i> , 115(36), 8990–8995. https://doi.org/10.1073/pnas.1716826115 .	Thank you for the additional references, they have been added.
139	Watt, Cortney	4	20	763	20	777	This introductory paragraph is under the title "terrestrial animal harvesting" but is almost entirely focused on marine mammals. I suggest this paragraph focus on terrestrial animals or that the subheading should be changed.	The subheading has been changed.
140	Trocchi, Valter	4	20	764	20	765	The variability of normal climatic conditions can obviously affect of the young hares survival and the hare population recruitment rate. The work (Schai-Braun et al. 2019) does not expressly highlight the effects of the ongoing climatic changes on hare populations, but only the effects of climatic conditions. Indeed, in the conclusions the Authors state: "trends in climatic conditions should be considered when setting hunting quotas, since they can also function as predictors of survival rates and population growth".	Thank you for the comment, the sentence has been slightly changed to add the nuance.
141	Watt, Cortney	4	20	764	20	767	It is unclear to me what links climate change and hunted species in this sentence - ie. why are the two linked? I would rephrase this sentence to state that population densities, mortality, distribution, etc. of animals is impacted by climate change and this affects their access and vulnerability to hunting	Thank you for the comment, an additional sentence has been included as per the suggestion.
142	Guillemain, Matthieu	4	20	767	20	768	this implies a link with their abundance, not necessarily how they are hunted	The section has been revised as per this and other comments.
143	Anissimoff, Michael and Corbell, Lise Anne	4	20	772	20	777	Add a comment: As climate change forces polar bears to spend longer time (summer months) onshore, they come in contact more often with Arctic communities, increasing propensity for human-bear conflict. Polar bears are being killed more and more as a means of defense of life and property.	The section has been revised as per this and other comments.
144	Orenstein, Ronald	4	20	772	20	777	This ignores Inuit-managed trophy hunting of polar bear, which is not a "subsistence harvest". Please consult Parsons, E. C. M., & Cornick, L. A. (2011). Sweeping scientific data under a polar bear skin rug: The IUCN and the proposed listing of polar bears under CITES Appendix I. <i>Marine Policy</i> , 35(5), 729–731. https://doi.org/10.1016/j.marpol.2011.02.001 .	The section has been revised as per this and other comments.
145	White, Michael	4	20	772	20	777	As ice habitat is lost polar bears are moving nearer to human settlements searching for food	The section has been revised as per this and other comments.
146	Miketa, Madison	4	20	775	20	777	This would be a good place to include literature on the additive effects of hunting, especially with habitat loss and other relevant threats.	The section has been revised as per this and other comments.
147	Miller, Carly	4	20	777	20	777	This line should be followed by another sentence highlighting the need to adopt the precautionary principle when adopting harvesting of animals as a conservation tool, especially when other threats risk the viability of the species long term. Please see the Convention of Biological Diversity's Addis Ababa Principles and Guidelines for the Sustainable use and biodiversity practical principle 5, operational guideline: "Apply a precautionary approach in management decisions in accordance with principle 15 of the Rio Declaration on Environment and Development;" https://www.cbd.int/doc/publications/addis-gdl-en.pdf	The section has been revised as per this and other comments.

148	Venier, Lisa	4	21	801	21	802	in Canada 'natural hazards' are part of the ecosystem definition and don't alter timber supply but help to define it. Also I generally object to the term natural hazards as this doesn't seem to recognize the ecosystem defining nature of these disturbances.	This section has been revised as per this and other comments.
149	Venier, Lisa	4	21	805	21	805	yes tree distributions but more importantly age class distributions	The article deals with tree distribution.
150	Venier, Lisa	4	21	827	22	829	this is a single extreme example, a broader view is provided by Gauthier et al. 2015. Canadian Journal of Forest Research 45(11) https://doi.org/10.1139/cjfr-2015-0079 . this paper suggest that for some areas vulnerability of timber supply is high but not universally so, also Dhital et al is not in lit cited	The reference by Gauthier has been added, thank you.
151	Anissimoff, Michael and Corbeil, Lise Anne	4	22	830	22	842	This paragraph seems inconsistent with lines 1642 to 1662 in Chapter 2 on REDD.	It is not inconsistent, but the link to Chapt 2 has been made.
152	White, Michael	4	22	867	22	867	'Tipping points'?	Thank you, this has been added.
153	White, Michael	4	24	930	24	935	And continual bombing by NATO troops in Syria, Yemen and Libya for instance	This is a political comment. This assessment is a scientific document
154	White, Michael	4	24	943	24	947	And plastic pollution increasing coral diseases	Thank you, it has been added
155	Kumagai, Joy	4	26	988	26	990	Figure 4.2 Please gain approval to use in IPBES.	We will gain approval. Thank you.
156	Caceres, Hernan	4	26	1006	26	1006	Day, 2011 is missing from the reference list. This reference (if "Surveillance of Zoonotic Infectious Disease Transmitted by Small Companion Animals") is about small companion animals and not pet species source from the wild as stated in the text. This reference needs to be included in the list for clarity.	Thank you for pointing this out. We are referring to this reference: Day, M. J. (2011). One health: the importance of companion animal vector-borne diseases. <i>Parasites & vectors</i> , 4(1), 1-6. And it has been added now.
157	White, Michael	4	28	108	28	1081	Possoms in NZ now focus of a major eradication programme, as new emphasis is on local tree species, not plantation species	We have added following text [and hence a program to eradicate possum has started (Owens, 2017)] and added a reference Owens, B. Behind New Zealand's wild plan to purge all pests. <i>Nature</i> 541, 148–150 (2017). https://doi.org/10.1038/541148a
158	Orenstein, Ronald	4	28	1079	28	1081	This text suffers from a failure to consult recent references. A recent analysis examines the conflict between the harvest of possums in New Zealand and limitation of environmental damage, and concludes that "Our simulations suggest that the most economically-sustainable possum fur harvest strategy is unlikely to achieve even modest conservation outcomes." See Jones, C., Barron, M., Warburton, B., Coleman, M., Lyver, P. O. B., & Nugent, G. (2012). Serving two masters: Reconciling economic and biodiversity outcomes of brushtail possum (<i>Trichosurus vulpecula</i>) fur harvest in an indigenous New Zealand forest. <i>Biological Conservation</i> , 153, 143–152. https://doi.org/10.1016/j.biocon.2012.04.016 . Brush-tailed possums are hosts for bovine tuberculosis; extensive control programs are carried out against them in New Zealand. See Forsyth, D. M., Ramsey, D. S. L., Perry, M., McKay, M., & Wright, E. F. (2018). Control history, longitude and multiple abiotic and biotic variables predict the abundances of invasive brushtail possums in New Zealand forests. <i>Biological Invasions</i> , 20(8), 2209–2225. https://doi.org/10.1007/s10530-018-1697-0 .	We have revised the sentences and added these references as The introduction of brush-tailed possums (<i>Trichosurus vulpecula</i>) to New Zealand was considered profitable for 'eco-friendly' industry (at least US \$ 20 million per year) although it has resulted in massive defoliation and negative impacts on biodiversity (Clout & Barlow, 1982; Forsyth et al., 2018). Fur and skins of brush-tailed possums are also used by indigenous Māori people of New Zealand for economic gain but the most economically-sustainable possum fur harvest strategy is unlikely to achieve even modest conservation outcomes (Jones et al. 2012) hence a program to eradicate possum has started (Owens 2017).
159	Ariey-Jouglard, Rachel	4	28	1089	28	1093	This is erroneous. Green Crab is not the main source of meat (unclear if it is even "a" main source of meat). This has been flagged with DFO colleagues and NBP is awaiting a response. Furthermore, the reference cited at the end of the sentence does not appear in the chapter's bibliography.	We change 'the main source of meat' into 'a source of meat' and added the reference(Dave, D., & Routray, W. (2018). Current scenario of Canadian fishery and corresponding underutilized species and fishery byproducts: A potential source of omega-3 fatty acids. <i>Journal of Cleaner Production</i> , 180, 617-641.) in text
160	Perez Gil, Ramon	4	28	1095	28	1096	There are more sides to the "benefits" of hunting introduced invasive species, please refer to the cases of the Ranches in northern Mexico that imported game to attract tourists and the problems this has caused, also the introduction of goats and other species by marines in the islands to provide them with red meat they hunted when stationed temporarily in the islands. Feral cats, goats, feral dogs, feral pigs have caused significant problems in mexican islands.	We have added following sentence. In the ranches of Mexico, exotic species were introduced to provide year-round hunting opportunities including tourists (Barthel and Schuett 2014). And added the following reference Barthel, G. G., & Schuett, M. A. (2014). Perception of mexican hunters toward exotic game species. <i>Sociedad, Estado y Territorio</i> , 73.

161	Orenstein, Ronald	4	29	1114	29	1116	The spread of chytridiomycosis has been associated with the global traffic in amphibians for the pet trade, a fact not mentioned here. See Auliya, M., García-Moreno, J., Schmidt, B. R., Schmeller, D. S., Hoogmoed, M. S., Fisher, M. C., Pasmans, F., Henle, K., Bickford, D., & Martel, A. (2016). The global amphibian trade flows through Europe: the need for enforcing and improving legislation. <i>Biodiversity and Conservation</i> , 25(13), 2581–2595. https://doi.org/10.1007/s10531-016-1193-8 ; Thumsová, B., Bosch, J., & Martínez-Silvestre, A. (2021). Incidence of emerging pathogens in the legal and illegal amphibian trade in Spain. <i>Herpetology Notes</i> , 14, 777–784.	Thank you, I have added these references and the following sentences For example, the amphibian pet trade is linked with the global spread of chytrid fungus (<i>Batrachochytrium dendrobatidis</i>) which has led to significant decline of amphibians (Alroy 2015; Auliya et al. 2016)
162	Orenstein, Ronald	4	29	1122	29	1125	This text appears garbled; was something omitted? I assume the sentence is referring to an invasive species of some sort threatening mesquite trees?	Thank you for pointing out. It has been corrected now.
163	Aebischer, Nicholas	4	29	1123	29	1125	According to the American Ornithologists' Union, the accepted common name of the species described here as "White Wing Dove" is "White-winged Dove"	It is now changed into White-winged Dove. Thank you
164	Orenstein, Ronald	4	29	1125	29	1135	I am surprised that no mention was made of New Zealand, where the entire terrestrial mammal fauna with the exception of bats consists of introduced species, including 11 species of deer introduced for hunting purposes. See Latham, A. D. M., Cecilia Latham, M., Herries, D., Barron, M., Cruz, J., & Anderson, D. P. (2018). Assessing the efficacy of aerial culling of introduced wild deer in New Zealand with analytical decomposition of predation risk. <i>Biological Invasions</i> , 20(1), 251–266. https://doi.org/10.1007/s10530-017-1531-0 .	We have added the following: In New Zealand, hunting is an effective strategy to control introduced wild deer (Latham et al. 2018). Latham, A. D. M., Latham, M. C., Herries, D., Barron, M., Cruz, J., & Anderson, D. P. (2018). Assessing the efficacy of aerial culling of introduced wild deer in New Zealand with analytical decomposition of predation risk. <i>Biological Invasions</i> , 20(1), 251-266.
165	Guillemain, Matthieu	4	29	1127			but not all of these are invasive	Thank you. We used 'introduced'.
166	Miller, Carly	4	30	1138	30	1139	There is evidence that lethal control of invasive species or to manage human-wildlife conflict is ineffective. Non-lethal options are increasingly being studied and promoted. See: https://www.nationalgeographic.com/animals/article/wildlife-lethal-nonlethal-predator-control-hunting-evidence ; Doherty, Tim S., and Euan G. Ritchie. "Stop jumping the gun: a call for evidence-based invasive predator management." <i>Conservation Letters</i> 10, no. 1 (2017): 15-22; Dubois, Sara, Nicole Fenwick, Erin A. Ryan, Liv Baker, Sandra E. Baker, Ngai J. Beausoleil, Scott Carter et al. "International consensus principles for ethical wildlife control." <i>Conservation Biology</i> 31, no. 4 (2017): 753-760.	We added the following: However, such killing or lethal control of predators does not produce a desired outcome (Doherty and Ritchie 2017; Dubois et al. 2017) and non-lethal killing is more effective than lethal killing (Treves et al. 2016). And following references were added. Doherty, T. S., & Ritchie, E. G. (2017). Stop jumping the gun: a call for evidence-based invasive predator management. <i>Conservation Letters</i> , 10(1), 15-22. Dubois, S., Fenwick, N., Ryan, E. A., Baker, L., Baker, S. E., Beausoleil, N. J., ... & Fraser, D. (2017). International consensus principles for ethical wildlife control. <i>Conservation Biology</i> , 31(4), 753-760. Treves, A., Kropfel, M., & McManus, J. (2016). Predator control should not be a shot in the dark. <i>Frontiers in Ecology and the Environment</i> , 14(7), 380-388.
167	Guillemain, Matthieu	4	30	1139			also birds, of white-headed duck in UK and France	Added while headed duck in UK and France and this reference : Henderson, I. (2009). Progress of the UK Ruddy Duck eradication programme. <i>British Birds</i> , 102(12), 680.
168	Orenstein, Ronald	4	30	1151	30	1152	Mention should be made of the famous example of Lake Victoria in Africa, where the introduction of a single species, the Nile perch, resulted in the extinction of a number of endemic freshwater fish species and severe reductions in the populations of many others, with a devastating effect on the livelihoods of people dependent on fisheries in the lake. Please consult Outa, N. O., Yongo, E. O., Keyombe, J. L. A., Ogello, E. O., & Namwaya Wanjala, D. (2020). A review on the status of some major fish species in Lake Victoria and possible conservation strategies. <i>Lakes and Reservoirs: Research and Management</i> , 25(1), 105–111. https://doi.org/10.1111/lre.12299 .	We added the following: The introduction of alien fish species (e.g., Nile perch (<i>Lates niloticus</i>) and Nile tilapia (<i>Oreochromis niloticus</i>) into the Lake Victoria caused the reduction of biodiversity and species extinctions within the lake (Outa et al. 2020). Outa, N. O., Yongo, E. O., Keyombe, J. L. A., Ogello, E. O., & Namwaya Wanjala, D. (2020). A review on the status of some major fish species in Lake Victoria and possible conservation strategies. <i>Lakes & Reservoirs: Research & Management</i> , 25(1), 105-111.

169	Orenstein, Ronald	4	31	1180	31	1183	<p>The highly controversial example of the environmental consequences of the salmon fishery in southern Chile should be considered here. Please consult: Chávez, C., Dresdner, J., Figueroa, Y., & Quiroga, M. (2019). Main issues and challenges for sustainable development of salmon farming in Chile: a socio-economic perspective. 403–421. https://doi.org/10.1111/raq.12338</p> <p>Quiñones, R. A., Fuentes, M., Montes, R. M., Soto, D., & León-Muñoz, J. (2019). Environmental issues in Chilean salmon farming: a review. 375–402. https://doi.org/10.1111/raq.12337</p> <p>Mardones, F. O., Paredes, F., Medina, M., Tello, A., Valdivia, V., Ibarra, R., Correa, J., & Gelcich, S. (2018). Identification of research gaps for highly infectious diseases in aquaculture: The case of the endemic <i>Piscirickettsia salmonis</i> in the Chilean salmon farming industry. <i>Aquaculture</i>, 482(October 2017), 211–220. https://doi.org/10.1016/j.aquaculture.2017.09.048</p> <p>Gerhart, A. (2017). Petri dishes of an archipelago: The ecological rubble of the Chilean salmon farming industry. <i>Journal of Political Ecology</i>, 24(1), 726–742. https://doi.org/10.2458/v24i1.20963</p>	<p>We added the following: Salmon farming in Chile has faced several challenges such as sanitary crisis, social conflicts, market problem, lack of good governance (Chávez et al. 2019) along with ecological and environment problems including eutrophication, negative effect of pesticides on non-target species (Quiñones et al., 2019, Gerhart 2017) and disease outbreak (Mardones et al. 2018). Chávez, C., Dresdner, J., Figueroa, Y., & Quiroga, M. (2019). Main issues and challenges for sustainable development of salmon farming in Chile: a socio-economic perspective. 403–421. https://doi.org/10.1111/raq.12338</p> <p>Quiñones, R. A., Fuentes, M., Montes, R. M., Soto, D., & León-Muñoz, J. (2019). Environmental issues in Chilean salmon farming: a review. 375–402. https://doi.org/10.1111/raq.12337</p> <p>Mardones, F. O., Paredes, F., Medina, M., Tello, A., Valdivia, V., Ibarra, R., Correa, J., & Gelcich, S. (2018). Identification of research gaps for highly infectious diseases in aquaculture: The case of the endemic <i>Piscirickettsia salmonis</i> in the Chilean salmon farming industry. <i>Aquaculture</i>, 482(October 2017), 211–220. https://doi.org/10.1016/j.aquaculture.2017.09.048</p> <p>Gerhart, A. (2017). Petri dishes of an archipelago: The ecological rubble of the Chilean salmon farming industry. <i>Journal of Political Ecology</i>, 24(1), 726–742. https://doi.org/10.2458/v24i1.20963</p>
170	Funk, W. Chris	4	31	1186	40	1549	<p>Surprisingly, in this section on "4.2.1.5 Land and seascape change", there is no mention of the effects of terrestrial and riverine habitat fragmentation on genetic diversity, even though there are ample examples of negative impacts of habitat fragmentation on genetic diversity and population fitness, for example: https://onlinelibrary.wiley.com/doi/full/10.1111/j.1752-4571.2011.00233.x, https://onlinelibrary.wiley.com/doi/10.1111/eva.12484, https://science.sciencemag.org/content/282/5394/1695, https://www.pnas.org/content/116/1/177</p>	<p>Thank you. We do have information about the negative impact of forest fragment (e.g., line 1425). However, following your comments, we have added the following: Fragmentation has negative impacts on genetic diversity of birds (Athrey et al. 2012) and fish population (Pavlova et al. 2017) and population fitness threatening endangered species in land (Athrey et al. 2012) whereas in aquatic ecosystem, alteration of habitat such as dam building is associated with change in genetic composition (Thompson et al. 2019). Athrey, G., Barr, K. R., Lance, R. F., & Leberg, P. L. (2012). Birds in space and time: Genetic changes accompanying anthropogenic habitat fragmentation in the endangered black-capped vireo (<i>Vireo atricapilla</i>). <i>Evolutionary applications</i>, 5(6), 540-552.</p> <p>Pavlova, A., Beheregaray, L. B., Coleman, R., Gilligan, D., Harrison, K. A., Ingram, B. A., ... & Sunnucks, P. (2017). Severe consequences of habitat fragmentation on genetic diversity of an endangered Australian freshwater fish: A call for assisted gene flow. <i>Evolutionary Applications</i>, 10(6), 531-550.</p> <p>Thompson, T. Q., Bellinger, M. R., O'Rourke, S. M., Prince, D. J., Stevenson, A. E., Rodrigues, A. T., ... & Miller, M. R. (2019). Anthropogenic habitat alteration leads to rapid loss of adaptive variation and restoration potential in wild salmon populations. <i>Proceedings of the National Academy of Sciences</i>, 116(1), 177-186.</p>
171	Marcoux, Marianne	4	31	1186	31	1186	<p>Consider adding a subsection about changes the the marine environment (aquaculture, ports, shipping lane, tidal power plants, offshore wind power)</p>	<p>Thank you for your valuable suggestions however, the section has been already fixed.</p>
172	White, Michael	4	31	1210	31	1216	<p>Add 'light pollution' somewhere</p>	<p>Added the following sentence based on your comment, Light pollution in urban areas also has behavioral and ecological effects on wildlife (Schirmer et al. 2019).</p> <p>Schirmer, A. E., Gallemore, C., Liu, T., Magle, S., DiNello, E., Ahmed, H., & Gilday, T. (2019). Mapping behaviorally relevant light pollution levels to improve urban habitat planning. <i>Scientific reports</i>, 9(1), 1-13.</p>
173	White, Michael	4	32	1229	32	1230	<p>Many turtle nesting beaches globally are affected by buildings</p>	<p>Added building construction affect on turtle.</p>

174	Lippai, Christine	4	33	1118	33	1120	need to insert 'a' after 'however'. Also, Suggest re-write along these lines: 'Conversely, ethnobotanical surveys have been carried out on invasive alien plant (IAP) species, which have been shown to provide positive health benefits, such as Lantana camara, Opuntia ficus-indica, Ricinus communis, etc (Invasive alien plant species used for teh treatment of various diseases in Limpopo Province, South Africa, Lesibana Peter Maema, Martin Potgieter, and Salome Mamokone Mahlo. African Journal of Traditional Complementary and Alternative Medicine, AJTCAM, 2016: 13(4): 223-231	Following line is added. Thank you. Additionally, ethnobotanical surveys on invasive alien plant species, showed provide positive health benefits, such as Lantana camara, Opuntia ficus-indica, Ricinus communis (Peltzer et al. 2010), Maema, L. P., Potgieter, M., & Mahlo, S. M. (2016). Invasive alien plant species used for the treatment of various diseases in Limpopo Province, South Africa. African Journal of Traditional, Complementary and Alternative Medicines, 13(4), 223-231.
175	Guillemain, Matthieu	4	33	1265	33	1269	note sure that the decline in human populations in the countryside will alleviate human-wildlife conflicts there... Possibly the opposite?	You might have misread it, This is the sentence there, In and around urban areas, human-Wild species conflict is responsible for billions of dollars of damage and costs association with mitigation and prevention (Conover 2001).
176	Svizzero, Serge	4	33	1272	34	1304	given the aim of section 4.2.1.5.2 "infrastructure development", I suggest to add a paragraph about the impact of linear infrastructure (railways, pipeline, fences...) on large mammal migratory species (e.g. for Asia, hemionos, saiga antelope, goitered gazelle...; caribou in north America) since it is a typical case of human-built habitat fragmentation leading to reproductive isolation and then to the reduction of genetic diversity. Two References: * UNEP/CMS Secretariat, Wildlife Conservation Society (2014), Guidelines on Mitigating the Impact of Linear Infrastructure and Related Disturbance on Mammals in Central Asia, UNEP/CMS/COP11/Doc.23.3.2. Available at http://www.cms.int/sites/default/files/document/COP11_Doc_23_3_2_Infrastructure_Guide_lines_Mammals_in_Central_Asia_E.pdf • S. Svizzero (2019), Issues and Challenges in the Conservation of the Goitered Gazelle (<i>Gazella subgutturosa</i> ; Gldenstdt, 1780), Journal of Zoological Research 3(3): 1-9.	Agree, we have added the following paragraph in the section: Linear infrastructure such as roads, fences, walls, railways and pipelines create barriers that prevent species movements (Wingard et al. 2014) Linear infrastructure has caused habitat fragmentation, splited populations, changed migration, nomadism and dispersal and altered behaviors (Mueller and Fagan 2008; Wingard et al. 2014; Olson 2011). Structure like border fences cause direct mortality of wildlife particularly large carnivores and large herbivores due to entanglement (Trouwborst et al. 2016). The border wall between US-Mexico reduces area, quality, and connectivity of plant and animal habitats (Peters et al. 2016). Wingard, J., Zahler, P., Victorine, R., Bayasgalan, O., & Buuveibaatar, B. (2014). Guidelines on mitigating the impact of linear infrastructure and related disturbance on mammals in Central Asia. CMS. UNEP/CMS/COP11/Doc 23.3. 2. Olson, K. A., Mueller, T., Kerby, J. T., Bolortsetseg, S., Leimgruber, P., Nicolson, C. R., & Fuller, T. K. (2011). Death by a thousand huts? Effects of household presence on density and distribution of Mongolian gazelles. Conservation Letters, 4(4), 304-312. Mueller, T., & Fagan, W. F. (2008). Search and navigation in dynamic environments—from individual behaviors to population distributions. Oikos, 117(5), 654-664. Svizzero, S. (2019). Issues and Challenges in the Conservation of the Goitered Gazelle (<i>Gazella subgutturosa</i> ; Gldenstdt, 1780). International Journal of Zoological Research, 3, 1-9.
177	China	4	33	1283	33	1299	The citation of WCB,2000, Grumbine's publications has not presented in the reference list. WCD is too old for the estimation, and Grumbine and Pandit 2013 published in Science did not mentioned the number.	Trouwborst, A., Flouka, E., & Dubrillo, J. (2016). Border fences and their We have added two references of Grumbine and Pandit: Pandit, M. K., & Grumbine, R. E. (2012). Potential effects of ongoing and proposed hydropower development on terrestrial biological diversity in the Indian Himalaya. Conservation Biology, 26(6), 1061-1071. Grumbine, R. E., & Pandit, M. K. (2013). Threats from India's Himalaya dams. Science, 339(6115), 36-37.
178	Aebischer, Nicholas	4	34	1317	34	1337	All references cited here date from after 2000 and most from after 2010, giving the impression that the issue of agricultural intensification is a recent phenomenon. In fact, the alarm was raised already in the 1960s with regard to the indiscriminate use of organochlorine insecticides (Carson, R. (1962). Silent Spring. Houghton Mifflin, Boston). The general impact of agricultural intensification on farmland biodiversity was raised in Potts, G.R. (1991). The environmental and ecological importance of cereal fields. In The Ecology of Temperate Cereal Fields (eds L.G. Firbank, N. Carter, J.F. Darbyshire & G.R. Potts), pp. 3-21. Blackwell Scientific Publications, Oxford. The impact of general agricultural intensification on birds in Europe was covered by Pain, D.J. & Pienkowski, M.W. (eds) (1997). Farming and Birds in Europe. Academic Press, London.	We have added the following sentence. Sharp decline or threatened with total extinction of several species of farmland birds in Europe was attributed to the sorts of agricultural intensification encouraged by the Common Agricultural Policy (Pain and Pienkowski, 1997).
179	Burgess, Neil	4	34	1329			Possibly releavnt as an example https://www.pnas.org/content/116/46/23202	Added this reference thank you.

180	Kumagai, Joy	4	35	1338	35	1345	Figure 4.3 Please gain approval to use in IPBES.	Certainly. Thank you.
181	Hoffmann, Mike	4	35	1344	35	1345	These threat codes do not make sense, and probably refer to the old IUCN threats classification scheme. It therefore makes me doubt the validity of the results in the figure. To analyse species threatened by agriculture, it would only be necessary to ask which species are impacted by the threat class 2. However, ideally, this analysis should be done accounting for scope and severity to remove minor threats.	Thank you. So far we found this reference relevant to this section.
182	Orenstein, Ronald	4	36	1380	36	1392	It is an oversimplification to say that agroforestry enhances biodiversity without emphasizing that the extent to which it can do so will depend on the selection (eg indigenous vs introduced) and diversity of tree species utilized, among other factors. See Udawatta, R. P., Rankoth, L. M., & Jose, S. (2019). Agroforestry and biodiversity. Sustainability (Switzerland), 11(10). https://doi.org/10.3390/su11102879 .	Agree, we have added the following sentence.
183	Guillemain, Matthieu	4	37	1413			probably far more than that. do you mean large vertebrates only?	The paper says species only not large vertebrates.
184	Orenstein, Ronald	4	38	1450	38	1453	Plantation forests have been associated with negative impacts on both biodiversity and livelihoods, including supplanting natural regeneration. Please consult Malkamäki, A., D'Amato, D., Hogarth, N. J., Kanninen, M., Pirard, R., Toppinen, A., & Zhou, W. (2018). A systematic review of the socio-economic impacts of large-scale tree plantations, worldwide. Global Environmental Change, 53(October 2017), 90–103. https://doi.org/10.1016/j.gloenvcha.2018.09.001 Hua, F., Wang, L., Fisher, B., Zheng, X., Wang, X., Yu, D. W., Tang, A., Zhu, J., & Wilcove, D. S. (2018). Tree plantations displacing native forests: the nature and drivers of apparent forest recovery on former croplands in Southwestern China from 2000–2015. Biological Conservation, 222, 113–124. https://doi.org/10.1016/j.biocon.2018.03.034 .	We added the following: Nevertheless, large scale tree plantations also have negative impacts on biodiversity, quality and quantity of water and livelihoods particularly loss of or restriction to previous livelihoods, reduced access (Malkamäki et al. 2018). Furthermore, tree plantations, particularly monocultures displaced native forests (Hua et al. 2018). Malkamäki, A., D'Amato, D., Hogarth, N. J., Kanninen, M., Pirard, R., Toppinen, A., & Zhou, W. (2018). A systematic review of the socio-economic impacts of large-scale tree plantations, worldwide. Global Environmental Change, 53, 90-103. Hua, F., Wang, L., Fisher, B., Zheng, X., Wang, X., Douglas, W. Y., ... & Wilcove, D. S. (2018). Tree plantations displacing native forests: The nature and drivers of apparent forest recovery on former croplands in Southwestern China from 2000 to 2015. Biological Conservation, 222, 113-124.
185	Orenstein, Ronald	4	38	1546	38	1467	This text underestimates the threat to grasslands worldwide, as these rank among the most threatened ecosystems on the planet. All references to grassland mammals are cited, the threats to grassland birds are not mentioned even though many species are seriously under threat. Please consult Grand, J., Wilsey, C., Wu, J. X., & Michel, N. L. (2019). The future of North American grassland birds: Incorporating persistent and emergent threats into full annual cycle conservation priorities. Conservation Science and Practice, 1(4), e20. https://doi.org/10.1111/csp2.20 Wilsey, C., Taylor, L., Bateman, B., Jensen, C., Michel, N., Panjabi, A., & Langham, G. (2019). Climate policy action needed to reduce vulnerability of conservation-reliant grassland birds in North America. Conservation Science and Practice, 1(4), e21. https://doi.org/10.1111/csp2 Correll, M. D., Strasser, E. H., Green, A. W., & Panjabi, A. O. (2019). Quantifying specialist avifaunal decline in grassland birds of the Northern Great Plains. Ecosphere, 10(1). https://doi.org/10.1002/ecs2.2523 Jacoboski, L. I., Paulsen, R. K., & Hartz, S. M. (2017). Bird-grassland associations in protected and non-protected areas in southern Brazil. Perspectives in Ecology and Conservation, 15(2), 109–114. https://doi.org/10.1016/j.pecon.2017.05.002	We added the following: Rangeland changes causes species decline. In North American grasslands bird populations have experienced drastic declines over the past half century particularly due to the Land-use change and a rapid loss of habitat (Grand et al. 2019, Correll et al., 2019). Conversion of grasslands into other land uses is the major threat for grassland birds in Brazil (Jacoboski et al. 2017). Future climate change added vulnerability to these grassland birds in North America (Wilsey et al. 2019). Grand, J., Wilsey, C., Wu, J. X., & Michel, N. L. (2019). The future of North American grassland birds: Incorporating persistent and emergent threats into full annual cycle conservation priorities. Conservation Science and Practice, 1(4), e20. Wilsey, C., Taylor, L., Bateman, B., Jensen, C., Michel, N., Panjabi, A., & Langham, G. (2019). Climate policy action needed to reduce vulnerability of conservation-reliant grassland birds in North America. Conservation Science and Practice, 1(4), e21. Correll, M. D., Strasser, E. H., Green, A. W., & Panjabi, A. O. (2019). Quantifying specialist avifaunal decline in grassland birds of the Northern Great Plains. Ecosphere, 10(1), e02523. Jacoboski, L. I., Paulsen, R. K., & Hartz, S. M. (2017). Bird-grassland associations in protected and non-protected areas in southern Brazil. Perspectives in Ecology and Conservation, 15(2), 109-114.

186	Orenstein, Ronald	4	39	1517	40	1523	The cerrado is also under threat from agroforestry, including the replacement of native habitat with eucalyptus plantations. Please consult Mustin, K., Carvalho, W. D., Hilário, R. R., Costa-Neto, S. V., Silva, C. R., Vasconcelos, I. M., Castro, I. J., Eilers, V., Kauano, É. E., Mendes, R. N. G., Funi, C., Fearnside, P. M., Silva, J. M. C., Euler, A. M. C., & Toledo, J. J. (2017). Biodiversity, threats and conservation challenges in the Cerrado of Amapá, an Amazonian savanna. <i>Nature Conservation</i> , 22, 107–127. https://doi.org/10.3897/natureconservation.22.13823 Colli, G. R., Vieira, C. R., & Dianese, J. C. (2020). Biodiversity and conservation of the Cerrado: recent advances and old challenges. <i>Biodiversity and Conservation</i> , 29(5), 1465–1475. https://doi.org/10.1007/s10531-020-01967-x .	Thank you for suggestions but these are localized studies with limited scope for this assessment.
187	Török, Katalin	4	41	1178			I am not sure the statement is supported by the ref.: Forested ecosystems support the majority of global terrestrial biodiversity. I had no access to the full paper of Pimm et al. 2014, but as I see, the Figs refer to birds only. My major concern is the general neglect of natural grasslands and savannas and their biodiversity & ecosystem services. this blindness on the values of grasslands can lead to further degradation and use of grasslands as target of carbon sequestration by painting trees. see: DOI: 10.1126/science.aay7976; Temperton et al. <i>Restoration Ecology</i> 27:705-719. Also see your sentence p 43 l: 1238 and 1243; and p 43 _L:1247-1249 And also: p45 L 1306-1308: "Collecting data from satellite images, silviculture in the area was expanded by 94% over the six-year study, and grassland was the main target for agricultural land conversion"	We have changed the statement.
188	White, Michael	4	41	1601	41	1601	and birds	Thanks for your comment. 'And birds' taken into consideration in the new version.
189	Guillemain, Matthieu	4	42	1613			not "quite"	Thanks for your comment. It was taken into consideration in the new version.
190	Török, Katalin	4	43	1233	43	1236	I think, in Europe at least, plantations have a much lower diversity, often non-indigenous, even invasive species are planted that grow fast and have multiple use. See: https://doi.org/10.1016/j.scitotenv.2019.06.043 ; ; doi:10.3390/f10070548 ; and others	We have addressed the comment in the plantation section.
191	Török, Katalin	4	43	1237			I suggest to add explanation on the difference or definition of rangelands and grasslands	It will be presented in Glossary. Thank you.
192	Germany	4	43	1656	43	1657	Figure 4.4: Suggestion to include "& reduce use" after the word 'reuse' in the first bullet of the last 'column' on 'Potential mitigation measures'.	Thanks for your comment, It was taken into consideration in the new version.
193	Guillemain, Matthieu	4	43				Fig 4.4. Lead poisoning and non-toxic shot could be mentioned here	Thanks for your comment, It was taken into consideration in the new version;
194	Török, Katalin	4	44	1273		1279	In this para I think mentioning traditional land management as a nature conservation practice would be good, e.g.: McKemey, M., Ens, E., Rangers, Y. M., Costello, O., & Reid, N. (2020). Indigenous knowledge and seasonal calendar inform adaptive savanna burning in northern Australia. <i>Sustainability</i> , 12(3), 995.	We added the following sentences: Some indigenous communities such as Australian aborigines maintained a complex system of land management using seasonal calendar inform adaptive savanna burning and the life cycles of native plants to ensure plentiful of wildlife and plant foods (Gammage 2011; McKemey et al. 2020) McKemey, M., Ens, E., Rangers, Y. M., Costello, O., & Reid, N. (2020). Indigenous knowledge and seasonal calendar inform adaptive savanna burning in northern Australia. <i>Sustainability</i> , 12(3), 995. Gammage, B. <i>The Biggest Estate on Earth</i> ; Allen & Unwin: Crows Nest, NSW, Australia, 2011 McKemey, M., Ens, E., Rangers, Y. M., Costello, O., & Reid, N. (2020). Indigenous knowledge and seasonal calendar inform adaptive savanna burning in northern Australia. <i>Sustainability</i> , 12(3), 995. Gammage, B. <i>The Biggest Estate on Earth</i> ; Allen & Unwin: Crows Nest, NSW, Australia, 2011

195	Török, Katalin	4	44	1289		1291	there is a newer report: https://www.unep.org/resources/report/unep-food-waste-index-report-2021	We added the following: Indigenous fire management practices in Australia however deliver social, cultural, environmental and economic benefits and have a great potential in fire management planning (McKemey et al. 2020) McKemey, M., Ens, E., Rangers, Y. M., Costello, O., & Reid, N. (2020). Indigenous knowledge and seasonal calendar inform adaptive savanna burning in northern Australia. <i>Sustainability</i> , 12(3), 995.
196	Venier, Lisa	4	44	1678	44	1681	the references here are all fairly old (40 years) and acid precipitation has been largely mitigated. It would be good to have a fish person weigh in here but I don't think the acid precip emphasis is warranted here	Thanks for your comment .The references will be updated with latest literature and included in new version. While acidification of waterbodies still remains an issue and cant be ignored altogether, we may slightly curtail the emphasis as suggested.
197	Orenstein, Ronald	4	46	1749	46	1479	Something should be said, here or elsewhere, about the negative impacts of monocultural oil palm plantations, including pollution, on freshwater ecosystems and livelihoods in Borneo. Please consult: Zieritz, A., Bogan, A. E., Rahim, K. A. A., Sousa, R., Jainih, L., Harun, S., Razak, N. F. A., Gallardo, B., McGowan, S., Hassan, R., & Lopes-Lima, M. (2018). Changes and drivers of freshwater mussel diversity and distribution in northern Borneo. <i>Biological Conservation</i> , 219(June 2017), 126–137. https://doi.org/10.1016/j.biocon.2018.01.012 Santika, T., Wilson, K. A., Meijaard, E., Budiharta, S., Law, E. E., Sabri, M., Struebig, M., Ancrenaz, M., & Poh, T. M. (2019). Changing landscapes, livelihoods and village welfare in the context of oil palm development. <i>Land Use Policy</i> , 87(June), 104073. https://doi.org/10.1016/j.landusepol.2019.104073 Luke, S. H., Barclay, H., Bidin, K., Chey, V. K., Ewers, R. M., Foster, W. A., Nainar, A., Pfeifer, M., Reynolds, G., Turner, E. C., Walsh, R. P. D., & Aldridge, D. C. (2017). The effects of catchment and riparian forest quality on stream environmental conditions across a tropical rainforest and oil palm landscape in Malaysian Borneo. <i>Ecohydrology</i> , 10(4), 1–14. https://doi.org/10.1002/eco.1827	Thanks for your comments. Though the subsection 'water pollution' is quite a bigger and well-packed, with limited scope of addition, we still have tried our best to include the suggested references.
198	Venier, Lisa	4	47	1804	47	1806	same comment as above on acid precipitation	Thanks for your comments. Responded to as discussed in response to above comment
199	China	4	47	1808	47	1808	Change "Hong Kong" to "Hong Kong, SAR of China"	Thanks for your comments. It is an improvement and we have adopted it.
200	White, Michael	4	48	1841	48	1844	Better to say ~ low oxygen levels (hypoxia) and anoxic 'dead zones'	Thanks for this suggested change of wording. It is an improvement and we have adopted it.
201	Orenstein, Ronald	4	49	1869	49	1870	Plastic pollution has been a matter of growing concern with respect to cetaceans. Please consult Moore, R. C., Loseto, L., Noel, M., Etemadifar, A., Brewster, J. D., MacPhee, S., Bendell, L., & Ross, P. S. (2020). Microplastics in beluga whales (<i>Delphinapterus leucas</i>) from the Eastern Beaufort Sea. <i>Marine Pollution Bulletin</i> , 150, 1–18. https://doi.org/10.1016/j.marpolbul.2019.110723 Fossi, M. C., Romeo, T., Bains, M., Panti, C., Marsili, L., Campan, T., Canese, S., Galgani, F., Druon, J. N., Airoidi, S., Taddei, S., Fattorini, M., Brandini, C., & Lapucci, C. (2017). Plastic debris occurrence, convergence areas and fin whales feeding ground in the Mediterranean marine protected area Pelagos Sanctuary: A modeling approach. <i>Frontiers in Marine Science</i> , 4(MAY), 1–15. https://doi.org/10.3389/fmars.2017.00167 Guerrini, F., Mari, L., & Casagrandi, R. (2019). Modeling plastics exposure for the marine biota: Risk maps for fin whales in the Pelagos Sanctuary (North-Western Mediterranean). <i>Frontiers in Marine Science</i> , 6(JUN), 1–10. https://doi.org/10.3389/fmars.2019.00299	Thanks. The augmentation through suggested references has been considered.
202	Germany	4	49	1874	49	1875	Suggestion: To include the period of time and baseline as a reference to clarify the timespan with regard to the referred change in number of affected marine species.	Thanks for your comments. Makes sense and considered.

203	Orenstein, Ronald	4	49	1881	49	1889	Procellariiform seabirds and marine turtles may be particular risk because chemicals given off by marine plastic debris may imitate natural foraging stimuli. Please consult Pfaller, J. B., Goforth, K. M., Gil, M. A., Savoca, M. S., & Lohmann, K. J. (2020). Odors from marine plastic debris elicit foraging behavior in sea turtles. <i>Current Biology</i> , 30(5), R213–R214. https://doi.org/10.1016/j.cub.2020.01.071 . See, however, Dell’Ariccia, G., Phillips, R. A., Van Franeker, J. A., Gaidet, N., Catry, P., Granadeiro, J. P., Ryan, P. G., & Bonadonna, F. (2017). Comment on “Marine plastic debris emits a keystone infochemical for olfactory foraging seabirds” by Savoca et al. <i>Science Advances</i> , 3(6), 1–4. https://doi.org/10.1126/sciadv.1700526 .	Thanks for your comments. These references have been perused and some of them included.
204	Aebischer, Nicholas	4	50	1923	50	1944	It is worth mentioning in this section on soil pollution that hunting with lead ammunition is now the main source of human-induced lead emissions to soil in the EU, accounting for 67% of emissions compared with 7% for the next highest source, lead sheet: Tukker, A., Buist, H., van Oers, L. & van der Voet, E. (2006). Risks to health and environment of the use of lead in products in the EU. <i>Resources, Conservation and Recycling</i> , 49:89–109.	Thank you for your comment. This reference has been perused and accordingly considered on merit.
205	Aebischer, Nicholas	4	50	1932	50	1932	"Donal" should be "Donald"	Thanks for your comment, this have been consideration in the new version.
206	China	4	50	1945	51	1960	Macrofungi rich in heavy metals is a global problem, not only caused by soil pollution, often in food safety issues discussed, it is recommended to cite more research to give appropriate judgment.	Thanks for your comment, some more relevant research cited.
207	Török, Katalin	4	51	1492			there are huge paragraphs under 4.2.1.6.3. Water Pollution, may be fragmentation would help readability	Thanks for your comment, this will be considered in the new version.
208	Marcoux, Marianne	4	51	1976	51	1976	Consider adding a subsection on the "other pollution" to be consistent with the figure 4.4. In particular, noise pollution is a major treat in marine environment. This reference is a great review of the issue (https://science.sciencemag.org/content/371/6529/eaba4658.abstract)	Thanks for your comment, It is an improvement and we have adopted it.
209	Caceres, Hernan	4	51	1986	51	1988	I understand the focus of the report is on use of wild species, but this approach ignores the role of domestic animals in the general context of disease dynamics. Outbreaks and epidemics are common within domestic systems. The lack of this important comparative aspect of the use of animals and its links to diseases results in an unbalanced assessment. See Morand 2020	Thank you for the comment. The role of domestic animals is beyond the scope of this assessment. In this assessment, wild species is defined as "Any species populations that exist within their natural distribution range, that have not been domesticated through mutigenerational selection for particular traits, and which can survive without human intervention. This does not, however, imply a complete absence of human management. It does exclude feral and introduced populations although these may be included in some aspects of the assessment. (see Chapter 1, this definition is further explored in section 1.3.1.)
210	Ryan, Mark	4	51	1986	51	1987	"... the most recent pandemic" is neither precise nor timeless. Should be replaced by "the Covid-19 pandemic" or similar.	Thank you for the comment, the sentence has been changed.
211	Hull, Amanda	4	56	2159	56	2160	In North America, the opposite is true. Hunters are generally older than non-hunters and as hunter numbers, in the U.S. for example, decline, the average age of hunters is increasing (U.S. Department of the Interior, U.S. Fish and Wildlife Service, and U.S. Department of Commerce, U.S. Census Bureau. 2016 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation.)	This paragraph has been deleted as it was not relevant in the environmetnal drivers section. There is a whole other section on demographices under social drivers.
212	Lerambert, Adeline	4	52	2000	52	2001	See Rebalance.Earth for an example of economic instrument supporting sustainable non-extractive uses. With a view to both protecting wildlife and enhancing local communities, it uses innovative carbon offsetting markets as a mechansim to create a new flow of wealth by valuing the carbon services provided by keystone wildlife species, such as forest elephants.	Thank you for your suggestion. We will evaluate the possibility of including this example.
213	Stewart, Davyth	4	52	2000	52	2001	Sustainability isn't intrinsically linked to practices which negate zoonotic risk. All use of wildlife whether legal or illegal,sustainable or unsustainable poses a zoonotic risk, so suggest omitting 'sustainable' from this sentence.	The word has been removed from the sentence.
214	China	4	52	2010	52	2013	It lacks support of scientific evidence. It should be deleted.	The sentence has been revised.
215	Caceres, Hernan	4	52	2011	52	2013	Disease origin in wildlife is different from the impact of that disease (see Plowright 2017, Morse 2012). The impacts of the diseases listed here are not due to animal-to-human transmission but from human-to-human transmission. Therefore, it would be good and balanced to highlight the failure of eary detection systems and containment measures	Thank you, a sentence has been added to reflect this.

216	Caceres, Hernan	4	52	2029	53	2030	If the ~70% figure refers to Jones et al. 2008, this is an incorrect assessment of the data presented in the publication. Jones et al. 2008 stated that 60% of human emerging infectious diseases have a zoonotic origin. Of this 60%, ~72% originated in wildlife. Meaning that ~43% of emerging zoonotic infectious diseases originated in wildlife.	Thank you for your comment. Now we remove that 70% and revised the sentence as: (60% of EIDs are dominated by zoonoses of which 71.8% originated in wildlife)
217	Stewart, Davyth	4	52	2103		2111	The IPBES Workshop Report on biodiversity and pandemics highlights that all trade in wildlife poses particularly important risks for future pandemics/disease emergence, regardless of whether it is legal or illegal, whether the wildlife being traded is bred, farmed or caught in the wild. The very nature of wildlife trade involves intimate contact among wildlife, livestock and humans and facilitates the spill over of novel or known pathogens, their amplification and spread and has been linked to disease emergence including for SARS and COVID-19. More than 60% of emerging infectious diseases are caused by a pathogen transmitted from animals to humans. More than 70% of these are from wild animals (Jones, K.E., Patel N.G., Levy M.A., Storeygard A., Balk D., Gittleman J.L. et al. (2008). Global trends in emerging infectious diseases. Nature 451, 990-993 doi: 10.1038/nature06536). This is recognised elsewhere in Chapter 4 (lines 2033-2038 and 6138-6140), however, for consistency, it should also be recognised here that legal trade (and not just illegal trade) is a risk for pandemic emergence.	We removed 'illegal' and retain only wild species trade. Thank you.
218	Caceres, Hernan	4	53	2030	53	2030	There is no such thing as a "clear linkage" between pandemics and biodiversity. In some cases, biodiversity may act as a amplification factor or diluting disease risk. Context should be added to this sentence, most of recurring zoonosis are linked to domestic animals, peri-urban and urban species (Gibbs 2020, Mornand 2020).	The word clear is removed now and we have added the reference: Gibb, R., Redding, D. W., Chin, K. Q., Donnelly, C. A., Blackburn, T. M., Newbold, T., & Jones, K. E. (2020). Zoonotic host diversity increases in human-dominated ecosystems. Nature, 584(7821), 398-402.
219	Caceres, Hernan	4	53	2032	53	2032	Gibbe 2020 is not in the reference list. Is this Gibb 2020 Zoonotic host diversity increases in human-dominated ecosystems?	It has been added now. Thanks.
220	Caceres, Hernan	4	53	2032	53	2032	Gibbe 2020 is not in the reference list. Is this Gibb 2020 Zoonotic host diversity increases in human-dominated ecosystems?	It has been added now. Thanks.
221	China	4	53	2033	53	2038	It is suggested to delete "COVID-19 (2019-ongoing)" in this sentence. According to the latest study of WHO-convened Global Study of Origins of SARS-CoV-2: China Part, more studies still need to be done to determine the origins of SARS-CoV-2. There is not enough evidence to say "the emergence of the disease pandemic of COVID-19 (2019-ongoing) is the results of ecosystem alternation due to land-use change, deforestation, agricultural expansion and intensification, wild species trade, consumption and other drivers that disrupts natural interactions among wild species and their microbes"	It is deleted now. Thank you.
222	Caceres, Hernan	4	53	2049	53	2049	References are important. Magouras 2020 is an opinion piece which, as many others, contains a definition of Zoonoses. I suggest including definitions from international organisations such as WHO	We have a separate Glossary for definitions in which we include definitions of WHO. Thank you.
223	Caceres, Hernan	4	53	2050	53	2052	This list of spillover origins is focus on wildlife and forgets about domestic animal transmission. Domestic species should be included as well as shown by the recent transmission of a novel CoV from dogs.	Agree. Therefore, we have companionship. It incorporates domesticated species as well.
224	Caceres, Hernan	4	53	2052	53	2054	CDC indicates that only 8 out of 48 outbreaks are linked to bushmeat consumption. The vast majority of cases and outbreaks are from humans.	Thank you for your comment. We have the following sentence regarding bushmeat: Bushmeat consumption is linked with the emergence and outbreak of the Ebola virus in the countries of central and west Africa (Holmes et al. 2016, Coltart et al. 2017)
225	Caceres, Hernan	4	53	2054	53	2056	The origin of HIV/AIDS is genetically connected to SIV, but the specific interface of the initial spillover event is still unknown (beyond repeated exposure of humans to SIV hosts). Considering that there were likely multiple spillover events (at least seven according to Hahn 2000), it is important to highlight the issue of "repeated exposure", rapid serial passage in humans, and other socio-behavioural factors (Hanh 2000)	We now added repeated exposure to wildlife and socio-behavioural factors. Thank you.
226	Orenstein, Ronald	4	53	2056	53	2057	Please consult Orenstein, R. 2020. Wildlife markets and COVID-19. Washington, DC, USA: Humane Society International. https://www.hsi.org/wp-content/uploads/2020/04/Wildlife-Markets-and-COVID-19-White-Paper.pdf , cited above, and references cited therein.	The suggested citation is added. Thanks.

227	Caceres, Hernan	4	53	2057	53	2058	Wild birds (Water fowl, Anseriformes (ducks, geese and swans) and Charadriiformes (gulls, terns and sandpipers)) are reservoirs of LPAI/HPAI, but poultry and domestic birds play the key role on zoonoses transmission. "Direct transmission of the virus from wild birds to humans appears to be very rare (or non-existent), presumably due to the low frequency of contact between the two populations; however, transmission from domestic avian species to humans does occur, especially in live bird markets in Asia." (doi: 10.1098/rstb.2018.0257)	It is highly valuable comment. We replaced that sentence by the following sentence. Water fowl, especially Anseriformes (ducks, geese and swans) and Charadriiformes (gulls, terns and sandpipers), are thought to be the natural reservoir of IAV (Webster et al. 1992; Olsen et al. 2006) and transmission of virus from these avian species to humans might occur in bird markets (Lycett et al. 2019).
228	China	4	53	2059	53	2061	Delete "Similarly, the SARS virus outbreak (2002–2003) is potentially originated from masked palm civets (<i>Paguma larvata</i>) sold in wild species markets in China (Wang et al. 2006, Xu et al. 2004).". After the SARS, China organized large amount of research, but no evidence indicates the direct link between masked palm civets and the SARS virus outbreak.	Deleted. Thanks.
229	Caceres, Hernan	4	53	2064	53	2065	How would this immunosuppression process for spillover be different from domestic animal farming and trade? This sentence needs references and clarification of the particular processes that make this different	we added 'prolonged' and a reference here. and removed the 'immunosuppression causing'
230	Caceres, Hernan	4	53	2065	53	2065	"Intensive farming" would be enough to demonstrate the issue of immunosuppression linked to distress in animals considering it is a physiological response that can also be found in domestic animal farming. Reference: John E. DohmsaAlanMetzb 1991. Stress — mechanisms of immunosuppression https://doi.org/10.1016/0165-2427(91)90011-Z	We removed the words 'immunosuppression causing'. Thank you.
231	Caceres, Hernan	4	53	2068	53	2070	The link between SARS-CoV-2 and the Wuhan market has been widely contested from epidemiological and phylogenetic data. This sentence should at least recognise this issue.	Totally agree. We removed the sentence "it is suspected that seafood market in Wuhan, China is origin of this virus. and added Wang et al. 2020 in citation
232	China	4	53	2068	53	2070	The origin and source of COVID-19 are still not known. The sentence and citation should be deleted. Furthermore, there is no inclusion of the citation of Wang et al. 2020 in the reference	We removed the sentence "it is suspected that seafood market in Wuhan, China is origin of this virus." and added the reference.
233	China	4	53	2068	53	2070	Delete "Although the exact timing, place of origin and source of infection of the COVID-19 is still not fully known, it is suspected that seafood market in Wuhan, China is origin of this virus (Wang et al. 2020).". According to the latest study of WHO-convened Global Study of Origins of SARS-CoV-2: China Part, more studies still need to be done to determine the origins of SARS-CoV-2. There is not enough evidence to say seafood market in Wuhan. China is origin of the virus. Besides, previous studies have shown that the spread of SARS-CoV-2 in Italy was earlier than the time when the first official case of Lombardy first appeared, and even earlier than the time when China reported the first Covid-19 case. (Reference: Manenti A , Montomoli E , Hyseni I , et al. Unexpected detection of SARS-CoV-2 antibodies in the pre-pandemic period in Italy[J]. Tumori Journal, 2020)	We removed the sentence. Thank you.
234	Caceres, Hernan	4	53	2069	53	2070	Several publications have questioned the role of the Wuhan Seafood Market as the original location of the spillover event. At this point, it is important to expand this sentence and acknowledge the uncertainty in this regard. References: Huang et al. 2020 (https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(20)30183-5/fulltext) Pipes et al 2021 (https://academic.oup.com/mbe/article/38/4/1537/6028993) WHO 2021 (WHO-convened Global Study of Origins of SARS-CoV-2: China Part) Frutos 2021 (10.1016/j.meegid.2021.104812) Pekar et al 2021 (10.1126/science.abf8003)	We removed the part of sentence and added the references you have provided. Thank you.
235	Burgess, Neil	4	53				This might be relevant for pandemics: https://unsdg.un.org/resources/preventing-next-pandemic-zoonotic-diseases-and-how-break-chain-transmission	Thank you for providing the reference. It is useful.
236	China	4	54	2084	54	2085	It is suggested to delete the statement. There is no evidence that there is a correlation between landuse change and the emergence of SARS-CoV-2.	It is now deleted. Thank you.

237	Caceres, Hernan	4	54	2103	54	2106	This sentence is unclear. How can the drivers of sustainable use of wild species be unsustainable and illegal? If the extraction and use if by definition unsustainable and illegal the use of wildlife cannot be "sustainable"	This is based on our scoping documents that considers illegal wild species trade, land use change, climate change invasive species are drivers.
238	Korwin, Marie	4	54	2103	54	2111	<p>Overall, the drivers of sustainable use of wild species such as unsustainable and extractive use of wild species including illegal wild species trade, land use change, climate change, invasive species not only have consequences on the sustainable use of wild species but also are connected to the emergence, amplification and spread of disease-causing pathogens. These drivers facilitate the spillover of novel or known pathogens from wild hosts to humans causing unprecedented impacts on human life, economy, and society. Therefore, curbing those drivers such as preventing deforestation and regulating wild species trade including the sale and consumption of wild animals that can host dangerous pathogen can reduce the risk of future pandemics (Dobson et al. 2020).</p> <p>The IPBES Workshop Report on biodiversity and pandemics highlights that all trade in wildlife poses particularly important risks for future pandemics/disease emergence, regardless of whether it is legal or illegal, whether the wildlife being traded is bred, farmed or caught in the wild. The very nature of wildlife trade involves intimate contact among wildlife, livestock and humans and facilitates the spill over of novel or known pathogens, their amplification and spread and has been linked to disease emergence including for SARS and COVID-19.</p> <p>Currently it is estimated that 60% of emerging infectious diseases are zoonotic, and more than 70% of these are from wild animals (Jones, K.E., et al. (2008). Global trends in emerging infectious diseases. Nature 451: 7181).</p> <p>The IPBES Workshop Report on biodiversity and pandemics notes that "1.7 million currently undiscovered viruses are thought to exist in mammal and avian hosts" of which "631,000-827,000 could have the ability to infect humans" and that "less than 0.1% of the potential zoonotic viral risk has been discovered."</p> <p>The fact that legal trade (and not just illegal trade) is a risk for pandemic</p>	These comments were addressed above. Thank you.
239	Lindsay, Keith	4	54	2103	54	2111	<p>Overall, the drivers of sustainable use of wild species such as unsustainable and extractive use of wild species including illegal wild species trade, land use change, climate change, invasive species not only have consequences on the sustainable use of wild species but also are connected to the emergence, amplification and spread of disease-causing pathogens. These drivers facilitate the spillover of novel or known pathogens from wild hosts to humans causing unprecedented impacts on human life, economy, and society. Therefore, curbing those drivers such as preventing deforestation and regulating wild species trade including the sale and consumption of wild animals that can host dangerous pathogen can reduce the risk of future pandemics (Dobson et al. 2020).</p> <p>The IPBES Workshop Report on biodiversity and pandemics highlights that all trade in wildlife poses particularly important risks for future pandemics/disease emergence, regardless of whether it is legal or illegal, whether the wildlife being traded is bred, farmed or caught in the wild. The very nature of wildlife trade involves intimate contact among wildlife, livestock and humans and facilitates the spill over of novel or known pathogens, their amplification and spread and has been linked to disease emergence including for SARS and COVID-19.</p> <p>Currently it is estimated that 60% of emerging infectious diseases are zoonotic, and more than 70% of these are from wild animals (Jones, K.E., et al. (2008). Global trends in emerging infectious diseases. Nature 451: 7181).</p> <p>The IPBES Workshop Report on biodiversity and pandemics notes that "1.7 million currently undiscovered viruses are thought to exist in mammal and avian hosts" of which "631,000-827,000 could have the ability to infect humans" and that "less than 0.1% of the potential zoonotic viral risk has been discovered."</p> <p>The fact that legal trade (and not just illegal trade) is a risk for pandemic</p>	Seems to be same comment as above, but different commentator.

240	Caceres, Hernan	4	54	2108	54	2111	<p>Undoubtedly, curbing the anthropogenic impacts on the environment is important. Nevertheless, the vast majority of outbreaks are due to failures of public health measures, expansion of the food and agricultural industry, climate and weather, and international travel and commerce (Bogich 2012). Bushmeat is one of the minor drivers in perspective.</p> <p>Also, domestic animals are hosts of dangerous pathogens (such as Tuberculosis, Brucellosis, among others). Why is this system not included if the goal is to decrease the risk of spillover events or zoonotic outbreaks? The expansion of domestic animal trade has led to deforestation and land-use conversion globally, this system should be included for both conservation and health purposes.</p>	We have added the following sentence: Additionally, domestic animals are hosts of several pathogens including Tuberculosis, Brucellosis (Rahman et al. 2020) and the expansion of domestic animal trade has led to deforestation and land use conversion. Thanks.
241	Ryan, Mark	4	54	2111	54	2111	<p>What type of "protected area" is being referred to here? Would it not be more appropriate to refer to relatively intact natural habitats, with limited disturbances? With a great diversity of types of "protected areas", the current statement is quite misleading.</p>	We added the sentence: with intact natural habitats and limited disturbances. Thanks.
242	China	4	55	2115	55	2118	<p>It is suggested to delete "and medicine" from the sentence. There is no evidence to prove a correlation between increased demand for medicine from wild species and the cause of zoonotic diseases including the COVID-19 pandemic.</p>	It as been deleted now. Thank you.
243	Mikiko, Hagiwara	4	55	2115	55	2132	<p>Input: Where local people depend on bushmeat, human-elephant conflict (crop raiding by elephant) can strengthen necessity of hunting for food and source of income by getting damage on income from crops. HAGIWARA Mikiko (2007) Human-wildlife conflict in the north of Odzala National Park, Republic of Congo. Annual Report of Pro Natura Fund Vol. 16 (2007) 201-213.</p>	Thank you for this input, however, this section deals with environmental hazards and not human-animal conflict.
244	Hull, Amanda	4	55	2117	55	2118	<p>Zoonotic diseases are "caused" by harmful germs like viruses, bacterial, parasites, and fungi. What is described here is the broad reasoning behind the transmission of zoonotic diseases. "Unsafe food handling practices" should also be added.</p>	Thank you for this comment, the sentence has been revised.
245	Ryan, Mark	4	55	2117	55	2117	<p>"... are the cause of zoonotic diseases" should be replaced by "are the main cause of zoonotic diseases".</p>	Thank you for this comment, the sentence has been revised.
246	Caceres, Hernan	4	55	2118	55	2118	<p>(Volpato et al. 2020) is missing from the reference list so it is not possible to assess the publication as evidence-based or editorial. If the citation refers to "Baby pangolins on my plate: possible lessons to learn from the COVID-19 pandemic" it is an Editorial and cannot be used as evidence. Also, the 70% figure needs an appropriate reference (Taylor</p>	Thank you for this comment, the sentence has been revised.
247	Hull, Amanda	4	55	2122	55	2123	<p>Bushmeat hunting in Africa is fuelled both by food insecurity and poverty alleviation and by demand, often foreign demand, for exotic wild meats and animal parts (what seems referred to here as "elite gastronomic consumption"). The African bushmeat problem is not simply a domestic one, but is importantly linked to international trade, legal and illegal, in wild species. This statement seems to disregard this reality.</p>	Thank you for this comment, the sentence has been revised.
248	Trocchi, Valter	4	55	2123	55	2132	<p>On the link between environmental hazards and hunting it can be objected that at least in the European countries the risks are historically very low, thanks to the health checks provided and the cultural preparation of hunters, who do not hunt for their livelihood, as in the mentioned African countries.</p>	Thank you for this comment. The sentences refer to Sub-Saharan Africa and thus will be kept as is.
249	Guillemain, Matthieu	4	56	2160			<p>only in areas where subsistence hunting is considered (does not hold for leisure hunting)</p>	This paragraph has been deleted as it was not relevant in the environmental drivers section. There is a whole other section on demographics under social drivers.
250	Germany	4	56	2165	56	2165	<p>Please consider further elaborating on what is thereby meant with "westernization" so it is clear.</p>	This paragraph has been deleted as it was not relevant in the environmental drivers section. There is a whole other section on demographics under social drivers.

251	Gallagher, Louise	4	56	2172			General comments on the political drivers section: Clearly structured and easy to read. I liked the breath - good to see governance drivers and not just political drivers covered in the scope of the discussion. The discussion is very comprehensive and useful. The executive summary discussion of political drivers does not do the section justice. I understand it is a challenge to fit everything in so the following is not intended as criticism, just some observations that may strike a chord: I expected to see some discussion of political incentives and disincentives for different actors governing Environmental MEA ratification, compliance and implementation, financing; recognition of rights; legal enforcement; shifts towards collaborative environmental management etc. The piece describes these excellently, but in a drivers discussion it is important to be clear about some reasons why things are the way they are. That might include factors like global north-south politics and power dynamics in developing normative positions on wild species use, including geopolitical relations - for example, the China absence as a MRC member is mentioned as a weakness whereas China's influence at every level of resource governance of the countries of the region is not; whose conservation investments flow to what activities, and why; the power of large conservation organisations; the dominance of western/northern science mindsets in target setting and monitoring techniques; questions around common but differentiated responsibilities, and the growing call for deep decolonisation in development and related conservation activities; political corruption; the broader politics of development and the current challenges to the hegemony of economic growth. I like the case boxes - perhaps a few 'key issue' boxes could also be integrated to unpack some of these issues.	This executive summary of political drivers has been edited so as to more comprehensively reflect the content on political drivers.
252	Vadrot, Alice	4	56	2172	57	2210	I would recommend to carefully revise the introduction to this chapter and maybe use a few more political science terms/concepts. Some terms used are not very clear and seem to be used interchangeably: "informal/formal rules" and "informal institutions". Maybe a definition of institutions as set of formal and informal rules, norms and values (e.g. Keohane 1998) or "a set of formal rules (including constitutions), informal norms, or shared understandings that constrain and prescribe political actors' interactions with one another" (https://www.britannica.com/topic/institution) would be beneficial. Instead of "diverse systems of governance" I would use political, administrative and legal systems and draw more clearly on political science terminology here, as it gets quite fuzzy otherwise.	Thank you for your comment. The introduction has been revised. We have taken your suggestion of adding definitions into consideration.
253	Török, Katalin	4	58	1722			not clear how the knowledge gaps will be handled: there is a part at the end with only general statements, and there are gaps listed in sub-parts. Will these be later collated to one final part?	This comment was not addressed as it does not seem to be relevant to pg. 58, line 1722.
254	Gallagher, Louise	4	56	2178	56	2178	Typo: customroary	Thanks for the suggestion. We have included it in the new version.
255	Thebaud, Olivier	4	56	2183	56	2185	Is there a reference to back up this statement? I feel marine species at least have been subject to significant regulatory developments regarding their uses over the past 150 years, if not more.	Thank you for this comment. We agree that this needed more nuance related to marine species, so we restructured the sentence and turned it into two. The one related to marine species now reads: "There are fewer regulations related to marine species, with the exception of a few species within developed regions (Costello et al. 2012) and others under the purview of regional fisheries management organizations with variable capacity to enforce regulations (Petersson 2020)."
256	Yashphe, Shira	4	56	2183	56	2183	There is room to note the problem of ownership of wild cats. An example is wild tigers in America and wild cheetahs in the Arabian peninsula. Tricorache, Patricia, Shira Yashphe, and Laurie Marker. "Global dataset for seized and non-intercepted illegal cheetah trade (<i>Acinonyx jubatus</i>) 2010-2019." Data in Brief 35 (2021): 106848; Tegeder, Gabrielle C. "A research framework for the geographic study of exotic pet mammals in the USA." (2015); https://www.smithsonianmag.com/science-nature/america-has-tiger-problem-and-no-ones-sure-how-solve-it-180953974/	Thank you for your suggestion. We have chosen not to include it as it refers to exotic pet mammals that are found outside their home range.
257	Gallagher, Louise	4	56				There are quite a few typos throughout the political drivers section so I will not continue to list the ones I'm seeing. A full spell check and copy editing will catch them.	Thank you for your suggestion. We have done a spell check throughout the political drivers section.

258	Orenstein, Ronald	4	57	2212	57	2214	<p>Why was corruption not included in the list of search terms? Please consult TRAFFIC. (2008). What's Driving the Wildlife Trade? A Review of Expert Opinion on Economic and Social Drivers of the Wildlife Trade and Trade Control Efforts in Cambodia, Indonesia, Lao PDR and Vietnam. In East Asia and Pacific Region Sustainable Development Discussion Papers. https://doi.org/10.1111/j.1467-9388.2012.00760.x</p> <p>Eaton, J. A., Shepherd, C. R., Rheindt, F. E., C Harris, J. B., van Balen, S., Wilcove, D. S., & Collar, N. J. (2015). Trade-driven extinctions and near-extinctions of avian taxa in Sundaic Indonesia. <i>Forktail</i>, 31, 1–12. http://www.borneobirdimages.com; Bennett, E. L., Underwood, F. M., & Bennett, E. L. (2021). To Trade or Not to Trade? Using Bayesian Belief Networks to Assess How to Manage Commercial Wildlife Trade in a Complex World. <i>Frontiers in Ecology and Evolution</i>, 9, 587896. https://doi.org/10.3389/fevo.2021.587896</p> <p>Gray, T. N. E., Marx, N., Khem, V., Lague, D., & Nijman, V. (2017). Holistic management of live animals confiscated from illegal wildlife trade. 726–730. https://doi.org/10.1111/1365-2664.12916</p> <p>Kohn, S. M., Kostyack, J., & Blue Sky, M. (2021). Whistleblower Protection: An Essential Tool for Addressing Corruption that Threatens the World's Forests, Fisheries and Wildlife. Targeting Natural Resource Corruption Topic Brief, February 2021.</p> <p>Price, R.A. (2017). Economic drivers and effects of the illegal wildlife trade in Sub Saharan Africa. K4D Helpdesk Report. Brighton, UK: Institute of Development Studies.</p> <p>Symes, W. S., McGrath, F. L., Rao, M., & Carrasco, L. R. (2018). The gravity of wildlife trade. <i>Biological Conservation</i>, 218(February 2019), 268–276. https://doi.org/10.1016/j.biocon.2017.11.007</p>	Thank you for the comment. It is unclear what section of text is being referred to in the SOD.
259	Gallagher, Louise	4	57	2217	57	2217	Typo: relted	Thank you for your comment. It was taken into consideration in the new version.
260	Orenstein, Ronald	4	69	2666	69	2669	As treaties bind Parties rather than individuals, criminality is determined not by the treaty itself but by its implementing legislation in member states.	Thank you and noted. The text has been amended to make this point clear.
261	Lippai, Christine	4	58	2103	58	2106	<p>this sentence is incorrect - the drivers of SU are not 'unsustainable and extractive use including illegal wild species trade'. Sentence could be re-written as:</p> <p>Overall, unsustainable use and illegal wildlife trade, as well as unchecked land use change, climate change, and introduction of invasive species, are all drivers that could contribute to the emergence and spread of pathogens and spillovers.</p>	Thank you for your comment. We will evaluate the possibility of inserting your suggestion in the final draft.
262	Lippai, Christine	4	58	2106	58	2108	take out 'unprecedented' as the Black Plague killed nearly 25 million people in the 14th century and undoubtedly had enormous impact on society etc at that time	It is now removed. Thanks
263	Marcoux, Marianne	4	58	2251	58	2251	Consider adding a more detailed figure caption (Fig 4.5).	Thank you for your comment. A more detailed has been added.
264	Kumagai, Joy	4	58	2252	58	2252	Figure 4.5 Please gain approval to use in IPBES.	Thank you for your comment. TSU will work on providing the necessary approval to use the Figure.
265	Orenstein, Ronald	4	59	2257	59	2260	There should also have been an analysis of the factors that stand in the way of sustainability, including corruption and civil conflict. See Haass, F. (2020). <i>Insurgency and Ivory: The Territorial Origins of Illicit Resource Extraction in Civil Conflicts</i> . <i>Comparative Political Studies</i> , 1–35. https://doi.org/10.1177/0010414020957682 .	Thank you for this comment. Text has been edited and references added accordingly.
266	Lippai, Christine	4	60	2180	60	2181	it is unclear what is meant by 'informal rules' that governs illegal use and trade of wild species. Addressing IWT (illegal wildlife trade) has gained traction over the past few years and there are many examples of projects and activities being undertaken to understand and mitigate IWT. CITES, TRAFFIC, UNDP, UNEP, World Bank (through the GEF-funded Global Wildlife Program) will all have documentation available on the projects that they are funding across the globe. GWP	Thank you for your comment. This sentence was clarified.
267	Gallagher, Louise	4	60	2302	60	2302	Typo: instiutions	Thank you for your comment. It was taken into consideration in the new version.

268	Miller, Carly	4	60	2304	60	2304	<p>There should be some mention of corruption within governance systems. In 2009, Leader-Williams et al. collected information from newspaper articles on trophy hunting cases where corruption played a role[1]. Authors found cases allegedly involving public office holders, ranging from field staff to senior public servants and political leaders. As the article states: "The struggle for good governance is a universal truth" with corruption seeping in and interfering with many management systems, including that of trophy, or recreational, hunting. They suggest a parallel with 'the curse of oil', where oil wealth in poorly governed countries helps entrench powerful elites and the incentive to discontinue lucrative unsustainable practices does not exist[2]. This explains unsustainable quotas being withheld as mentioned above.</p> <p>Leader-Williams, Nigel, Rolf D. Baldus, and Robert J. Smith. "The influence of corruption on the conduct of recreational hunting." <i>Recreational hunting, conservation and rural livelihoods: Science and practice</i> 7 (2009): 296-316</p> <p>Shaxson, N. (2007) Oil, corruption and the resource curse. <i>International Affairs</i>, 83, 1123-1140.</p> <p>Robert J. Smith. "The influence of corruption on the conduct of recreational hunting." <i>Recreational hunting, conservation and rural livelihoods: Science and practice</i> 7 (2009): 296-316</p>	Thank you for this comment, edits have been made to draw attention to draw attention to the issue of corruption
269	Gallagher, Louise	4	60	2305	60	2305	Typo: messages	Thank you for your comment. It was taken into consideration in the new version.
270	Guillemain, Matthieu	4	60	2333	61	2336	Again, this depends very much about what you are considering here: think about european directives for example...	Thank you for your comment. This is a broad key message of global relevance.
271	Török, Katalin	4	60	Fig			good to have a summary Figure.	Belongs to another section
272	Barbieri, Marco	4	61	2337	77	2916	<p>With the single exception of a reference in the table on page 75, this section of the report on international agreement and conventions fail to mention the Convention on the Conservation of Migratory Species of Wild Animals (CMS) or any of the 26 specialized agreements negotiated under its framework. The aim of CMS is the long-term conservation of migratory species that cross international jurisdictional boundaries in the course of their migration. It has been negotiated with the primary objective in mind to ensure the coordinated management of migratory species that are a shared resource among multiple states. While the convention does not have a focus on harvest per se, it does include provisions that influence the possibility of use of species by Parties, e.g. in relation to taking of species listed on its Appendix I. CMS also acts as a framework convention, under which tailored multilateral agreement on individual species or groups of related species can be negotiated, at regional or global levels.</p>	Thank you for your suggestion. We have included it in the new version.
273	Guillemain, Matthieu	4	61	2343	61	2345	there are many other relevant (and older) ones, e.g. Migratory Bird Treaty Act in North America 100 years ago, European Birds Directive in the late 1970s (https://ec.europa.eu/environment/nature/conservation/wildbirds/hunting/docs/hunting_guide_en.pdf), etc	Thank you for your comment. The Migratory Bird Species Act is included in Table 4.1. We have added the EU Birds Directive.
274	Lerambert, Adeline	4	61	2352	61	2354	<p>This sentence is incomplete - presumably it should refer to the fact that none of the CBD's AICHI targets have been fully met.</p> <p>See Global Biodiversity Outlook 5: Secretariat of the Convention on Biological Diversity (2020) Global Biodiversity Outlook 5 – Summary for Policy Makers. Montréal. https://www.cbd.int/gbo/gbo5/publication/gbo-5-spm-en.pdf</p>	Thank you for your comment. We have included in the new version.
275	Ryan, Mark	4	61	2352	61	2353	I assume this should read "These targets, however, HAVE NOT been easy to reach..."	Thank you for your comment. We have included in the new version.
276	Stewart, Davyth	4	61	2352	61	2354	This sentence is incomplete - presumably it should refer to the fact that none of the AICHI targets have been fully met.	Thank you for your comment. We have included in the new version.
277	Lerambert, Adeline	4	61	2354	61	2355	Lack of political will should also be identified as a key reason why the AICHI targets have not been achieved.	Thank you for your comment. It was taken into consideration in the new version.
278	Stewart, Davyth	4	61	2354	61	2355	Lack of political will should also be identified as a key reason why the AICHI targets have not been achieved.	Thank you for your comment. It was taken into consideration in the new version.

279	Miller, Carly	4	61	2362	61	2366	Please see the Convention of Biological Diversity's Addis Ababa Principles and Guidelines for the Sustainable use and biodiversity practical principle 5, operational guideline: "Apply a precautionary approach in management decisions in accordance with principle 15 of the Rio Declaration on Environment and Development;" https://www.cbd.int/doc/publications/addis-gdl-en.pdf . And the need to use wildlife in a humane way is also highlighted in the Convention on Biological Diversity's Addis Ababa Principles and Guidelines for the Sustainable Use of Biodiversity, Practical Principle 11, Operational guidelines, last line: "Promote more efficient, ethical and human use of components of biodiversity, within local and national contexts, and reduce collateral damage to biodiversity." (https://www.cbd.int/doc/publications/addis-gdl-en.pdf). Additional reference to use for the consideration of the intrinsic value of nature when engaging in sustainable use practices: the Convention on Biological Diversity's Addis Ababa Principles and Guidelines for the Sustainable Use of Biodiversity (Practical Principle 10(b): https://www.cbd.int/doc/publications/addis-gdl-en.pdf (Page 17)	Thank you for your comment.
280	Török, Katalin	4	62	1812	65	1919	I do not see the structure: first subsection is on pandemics and SU, next on hunting, but mainly on pandemics. I do not know how to solve, but it is confusing	Thank you for your comment. We will evaluate the possibility of restructuring this section so it is clearer.
281	Caceres, Carolina	4	62	2399	62	2401	"aims to save species from extinction" is a poor way to describe the goal of CITES, which is rather to ensure international trade does not pose a threat. CITES alone does not "save species from extinction". Line 2429 repeats the mandate of CITES albeit, more accurately.	Thanks for the suggestion. We have included in the new version.
282	Korwin, Marie	4	62	2399	62	2401	Recommend using the wording used in the CITES Convention Preamble	Thank you for your comment. It was taken into consideration in the new version.
283	Lerambert, Adeline	4	62	2399	62	2401	The stated aim of CITES is "...to ensure that international trade in specimens of wild animals and plants does not threaten the survival of the species." www.cites.org	Thank you for your comment. It was taken into consideration in the new version.
284	Lerambert, Adeline	4	62	2399	62	2403	Important to qualify that CITES governs 'commercial' international trade.	Thank you for your comment. It was taken into consideration in the new version.
285	Malsch, Kelly	4	62	2399	69		You've already defined the acronym "CITES" - but then the full name of the Convention is written out many times -- consider using "CITES" after first mention as the full name is quite long (& currently it's a mix).	Thank you for your comment. It was taken into consideration in the new version.
286	Michels, Ann	4	62	2399	69	2705	This section on CITES includes a number of errors/mis-characterizations. These include: 1) concluding that an increase in trade in specimens of CITES-listed specimens indicates that CITES is not a 'driver of (positive?) change'. As overexploitation has threatened more species, more species have come to be listed on the CITES Appendices; this does not indicate a failure on the part of CITES but, instead, an indication of the continued need for listings, the changing dynamics of trade and the acceptability of including commercially important species in the Appendices. 2) A statement that, "an analysis of Red List Indices for birds (Butchart 2008) showed that species in use fared better than species that were not used." This is a distortion of the original text. In fact, the publication states, "Utilised species are overall less threatened with extinction than non-utilised species." This may be due to more threatened species, unlike non-threatened species, being protected from large-scale, commercial, legal trade. 3) The document infers that because few NDFs are available on the CITES website or via Internet search, NDFs are not undertaken and/or are unimportant ("mundane") in comparison to other publications. This comparison is misleading as NDFs are internal findings made by government entities and not peer-reviewed publications. 4) The argument that CITES listing decisions may act as a driver of increased trade is poorly presented. If a species is previously unlisted, the sudden appearance of trade data can be mistaken for new growth in trade (either legal or illegal); in addition, a new Appendix I listing undoubtedly can result in what previously was 'legal' (non-CITES) trade becoming 'illegal' (and therefore, an increase in illegal trade if no corresponding enforcement efforts are taken; e.g. pangolins) or, an increase in trade can simply be the result of more attention to and more accurate data collection. Trade shifts are more likely the result of failing to list similar species and/or a lack of enforcement and oversight, rather than the listing of the original target species.	Thank you for the recommendations. The evidence shows that trade in CITES listed species has increased. The interpretation of this evidence has been amended to provide greater clarity. The comment on NDFs seems to imply a different interpretation than was intended so more specific language has been included

287	Orenstein, Ronald	4	62	2399	62	2401	You would be better off to quote directly from the preamble to the convention; see comment 11 above.	Thank you for your comment. It was taken into consideration in the new version.
288	Pavitt, Aly	4	62	2399		2403	See CITES vision statement (pg 3 of strategic vision 2021-2030) https://cites.org/sites/default/files/document/E-Res-18-03_0.pdf - consider using this (and other info in this document) for the aims of CITES (rather than the old reference from 2000 currently used) - perhaps of use elsewhere in the context of CITES too	Thank you for your comment. It was taken into consideration in the new version.
289	Stewart, Davyth	4	62	2399	62	2401	The stated aim of CITES is "...to ensure that international trade in specimens of wild animals and plants does not threaten the survival of the species." www.cites.org	Thank you for your comment. It was taken into consideration in the new version.
290	Stewart, Davyth	4	62	2399	62	2403	Important to qualify that CITES governs 'commercial' international trade.	Thank you for your comment. It was taken into consideration in the new version.
291	Morgan, David (CITES)	4	62	2403	62	2405	There are currently 183 Parties (182 States, plus the European Union)	Thank you for your comment. It was taken into consideration in the new version.
292	Orenstein, Ronald	4	62	2403	62	2403	The term "Party" refers to a member of any international treaty, not just CITES.	Thank you for your comment. The text has been amended
293	Bennett, Elizabeth	4	62	2405	62	240	There are currently 183 CITES Parties.	Thank you for your comment. It was taken into consideration in the new version.
294	Korwin, Marie	4	62	2405	62	2405	There are 183 Parties to CITES, not 175	Thank you for your comment.
295	Lerambert, Adeline	4	62	2405			183 Parties	Thank you for your comment.
296	Malsch, Kelly	4	62	2405	62	2405	There are now 183 Parties to CITES (not 175): https://cites.org/eng/disc/parties/chronolo.php	Thank you for your comment.
297	Orenstein, Ronald	4	62	2405	62	2405	There are currently 183 Parties to CITES, not 175. See https://cites.org/eng/disc/parties/index.php .	Thank you for your comment.
298	Stewart, Davyth	4	62	2405	62	2405	To be updated. There are 183 Parties to CITES (not 175)	Thank you for your comment.
299	Bennett, Elizabeth	4	62	2407	63	2422	This is extremely biased. First, some NGOs are regarded by most Parties as valuable sources of scientific and practical information on the species. Also, some Parties themselves pay far more to small countries to attend than NGOs possibly could, in order to garner their votes on particular species of concern, e.g., Japan when a CoP will consider a proposal on certain valuable fish species. This is well known, and well recognized. It is why sometimes Parties call for secret ballots, so that their sponsoring country does not see which way they voted. Only Parties can vote, NGOs cannot approach them or be with them during a vote. Only Parties are guaranteed a voice during debates, although some NGOs can be called on subsequently for comment.	Thank you for your comment. It was taken into consideration in the new version and text has been edited accordingly
300	Freyer, Daniela	4	62	2407	63	2428	This text should be deleted as it makes claims that are not supported by evidence but seem to be based on ideological views	Thank you for this comment. It has been taken into consideration and the text has been reviewed for the revised version.
301	Korwin, Marie	4	62	2407	63	2428	There is however concern over the extent to which increased non-governmental organisations presence has negatively impacted the extent to which Convention on International Trade in Endangered Species of Wild Fauna and Florais able to make evidence-based decisions and formulate policies on sustainable use (Bauer et al 2018, Biggs et al. 2017; Challender and Macmillan 2019). We suggest deleting this point as it is not evidence-based. There is no evidence that non-governmental organisations are compromising evidence-based decision-making, nor that they are undermining the ability of smaller countries to represent their citizens' interests. Such comments are patronising to CITES Parties. The arguments made in the IPBES Sustainable Use Assessment strongly reflect the views of those who perceive restrictions on commercial trade as largely undesirable. It is the government's role to represent the views of all their constituents during their participation in CITES processes, and any gaps in this can best be addressed domestically.	Thank you for this comment. It has been taken into consideration and the text has been reviewed for the revised version. There are peer-reviewed papers with empirical evidence of this concern and therefore we will include this section, but edit the text accordingly to reflect reviewer feedback

302	Lerambert, Adeline	4	62	2407	63	2428	<p>Suggest deletion as this is a very marginal view, constituting assertions and opinions rather than evidence based conclusions. It is representative of those who perceive restrictions on commercial trade as largely undesirable, and tend to grossly overplay the negative impact of CITES restrictions on local/indigenous communities.</p> <p>There is simply no evidence (or even a substantially held belief) that civil society organisations are compromising evidence based decision making, nor that they are undermining the ability of smaller countries to represent their citizens interests (quite the contrary, if anything). It is government's role to represent the views of all their constituents during their participation in CITES processes, and any gaps in this can best be addressed at a domestic level.</p>	<p>Thank you for this comment. It has been taken into consideration and the text has been reviewed for the revised version. The papers cited in this text point are peer-reviewed and point to this issue of being of concern, and therefore we will include this section, but edit the text accordingly to reflect this feedback.</p>
303	Lindsay, Keith	4	62	2407	63	2428	<p>There is however concern over the extent to which increased non-governmental organisations presence has negatively impacted the extent to which Convention on International Trade in Endangered Species of Wild Fauna and Florais able to make evidence-based decisions and formulate policies on sustainable use (Bauer et al 2018, Biggs et al. 2017; Challender and Macmillan 2019).</p> <p>We suggest deleting this point as it is not evidence-based. There is no evidence that non-governmental organisations are compromising evidence-based decision-making, nor that they are undermining the ability of smaller countries to represent their citizens' interests. Such comments are patronising. The arguments made in the IPBES Sustainable Use Assessment strongly reflect the views of those who perceive restrictions on commercial trade as largely undesirable. These are the arguments made by groups who use rural communities and livelihoods as a smokescreen for what is in effect an agenda to impede listings in Appendix I and II. It is the government's role to represent the views of all their constituents during their participation in CITES processes, and any gaps in this can best be addressed domestically.</p>	<p>Thank you for this comment. It has been taken into consideration and the text has been reviewed for the revised version. The papers cited in this text point are peer-reviewed and point to this issue of being of concern, and therefore we will include this section, but edit the text accordingly to reflect this feedback.</p>
304	Malsch, Kelly	4	62	2407	63	2428	<p>In general, this section seems a bit biased against NGOs -- consider revising. It highlights concerns about NGOs, but there are also concerns on the other side that the "sustainable use" agenda is too vocal / trying to ignore science and water down the scientific/conservation ethos of CITES with livelihood considerations. Consider trying to balance out this debate.</p>	<p>Thank you for this comment. The text has been edited for balance accordingly.</p>

305	Orenstein, Ronald	4	62	2407	63	2422	<p>This is a highly biased statement. First of all, numbers of observer organizations have been involved with CITES since its inception; this is not a new phenomenon. There were, for example, over 200 registered observer organizations at CoP9 in 1994; full lists are available for each CoP since on the official CITES website (eg Docs 9.4 (Rev), 10.5, 11.7 etc.). Secondly, the negative views of the roles of many of these organizations stated or implied in this text is supported by repeated citations of the same few authors rather than by a selection of views from a variety of sources. These authors' views are well-known and not universally shared (see, e.g., https://earthtrust.org/endangered/endangered-wildlife-programs/ssn-cites/). The idea that the participation of observer organizations is a problem that needs to be countered is again the opinion of only one sector of the CITES community and is not shared by all organizations or Parties. At CoP18, Secretary-General Ivonne Huguero referred to "the Parties and Observers, that together make CITES a priceless jewel in the crown of multilateral environmental agreements" (https://cites.org/eng/news/pr/Closing_remarks_CITES_Secretary-General-COP18_28082019). At the opening of CoP16 in 2013, Secretary-General John Scanlon stated that "We are also grateful for the extraordinary support of the Standing and science committees, and observers, who are the backbone of our intersessional work. We are all very well served by this volunteer effort." (https://cites.org/eng/news/sg/2013/20130303_cop16.php). There are many similar statements available. Please consult Vincent, A. C. J., Sadovy de Mitcheson, Y. J., Fowler, S. L., & Lieberman, S. (2014). The role of CITES in the conservation of marine fishes subject to international trade. <i>Fish and Fisheries</i>, 15(4), 563–592. https://doi.org/10.1111/faf.12035.</p>	Thank you for this comment. The text has been edited for balance accordingly.
306	Stewart, Davyth	4	62	2407	63	2428	<p>Suggest deletion of these lines, as the views expressed here are very marginal, constituting assertions and opinions rather than evidence based conclusions. It is representative of those who perceive restrictions on commercial trade as largely undesirable, and tend to grossly overplay the negative impact of CITES restrictions on local/indigenous communities. There is simply no evidence (or even a substantially held belief) that civil society organisations are compromising evidence based decision making, nor that they are undermining the ability of smaller countries to represent their citizens interests. It is government's role to represent the views of all their constituents during their participation in CITES processes, and any gaps in this can best be addressed at a domestic level.</p> <p>There is however concern over the extent to which increased non-governmental organisations presence has negatively impacted the extent to which CITES is able to make evidence-based decisions and formulate policies on sustainable use (Bauer et al 2018, Biggs et al. 2017; Challender and Macmillan 2019).</p> <p>We suggest deleting this point as it is not evidence-based. There is no evidence that non-governmental organisations are compromising evidence-based decision-making, nor that they are undermining the ability of smaller countries to represent their citizens' interests. The governments of countries large and small have shown themselves more than capable of representing their citizens' interests, while also being capable of engaging appropriately with NGOs. Any gaps in this can best be addressed domestically.</p>	Thank you for this comment. The text has been edited for balance accordingly
307	Morgan, David (CITES)	4	62	2410	62	2413	<p>Unclear what NGOs support lower income countries "to present" at CITES means. Sponsorship of lower income country representatives to attend meetings of the Conference of the Parties to CITES is governed by specific rules agreed by the Parties (Resolution Conf. 17.3 - https://cites.org/sites/default/files/document/E-Res-17-03.pdf) and is fully reported on (https://cites.org/sites/default/files/eng/cop/18/inf/E-CoP18-Inf-067-R1.pdf)</p>	Thank you for this comment the text has been edited for clarity .

308	Smith, Zak	4	62	2413	63	2428	CITES has 183 Parties that take their role in the Convention seriously. The language here implies that Parties are duped or the tools of NGOs. There's no evidence for that and such statements play into colonial views of "less sophisticated" parties. In addition, the implication here that "smaller countries" consist of dumb rubes that can be overwhelmed by the resources of large NGOs borders on racism and I strongly urge the IPBES authors to be careful not to play into tropes about easily influenced Parties. It's offensive. The authors cited here have been on the losing side of numerous CITES issues and are not objective. This report should not be a venue to air the grievances of a certain segment of the CITES community and to concoct "challenges" that have not been recognized by the Convention or the broader CITES community. The effectiveness of CITES should be based on an assessment of species that have been protected by the Convention as CITES recognizes in its preamble that "international co-operation is essential for the protection of certain species of wild fauna and flora against over-exploitation through international trade." Finally, the Parties to CITES have repeatedly rejected proposals to strengthen the voices of subnational communities and societies. Parties to the Convention have repeatedly recognized that they have the option of strengthening such voices through their own national processes and do not want the Convention inserting itself into the affairs of subnational communities and societies.	Thank you for this comment. The text has been edited for balance accordingly.
309	Malsch, Kelly	4	62				There are two sections on CITES - p. 62 and p.179 -- consider revising or at least ensuring consistency across. (also in pag. 179)	Thank you for your comment. We have revised the content in the new version in order to avoid overlaps and inconsistencies.
310	Freyer, Daniela	4	63	2399	69	2705	The text on CITES includes many errors (starting with the stated goal of CITES) and exposes a lack of knowledge and understanding of CITES; it should be rewritten by someone with in depth knowledge on the issue	Noted, the text has been reviewed and revised by someone with knowledge of CITES.
311	Orenstein, Ronald	4	63	2417	63	2422	I challenge the truth of this highly biased statement. I have never heard of a single example of this in the 35+ years I have been involved as an observer representative at CITES, and I submit that this statement is simply the reflection of the annoyance of a few parties, particularly in southern Africa, that have failed to get their way on certain issues such as trade in ivory and rhinoceros horn - not so much because of observers, but because of strong opposition from other countries-- many of them smaller than the southern African countries--in the rest of the continent and in Asia (including the 14+ member states of the African Elephant Coalition). At meetings of the Conference of the Parties attendance by delegates of all member countries is assured by means of a trust fund operated by the Secretariat, and during debates parties are always given the floor before any observer organization is able to do so. Any country may submit a document stating its views to be placed on the meeting agenda; observer organizations may not do so. Observer organizations may not occupy more than half of the seats in working groups, and have no ability to vote. In contrast to the statement made here, it has often been my experience that delegates from smaller countries regularly approach observer organizations, many of whom have had decades of experience with the Convention, for assistance in navigating procedural and other matters. In fact I would say that observer organizations make it easier for smaller countries to make their voices heard at CITES rather than more difficult. This statement in the text is false and misleading, and should be deleted.	Thank you for this comments. We have edited this text to be more balanced. Also, we have added further citations from the peer-reviewed literature and official statements highlighting the issue of excessive NGO and non-state actor power and influence in CITES as a serious concern.
312	Vitale, Jessica	4	63	2421			There is a space missing between 'Flora' and 'processes' but assume this will be changed to 'CITES processes' given comments above on the acronym for the convention	Thank you for your comment. It was included in the new version.
313	Bennett, Elizabeth	4	63	2422	63	2425	This is also very biased, implying that communities only bear cost from CITES decisions, not benefits. Just one example of many -- groups representing communities were highly supportive of decisions to list sharks since that protects their income. Also, this does not recognize how CITES works. Parties are represented by government agencies, and communities can lobby their own governments to take particular stands. This can be very effective, e.g., local communities and conservancies in Namibia are key to influencing how their government votes on elephant ivory issues.	Thank you for this comment. It has received consideration in preparation of the new version.

314	Korwin, Marie	4	63	2422	63	2425	it has been proposed that structures are established in CITES to strengthen the voice of communities and societies that bear the costs of Convention on International Trade in Endangered Species of Wild Fauna and Flora decisions. The proposal to establish a rural communities committee was rejected by CITES Parties	Thank you for this comment. The text has been edited accordingly.
315	Orenstein, Ronald	4	63	2422	63	2425	Note that the proposal to establish a formal committee of representatives of rural community organizations was rejected by the CITES Parties.	Thank you for this comment. The text has been edited accordingly.
316	Pavitt, Aly	4	63	2422		2425	Specific CITES Resolution on empowering rural communities (to help tighten and target language) https://cites.org/sites/default/files/document/E-Res-16-06-R18.pdf (see also https://cites.org/eng/prog/livelihoods for case studies)	Thank you for this - the reference has been added.
317	Orenstein, Ronald	4	63	2425	63	2427	The Parties have also repeatedly rejected attempts to incorporate socioeconomic concerns into the CITES listing criteria, holding instead that these are matters for national implementation. Again, this is the view of the few authors repeatedly cited here, not of the CITES Parties in general.	Thank you for this comment. The intention was not to challenge the listing process but rather to highlight the likely success if these factors are not considered. The text has been amended accordingly.
318	Vitale, Jessica	4	63	2425			There is a space missing between 'Flora' and 'decisions' but assume this will be changed to 'CITES processes' given comments above on the acronym for the convention	Thank you for your comment. It was included in the new version.
319	Bennett, Elizabeth	4	63	2429	63	2440	This again shows very little understanding of how CITES works. To issue a permit to export Appendix II species, the CITES Management Authority of the country has to be sure that the offtake is sustainable and does not threaten the species population in the wild. When this is uncertain, they might be asked to undertake a Non-Detriment Finding analysis. As with anything subject to poor data and potentially low governance, the system is not always perfect in practice. But this section does not reflect the measures and cross-checks that are in place to ensure sustainability as much as possible.	The comment is noted and additional information on NDFs has been included.
320	Guillemain, Matthieu	4	63	2429	63	2443	One can only agree with all of this, but it should be kept in mind that a lot of the exploitation of species does not enter international trade (or even local commercial exchanges), so the CITES is only one part of the solution to the issue of overexploitation	Thanks you for your comment. We agree.
321	Morgan, David (CITES)	4	63	2429	63	2444	Suggest moving this up to line 2398	Agreed, this paragraph has been moved to the beginning of the section
322	Pavitt, Aly	4	63	2437		2437	consider replacing "support sustainable use" with "ensure the international trade in CITES-listed taxa is sustainable"	Agreed
323	Morgan, David (CITES)	4	63	2440	63	2444	Chapter 6 seems to contain very little analysis of the effectiveness of CITES.	Thank you for your comment. It was included in the new version.
324	Caceres, Carolina	4	63	2441	63	2444	There does not appear to be more analysis of the effectiveness of CITES in Chpt 6 as suggested in this line	Thank you for your comment. It was included in the new version.
325	Bennett, Elizabeth	4	63	2445	67	2609	Undertaking just a literature review seems a very unreliable way to assess the effectiveness of CITES. Most of the information, data and analysis on CITES from almost all angles is not in the published literature, but in the multiple documents produced for CITES itself, all of which are publicly available on the CITES website. That includes vast amounts of information on sustainability of offtake of listed taxa, amongst much else. One key reason why the information is within CITES is because CITES documents directly influence CITES decisions, whether they are official papers or inf. documents. The use of a much weaker source of information in this particular area largely invalidates the subsequent analysis.	The analysis has been expanded to include other CITES sources where possible
326	Germany	4	64	2459	64	2462	How was the question of causality and attribution to CITES dealt with in relation to other <i>drivers of change</i> concerning the use of wild species at stake? Kindly consider elaborating on this for ease of reference/understanding.	There is insufficient evidence to assess all the different drivers. The text has been amended to make this easier to follow

327	Caceres, Carolina	4	64	2464	65	2499	In considering CITES as a driver of change, I'm not sure reduction of use of wild species listed on CITES is a relevant measure. The majority of species listed on CITES are there to ensure trade is not a threat or as a "look alike" - Appendix II. There was not, with the listing, an expectation that trade or use would diminish. Rather, it was and is monitored to ensure ongoing sustainability (presumably). Thus, this analysis and the numbers quoted don't really provide any meaningful conclusions on sustainable use	The analysis has been reframed to address the issue of sustainability
328	Vitale, Jessica	4	64	2475			CITES Appendices are referred to using roman numerals, so this should be 'Appendix I' rather than 1	Thanks for this suggested change. We have included it in the new version.
329	Morgan, David (CITES)	4	64	2477	64	2483	These raw WOE figures need to be put in context: between the time periods referenced, the number of CITES Parties (i.e. reporting trade) has increased 109% to encompass many additional major trading nations (CITES - https://cites.org/eng/disc/parties/chronolo.php), the global human population has increased 50% and per capita GDP has increased 62% (https://www.worldometers.info/gdp/#gdpyear)	Thank you for this comment. The data is now presented in a way that takes these changes into consideration.
330	Orenstein, Ronald	4	64	2477	64	2494	The analysis here is fallacious. The text points out that use would only be expected to drop for species on Appendix I, which bars commercial trade (a questionable statement in itself as a number of Appendix II species are only traded under quota restrictions), but then fails to state whether the figures cited refer only to that Appendix or to all listed taxa. Further, a gross overall estimate of this sort ignores difficulties in assessing trade data, including presumed increased efficiency in reporting over time, and that the figures for CITES would obviously grow as more Parties joined the Convention and additional species (or in some cases multi-species higher taxa) were included. This entire text needs drastic revision and review.	This comment has been addressed by noting the different factors that can affect gross levels of trade. More nuanced analyses were included later on in the same section.
331	Pavitt, Aly	4	64	2477		2499	Consider revising how this is framed, since the papers cited cannot be used to draw the conclusion that you have. Temporal trends in the quantity of CITES-listed taxa in trade alone cannot be considered sufficient evidence of whether or not CITES has impacted int. trade levels - for several studies mentioned there is no indication of whether there are shifts from wild to captive trade, or how/if these correct for change in the number of listed taxa over time. Furthermore, without a counterfactual there is no way of knowing what temporal patterns would look like without CITES regulations (e.g. int. trade levels of wild specimens may have been higher if the species were not CITES listed)	Thank you for this comment, This section has been revised to take into consideration the different factors affecting gross trade volumes.
332	Vitale, Jessica	4	64	2477	64	2483	The increase in reported trade volumes in all WOE's over time (when referencing the analysis by Harfoot et al 2018) can be in part due to the increase in the number of species listed in the CITES Appendices & the number of CITES Parties over time. As such, I don't think this general statistic of trade volumes should be used as evidence of how 'CITES has not been a driver for reduced international trade' (first sentence in the paragraph). The end of the paragraph (lines 2494-2498) does note that new species/Parties were added to CITES over time, but this is a very important point that needs greater emphasis	Thank you for this comment, This section has been revised to take into consideration the different factors affecting gross trade volumes.
333	Lerambert, Adeline	4	64	2479	64	2483	This simplistic analysis does not appear to account for the increase in the number of CITES-listed species between the two timeframes.	Thank you for this comment, This section has been revised to take into consideration the different factors affecting gross trade volumes
334	Stewart, Davyth	4	64	2479	64	2483	This analysis does not properly account for the increase in the number of CITES-listed species between the two timeframes.	Thank you for this comment, This section has been revised to take into consideration the different factors affecting gross trade volumes
335	Vitale, Jessica	4	64	2485	64	2486	The number of bird species needs updating to 1461 as well as the hyperlink to https://cites.org/eng/disc/species.php (current link in report leads to a page not found).	Thank you, noted.
336	Vitale, Jessica	4	64	2491	64	2492	Similar comment to above about the use of Harfoot et al 2018 here - the general increase in reported CITES in plants over time can in part be due to increases in the number of species listed over time	Thank you for this comment, This section has been revised to take into consideration the different factors affecting gross trade volumes.
337	Orenstein, Ronald	4	64	2494	65	2499	As noted in my previous comment, without factoring this in the conclusions drawn here are useless.	Thank you for this comment, This section has been revised to take into consideration the different factors affecting gross trade volumes.
338	Pavitt, Aly	4	64				General comment - when referring to "use" in the context of CITES - this is really just referring to international trade. Actions under CITES cannot be used to indicate changes in overall patterns of "use" at local/national levels (e.g. App I listing might reduce international trade, but that is completely independent of e.g. domestic use and consumption).	Thank you, this is noted and the text amended where appropriate.

339	Vitale, Jessica	4	65	2470			is 'SUA' defined anywhere if it is an acronym (I cannot find any other mention of this in the chapter)	Thank you for your comment. It was included in the new version.
340	Orenstein, Ronald	4	65	2500	65	2502	Assessing the effectiveness of CITES is best done by a study of individual species listings. Please consult Shepherd, C. R., Leupen, B. T. C., Siriwat, P., & Nijman, V. (2020). International wildlife trade, avian influenza, organised crime and the effectiveness of CITES: The Chinese hwamei as a case study. <i>Global Ecology and Conservation</i> , 23, e01185. https://doi.org/10.1016/j.gecco.2020.e01185 ; Dumenu, W. K. (2019). Assessing the impact of felling/export ban and CITES designation on exploitation of African rosewood (<i>Pterocarpus erinaceus</i>). <i>Biological Conservation</i> , 236(January), 124–133. https://doi.org/10.1016/j.biocon.2019.05.044	Thank for these references. They had been included in paragraphs following this one and where relevant they have now also been quoted in this section.
341	Vitale, Jessica	4	65	2500	65	2502	This sentence refers to both 'CITES listed species' and then 'Convention on International Trade in Endangered Species of Wild Fauna and Flora listed taxa' - the full name of the Convention isn't needed at this stage, given that it will have been referenced earlier in this section (see comment from Kelly Malsch about line 2399)	Thank you for your comment. It was included in the new version.
342	Vitale, Jessica	4	65	2510			species name should be <i>Pterocarpus erinaceus</i>	Thank you for your comment. It was included in the new version.
343	Orenstein, Ronald	4	65	2521	65	2524	The pattern of ivory trading over time was directly affected by changes in the nature of the CITES listing of African Elephant. Prior to 1989 the African Elephant was on Appendix II, which permitted legal trade, but the result was that poached ivory was readily laundered into the limited legal trade streams. When the entire species was moved to Appendix I this loophole was closed, and the market fell considerably (partly as a result of demand reduction campaigns surrounding the ban). From 1997 onward certain populations were returned to Appendix II with specific permissions for one-off ivory sales to Japan and, in 2008, China. Illegal trade rebounded after the 2008 sale to China, influenced by the resumption of legal sales and by the rise in affluence in China, Vietnam and other end market countries. Ignoring these details makes it very difficult to assess the effectiveness of the CITES listing. See Orenstein, RI (2013). Ivory, Horn and Blood: Behind the Elephant and Rhinoceros Poaching Crisis. Toronto: Firefly Books; Chakanyuka, T. L. (2020). CITES and the African Elephant. <i>Chinese Journal of Environmental Law</i> , 4(1), 44–70. https://doi.org/10.1163/24686042-12340049 Lindsay, K., Chase, M., Landen, K., & Nowak, K. (2017). The shared nature of Africa's elephants. <i>Biological Conservation</i> , 215(March), 260–267. https://doi.org/10.1016/j.biocon.2017.08.021	Thank you for this comment. The text has been amended although noting that there are different interpretations regarding the factors driving changes in poaching over time.
344	Pavitt, Aly	4	65	2526		2533	It would be useful to note that all these studies use the same dataset because the CITES Trade Database is the official trade data as reported by CITES Parties	Thank you for your comment. It was included in the new version.
345	Lerambert, Adeline	4	65	2527			Suggest amending to "...to specimens claimed as captive bred (animal) or artificially propagated (plant) over the past 40 years..." This is a subtle but critical point, reflecting the realities of poor governance and accountability along many supply chains, eg. laundering of wild specimens as captive bred (which is referenced further down in lines 2644-2645).	Thank you for your comment. It was included in the new version.
346	Stewart, Davyth	4	65	2527	65	2527	Suggest amending to "...to specimens claimed as captive bred (animal) or artificially propagated (plant) over the past 40 years..." This is a subtle but critical point, reflecting the realities of poor governance and accountability along many supply chains, and recognising the risk of laundering of wild specimens, by passing them off as captive bred (which is referenced further down in lines 2644-2645).	Thank you for your comment. It was included in the new version.
347	Malsch, Kelly	4	65	2532	65	2533	official database name is: "CITES Trade Database" (as per trade.cites.org)	Thank you for your comment. It was included in the new version.

348	Pavitt, Aly	4	65	2533		2536	<p>This is unbalanced at present - it's important to consider that the opposite may be true, that captive breeding/ artificial propagation may increase demand leading to more wild harvesting, or act as a front for laundering. For a lot of taxa, the impact of captive breeding/ art prop on the conservation of wild population is unknown (it may be positive, negative or neutral)</p> <p>see also point on pg 180 line 6899 which states that captive-sourced trade alleviates pressure on wild species but provides no balance (as above) or references</p>	Thank you for your comment. The section was revised.
349	Lerambert, Adeline	4	65	2537	65	2537	As per above comment, "...sustained decline in specimens recorded as wild sourced for birds, reptiles..."	Thank you for your comment. It was included in the new version.
350	Stewart, Davyth	4	65	2537	65	2537	As per above comment, "...sustained decline in trade of specimens recorded as wild sourced for birds, reptiles..."	Thank you for your comment. It was included in the new version.
351	Török, Katalin	4	66	1944			life	There is no mention to life in line 1944. It might refer to another line
352	Caceres, Carolina	4	66	2541	66	2546	<p>This sentence highlights the shift to non wild sources for some species but insufficient information to indicate if CITES has driven more sustainable use of other taxa. The entire premise being that without a reduction of use of wild sources, the trade could not be sustainable. Yet, as noted, many species are on Appendix II where the Parties felt that there was not an immediate concern for the species due to trade, that the trade was indeed - according to decisions of the Parties - sustainable. In Canada, we continue to harvest and trade in wild specimens (e.g. black bear, bobcat) and our monitoring and adaptive management suggests that this harvest and trade is biologically sustainable. So you would not expect to see a reduction in wild trade in these species from Canada as a result of CITES listing. (As an aside, both these species were listed because of similarity of appearance to other at risk species, rather than concerns with the sustainability of their harvest and trade)</p>	Thank you for your comment. The section on CITES was updated.
353	Orenstein, Ronald	4	66	2541	66	2546	<p>Assessing the shift from wild-sourced to captive-bred/artificially propagated specimens is complicated by the fact that considerable numbers of some species traded as captive-bred are in fact sourced from the wild and mislabelled, often deliberately, to avoid restrictions on trade in wild-sourced specimens. CITES has now initiated a process to identify and address such situations. Please consult Janssen, J., & Leupen, B. T. C. (2019). Traded under the radar: poor documentation of trade in nationally-protected non-CITES species can cause fraudulent trade to go undetected. <i>Biodiversity and Conservation</i>, 28(11), 2797–2804. https://doi.org/10.1007/s10531-019-01796-7</p> <p>Lyons, J. A., & Natusch, D. J. D. (2011). Wildlife laundering through breeding farms: Illegal harvest, population declines and a means of regulating the trade of green pythons (<i>Morelia viridis</i>) from Indonesia. <i>Biological Conservation</i>, 144(12), 3073–3081. https://doi.org/http://dx.doi.org/10.1016/j.biocon.2011.10.002</p> <p>Marshall, B. M., Strine, C., & Hughes, A. C. (2020). Thousands of reptile species threatened by under-regulated global trade. <i>Nature Communications</i>, 11(1), 1–12. https://doi.org/10.1038/s41467-020-18523-4</p> <p>Symes, W. S., McGrath, F. L., Rao, M., & Carrasco, L. R. (2018). The gravity of wildlife trade. <i>Biological Conservation</i>, 218(February 2019), 268–276. https://doi.org/10.1016/j.biocon.2017.11.007</p>	Thank you for your comment. The section on CITES was updated taking the comments into account.

354	Pavitt, Aly	4	66	2542		2545	<p>difficult to draw conclusions on the drivers from trends alone - an alternative reason for the perceived move from wild to captive could be an increased demand for captive bred due to rarer/harder to find wild populations (= more expensive), more conservation conscious consumers, or (in the case of ornamental species) the fact that captively bred specimens may be more uniform and less diseased, making them more desirable than their wild counterparts. this conclusion would benefit from evidence of e.g. CITES actions causing a long-term shift in source</p> <p>see also https://cites.org/sites/default/files/eng/com/ac/31/Docs/E-AC31-19-01.pdf for further analysis of trade patterns and switches from wild to captive source in CITES animal taxa</p>	Thank you for you comment. The section on CITES was updated.
355	Morgan, David (CITES)	4	66	2544	66	2546	<p>There seems to be little analysis of this conclusion. In other Chapters (Section 3.3.3.4.1), it refers to recovery of Vicuna (<i>Vicugna vicugna</i>) which is significantly affected by international trade managed by CITES. See also Kasterine, A. and Lichtenstein, G (2018). Trade in Vicuña: the Implications for Conservation and Rural Livelihoods. International Trade Centre, Geneva, Switzerland. Amongst other the high profile species which are in high demand for international trade; global rhino numbers have increased 28% between 2007 and 2019 (IUCN cited in https://cites.org/sites/default/files/eng/cop/18/doc/E-CoP18-083-01.pdf) and wild tiger numbers are increasing (https://www.wwf.org.uk/press-release/global-tiger-day-wwf-reveals-wild-tiger-populations-are-increasing-five-range-0) and there is plenty of other evidence elsewhere (e.g. see https://doi.org/10.1016/j.gecco.2014.11.010; Natusch, D.J.D., Lyons, J.A., Mumpuni, Riyanto, A., Khadiejah, S., Mustapha, N., Badiah., and Ratnaningsih, S. (2016). Sustainable Management of the Trade in Reticulated Python Skins in Indonesia and Malaysia. A report under the 'Python Conservation Partnership' programme of research. Occasional Paper of the IUCN Species Survival Commission No. 61. Gland, Switzerland: IUCN. DOI: http://dx.doi.org/10.2305/IUCN.CH.2016.SSC-OP.61.en; Grahame J.W., Webb G.J.W, Manolis C., Jenkins, R.W.G (2012) Improving international systems for trade in reptile skins based on sustainable use, UNCTAD, Geneva etc.)</p>	Thank you for your comment. It was included in the new version as well as some of the references mentioned.
356	Korwin, Marie	4	66	2558	66	2560	<p>The text refers to African elephant numbers declining as a result of CITES; it is important to bear in mind that it is not after inclusion in Appendix I in 1990 that illegal trade in ivory thrived; the steepest rise in elephant poaching happened after a 2008 one-off sale of ivory from Appendix II populations to China and Japan.</p>	Thank you and noted. The section has been amended to reflect the nuances of different decisions although it is not possible to deal with these in detail.
357	Lerambert, Adeline	4	66	2558	66	2560	<p>These kinds of oversimplistic statements mask complex changes in international trade rules which have had serious impacts on the effectiveness of CITES listing some species. Elephants are a good example, where the international commercial ivory trade ban, which effectively came into force with the listing of Africal elephants on CITES Appendix I in 1989, resulted in a big reduction in elephant poaching, until CITES parties unwisely allowed 'one of sales' of ivory stockpiles from a number of southern African countries in 2008 which was followed by a steep increase in poaching. https://gspp.berkeley.edu/faculty-and-impact/working-papers/does-legalization-reduce-black-market-activity-evidence-from-a-global-ivory-experiment-and-elephant-5ed6996401fa99.02945078</p> <p>The statements in this section relating to utilisation trends in species that are CITES-listed need to be reconsidered, since as it stands it is oversimplistic and potentially heavily misleading.</p>	Thank you for this comment. The relevant text has been edited and peer-reviewed references added in the updated version.
358	Lindsay, Keith	4	66	2558	66	2560	<p>The text refers to African elephant numbers declining as a result of CITES; it is important to bear in mind that it is not after inclusion in Appendix I in 1990 that illegal trade in ivory thrived; the steepest rise in elephant poaching happened after a 2008 one-off sale of ivory from Appendix II populations to China and Japan.</p>	Thank you for this comment. It was considered in the revision for the new version.

359	Stewart, Davyth	4	66	2558	66	2560	<p>The text refers to African elephant numbers declining as a result of CITES; it is important to bear in mind that it was not after inclusion in Appendix I in 1990 that illegal trade in ivory thrived; the steepest rise in elephant poaching happened after a 2008 one-off sale to China and Japan of ivory from Appendix II populations.</p> <p>These kinds of oversimplistic statements mask complex changes in international trade rules which have had serious impacts on the effectiveness of CITES listing some species. Elephants are a good example, where the international commercial ivory trade ban, which effectively came into force with the listing of African elephants on CITES Appendix I in 1989, resulted in a big reduction in elephant poaching. This success, however, was undermined when CITES parties allowed 'one of sales' of ivory stockpiles from a number of southern African countries in 2008 which was followed by a steep increase in poaching. https://gspp.berkeley.edu/faculty-and-impact/working-papers/does-legalization-reduce-black-market-activity-evidence-from-a-global-ivory-experiment-and-elephant-5ed6996401fa99.02945078</p> <p>The statements in this section relating to utilisation trends in species that are CITES-listed need to be reconsidered, since as it stands it is oversimplistic and potentially misleading.</p>	Thank you for this comment. The relevant text has been edited and references added in the updated version.
360	Orenstein, Ronald	4	66	2571	66	2574	<p>This statement is almost certainly an attract of data collection, as there is likely to be far more data available for species in use than for birds affected more by broad ecosystem changes such as habitat loss, and misrepresents the cited 2008 paper (Butchart, S. H. M. (2008). Red List Indices to measure the sustainability of species use and impacts of invasive alien species. Bird Conservation International, 18(SupplementS1), S245–S262. https://doi.org/doi:10.1017/S095927090800035X) which in fact stated not that birds in use fared better but that "RLs show that although successful control and management of use and trade have led to some species improving in status, this has been outweighed by the number of species deteriorating in status owing to unsustainable exploitation". Certainly the statement is false when applied to highly-exploited taxa, including species not on CITES such as Sporophila seedeaters and southeast Asian songbirds. Please consult Souto, W. M. S., Torres, M. A. R., Sousa, B. F. C. F., Lima, K. G. G. C., Vieira, L. T. S., Pereira, G. A., Guzzi, A., Silva, M. V., & Pralon, B. G. N. (2017). Singing for cages: The use and trade of Passeriformes as wild pets in an economic center of the Amazon—NE Brazil route. Tropical Conservation Science, 10. https://doi.org/10.1177/1940082917689898</p> <p>Bergin, D., Chng, S. C. L., Eaton, J. A., & Shepherd, C. R. (2017). The final straw? An overview of Straw-headed Bulbul Pycnonotus zeylanicus trade in Indonesia. Bird Conservation International, 1–7. https://doi.org/10.1017/S0959270917000302</p> <p>Nijman, V., Langgeng, A., Birot, H., Imron, M. A., & Nekaris, K. A. I. (2018). Wildlife trade, captive breeding and the imminent extinction of a songbird. Global Ecology and Conservation, 15. https://doi.org/10.1016/j.gecco.2018.e00425</p> <p>Leupen, B. T. C., Krishnasamy, K., Shepherd, C. R., Chng, S. C. L., Bergin, D., Eaton, J. A., Yukin, D. A., Hue, S. K. P., Miller, A., Nekaris, K. A. I., Nijman, V., Souto, W. M. S., & Imron, M. A. (2018). Trade in White-rumped Shama Pitta leucophaea. https://doi.org/10.1017/S0959270918000302</p>	Thank you for the comments and references. The section has been amended to reflect this information where appropriate.
361	Lerambert, Adeline	4	66	2572	66	2573	<p>The finding that some species in trade 'fared better' than some not in trade, may be more reflective of the fact that the species 'in trade' were listed under CITES. Data on international trade in unlisted species is limited, but it should not be assumed that because a species is not listed in CITES, it isn't adversely affected by trade.</p>	Thank you, this section has been revised.
362	Stewart, Davyth	4	66	2572	66	2573	<p>The finding that some species in trade 'fared better' than others not in trade, may be more reflective of the fact that the species 'in trade' were listed under CITES. Data on international trade in unlisted species is limited, but it should not be assumed that because a species is not listed in CITES, it isn't adversely affected by trade.</p>	Thank you, this section has been revised.
363	Pavitt, Aly	4	66	2591			<p>note there is a new CITES strategic vision (2021-2030) https://cites.org/sites/default/files/document/E-Res-18-03_0.pdf</p>	noted, thank you

364	Korwin, Marie	4	67	2582	67	2584	<p>This is referred to as a "non detriment finding" (NDF) and are the primary tool established by CITES to promote sustainable use.</p> <p>It is important to remember that the 'non detriment finding' is the key tool to prevent the detrimental impact of trade on the survival of the species. The primary objective of CITES is and always was to ensure 'the international cooperation of parties to prevent international trade in specimens of wild animals and plants from threatening their survival'. (REF: Experience with the Use of Trade Measures in the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) (OECD, 1997), quoting from 'A brief introduction to CITES', by the CITES Secretaria). The three key concepts are 'international cooperation, trade controls and species survival'. The OECD report concluded that, while some try to argue that sustainable use is an objective, 'This is probably not the case. CITES is not per se a treaty to promote trade and use of wildlife. The principal objective of CITES is and has always been to ensure that international trade does not lead to species extinction'. In other words, CITES seeks to prevent unsustainable use, not to promote sustainable use over non-use. This has not changed and is even more relevant today with the escalation in unsustainable use and trade.</p>	<p>NOted, this section has been substantially revised. It should also be noted that the SUA does not define sustainable use as an objective but as an outcome</p>
365	Lerambert, Adeline	4	67	2582	67	2584	<p>Technically an NDF is designed to ensure that legal use is not detrimental, rather than to 'promote sustainable use'. CITES does not promote sustainable use, but rather It seeks to ensure that trade does not have an adverse impact on the survival of species (already stated ref Art IV para 3, so perhaps simplest to omit the incorrect wording).</p>	<p>Thank you for your comment. It was included in the new version.</p>
366	Lindsay, Keith	4	67	2582	67	2584	<p>This is referred to as a "non detriment finding" (NDF) and are the primary tool established by CITES to promote sustainable use.</p> <p>It is important to remember that the 'non detriment finding' is the key tool to prevent the detrimental impact of trade. The primary objective of CITES is and always was to ensure 'the international cooperation of parties to prevent international trade in specimens of wild animals and plants from threatening their survival'. (REF: Experience with the Use of Trade Measures in the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) (OECD, 1997), quoting from 'A brief introduction to CITES', by the CITES Secretaria). The three key concepts are 'international cooperation, trade controls and species survival'. The OECD report concluded that, while some try to argue that sustainable use is an objective, 'This is probably not the case. CITES is not per se a treaty to promote trade and use of wildlife. The principal objective of CITES is and has always been to ensure that international trade does not lead to species extinction'. In other words, CITES seeks to prevent unsustainable use, not to promote sustainable use over non-use. This has not changed and is even more relevant today with the escalation in unsustainable use and trade.</p>	<p>Thank you for your good comment. It was taken into account in the new version</p>

367	Stewart, Davyth	4	67	2582	67	2584	<p>Technically an NDF is designed to ensure that legal use is not detrimental, rather than to 'promote sustainable use'. CITES does not promote sustainable use, but rather it seeks to ensure that trade does not have an adverse impact on the survival of the species (already stated ref Art IV para 3, so perhaps better to omit the incorrect wording).</p> <p>It is important to remember that the "non detriment finding" is the key tool to prevent the detrimental impact of trade. The primary objective of CITES is and always was to ensure 'the international cooperation of parties to prevent international trade in specimens of wild animals and plants from threatening their survival'. (REF: Experience with the Use of Trade Measures in the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) (OECD, 1997), quoting from 'A brief introduction to CITES', by the CITES Secretaria).</p> <p>The three key concepts are 'international cooperation, trade controls and species survival'.</p> <p>The OECD report concluded that, while some try to argue that sustainable use is an objective, 'This is probably not the case. CITES is not per se a treaty to promote trade and use of wildlife. The principal objective of CITES is and has always been to ensure that international trade does not lead to species extinction'. In other words, CITES seeks to prevent unsustainable use, not to promote sustainable use over non-use. This has not changed and is even more relevant today with the escalation in unsustainable use and trade.</p>	Thank you. This section has been revised.
368	Malsch, Kelly	4	67	2583	67	2584	Consider revising to "ensure international trade is sustainable" (rather than "to promote sustainable use").	Thank you for your comment. It was included in the new version
369	Vitale, Jessica	4	67	2583			should this be "is the primary tool" instead of "are"?	Thank you for your comment. It was included in the new version.
370	Vitale, Jessica	4	67	2585	67	2587	<p>suggest rephrasing the section from "...and the need for non-detriment finding..." to "...and guiding principals for the issue of non-detriment findings based on the best available science were adopted in 2013 and revised in 2016 (Resolution Conf 16.7 (rev. CoP17))."</p> <p>I think the resolution cited in the report currently may be out of date? see Resolution Conf 16.7 here: https://cites.org/sites/default/files/document/E-Res-16-07-R17_0.pdf</p>	Thank you very much for your comment. We will edit the text accordingly. As per the citation, we are actually citing the updated version taht you are mentioning: https://cites.org/sites/default/files/document/E-Res-16-07-R17_0.pdf
371	Lerambert, Adeline	4	67	2586	67	2587	The non-detriment findings Resolution is Resolution Conf. 16.7 (Rev. CoP17).	Thank you for your comment. It was included in the new version.
372	Stewart, Davyth	4	67	2586	67	2587	The non-detriment findings Resolution is Resolution Conf. 16.7 (Rev. CoP17)	Thank you for your comment. It was included in the new version
373	Kumagai, Joy	4	67	2588	67	2609	Please add these two literature reviews into a data management report specifying how and when these literature reviews were preformed.	Noted, the data management report will be added.
374	Germany	4	67	2591	67	2594	How was enforcement accounted for herein? If appropriate/feasible for enforcement to be tracked, kindly consider elaborating on this, as lack of enforcement may not lead to desired environmental outcomes (more sustainable practices).	Lack of Enforcement is indeed a key issue in terms of CITES effectiveness and should be more actively incorporated. Text has been added accordingly.
375	Vitale, Jessica	4	67	2594			should probably be 'exporting Parties' rather than 'States'	Thank you very much for your edit suggestion, it indeed should be "parties" rather than "states"; so we will edit the text accordingly.
376	Morgan, David (CITES)	4	67	2600	67	2604	As there is no requirement for Parties to publish NDFs in CITES for external assessment, this does not necessarily mean that there hasn't been a rigorous assessment – however, there is plenty of literature on how to do an NDF and of course this is more available in scientific literature as it would be the scientists who develop the guidance on how to do an NDF. There is more grey literature within CITES forums: https://cites.org/eng/prog/ndf/Guidance_NDF , http://www.conabio.gob.mx/institucion/cooperacion_internacional/TallerNDF/taller_ndf.html	Thank you very much for the accurate comment. We will edit the text to reflect this.
377	Orenstein, Ronald	4	67	2600	67	2604	See Cohen, J. E., Williams, H. N., Strong, Y. E., & Fisher, H. C. E. (2020). Non-detriment findings for international trade in wild orchids from developing countries; A case study for Broughtonia sanguinea in Jamaica. Journal for Nature Conservation, 56, 125840. https://doi.org/10.1016/j.jnc.2020.125840 , cited above.	Thank you for the reference.

378	Bennett, Elizabeth	4	67	2611	69	2705	Again, this is highly biased, and makes no mention of the many species whose status in the wild has improved dramatically as a result of their being listed on CITES, many of which are extremely well documented.	Thank you. This section has been substantially revised.
379	Lerambert, Adeline	4	67	2620	68	2630	'Leakage' of trade to other taxa as a result of a CITES listing should not be regarded as a reason not to list a species that is affected by trade, but rather could be an argument for listing at a higher taxonomic level.	Thank you. The section does not make that recommendation but the text has been amended to make the point more clearly.
380	Orenstein, Ronald	4	67	2620	68	2630	Displacement can also occur because populations of an exploited species are exhausted and the trade has shifted to other species or populations. An example has been the shift in trade in pangolins (<i>Manis</i> spp) from Asian to African species. Please consult Heinrich, S., Wittmann, T. A., Prowse, T. A. A., Ross, J. V., Delean, S., Shepherd, C. R., & Cassey, P. (2016). Where did all the pangolins go? International CITES trade in pangolin species. <i>Global Ecology and Conservation</i> , 8, 241–253. https://doi.org/10.1016/j.gecco.2016.09.007 Ingram, D. J., Cronin, D. T., Challender, D. W. S., Venditti, D. M., & Gonder, M. K. (2019). Characterising trafficking and trade of pangolins in the Gulf of Guinea. <i>Global Ecology and Conservation</i> , 17, e00576. https://doi.org/10.1016/j.gecco.2019.e00576	Noted and thank you for the references.
381	Stewart, Davyth	4	67	2620	68	2630	'Leakage' of trade to other taxa as a result of a CITES listing should not be regarded as a reason not to list a species that is affected by trade, but rather could be an argument for listing at a higher taxonomic level	Thank you. The section does not make that recommendation but the text has been amended to make the point more clearly.
382	Lerambert, Adeline	4	68	2625	68	2627	Suggest deletion. First of all, this assertion is not made in either reference provided. In addition: tiger has been listed on Appendix I since 1973! Chinese domestic trade in tiger bone was banned in 1993, which didn't stop all tiger bone trade. Seizure data show that leopard has been illegally traded for the same length of time that tiger has, and in fact has been higher throughout. Rather than bans which have been in place for years, the reason for more recent species such as jaguar being targeted is market diversification due to demand stimulated in part by ongoing availability of eg. tiger parts and products sourced from proliferating tiger farms in China.	Thank you and noted. The text has been revised.
383	Stewart, Davyth	4	68	2625	68	2627	Suggest deletion of these lines. This assertion is not made in either of the references provided. Tigers have been listed on Appendix I since 1973. Domestic trade in tiger bone was banned in 1993, which didn't stop all tiger bone trade. Seizure data show that leopard has been illegally traded for the same time as tiger. Rather than bans which have been in place for years, the reason for more recent species such as jaguar being targeted is market diversification due to demand stimulated in part by ongoing availability of eg. tiger parts and products sourced from proliferating tiger farms in China.	Thank you and noted. The text has been revised.
384	Lerambert, Adeline	4	68	2631	68	2641	This might indicate the need for an examination of the listing process to reduce the 'lead-in' time before a listing becomes effective.	thank you, agreed
385	Stewart, Davyth	4	68	2631	68	2641	This might indicate the need for an examination of the listing process to reduce the 'lead-in' time before a listing becomes effective.	thank you, agreed
386	Vitale, Jessica	4	68	2635	68	2638	Unclear what this is referring to for the 50% of populations that were harvested in some instances - what species/populations? The way these phrases are included together makes it sound like 50% of populations of monitor lizards and lions were harvested - which I'm assuming is not the intent here. Consider rephrasing.	Thank you for your comment. It was included in the new version.
387	Morgan, David (CITES)	4	68	2636	68	2636	"up to 50% of populations"??	Thank you for your comment. The section was revised in the new version.
388	Vitale, Jessica	4	68	2637			Might be worth including the species name here for monitor lizards, because the paper referenced focuses only on <i>Lanthanotus borneensis</i> but by using only the common name 'monitor lizard', this brings to mind the entire <i>Varanus</i> genus as well. Also suggest adjusting common name to 'earless monitor lizard' to help specify	Thank you for your comment. It was included in the new version.
389	Morgan, David (CITES)	4	68	2644	68	2644	Presumably "when CITES allows legal trade" must mean when and species is moved from Appendix I to Appendix II.	Thank you for your comment. It was included in the new version.

390	Caceres, Carolina	4	68	2647	68	2650	"bans" is not what CITES does; it regulates trade with a permitting system and prohibits commercial trade in Appendix I species. These are not "bans" and it's detrimental to CITES objectives to characterize the CITES mandate and decisions as "banning" trade	Thank you very much for your accurate comment; we will edit the text accordingly.
391	Korwin, Marie	4	68	2647	68	2650	An increase in the illegal trade following a CITES listing/restrictions on legal trade indicates a failure of governance and enforcement, rather than a failure of CITES. Domestic bans, effective enforcement, and demand reduction campaigns must go alongside international trade bans for them to be effective.	Thank you very much for your comment; which we agree with. We will edit the text to reflect this.
392	Lerambert, Adeline	4	68	2647	68	2650	Increased illegal trade following a CITES listing and associated restrictions on legal trade indicate a failure of enforcement, not a failure of CITES. International and in some cases perverse domestic legislation/regulation, trade bans and restrictions can be an extremely effective tool, but they need to be accompanied by complimentary domestic bans, strict enforcement, and public information/education programmes aimed at reducing demand.	Thank you for the comment. The text has been revised although CITES can only succeed if there is adequate enforcement.
393	Lindsay, Keith	4	68	2647	68	2650	An increase in the illegal trade following a CITES listing/restrictions on legal trade indicate a failure of governance and enforcement, rather than a failure of CITES. Domestic bans, effective enforcement, and demand reduction campaigns must go alongside international trade bans for them to be effective.	Thank you for the comment. The text has been revised although CITES can only succeed if there is adequate enforcement.
394	Stewart, Davyth	4	68	2647	68	2650	Increased illegal trade following a CITES listing and associated restrictions on legal trade indicate a failure of governance and enforcement, not a failure of CITES. International trade bans and restrictions can be an extremely effective tool, but they need to be accompanied by complementary domestic bans, strict enforcement, and public information/education programmes aimed at reducing demand.	Thank you for the comment. The text has been revised although CITES can only succeed if there is adequate enforcement.
395	Lerambert, Adeline	4	68	2658	68	2661	Other studies have demonstrated significant reductions in black market prices for eg ivory following domestic trade bans and associated enforcement efforts designed to compliment international trade restrictions. https://www.savetheelephants.org/about-ste-2/press-media/?detail=sharp-fall-in-the-prices-of-elephant-tusks-in-china	Thank for your comment. Point well taken.
396	Stewart, Davyth	4	68	2658	68	2661	Other studies have demonstrated significant reductions in black market prices for eg ivory following domestic trade bans and associated enforcement efforts designed to complement international trade restrictions. https://www.savetheelephants.org/about-ste-2/press-media/?detail=sharp-fall-in-the-prices-of-elephant-tusks-in-china	Thank for your comment. Point well taken.
397	Suzuki, Kirie	4	68	2658	68	2660	Demand for ivory in Japan According to a survey conducted by the Tokyo Metropolitan Government on ivory dealers in Tokyo in 2020, ivory accounts for only a small part of profits for most businesses. https://www.jwcs.org/data/201210_SurveyIvoryMarketTokyo.pdf (The original Japanese version is available on the Tokyo Metropolitan Government official website. 『象牙実態調査報告書』 https://www.seisakukikaku.metro.tokyo.lg.jp/cross-efforts/2020/12/images/zouge2_houkoku2.pdf)	Thank you for the additional information.
398	Morgan, David (CITES)	4	69	2666	69	2688	The CITES Monitoring the Illegal Killing of Elephants programme was established in 1997 to measure the impact of CITES decisions with respect to elephants and trade in elephant specimens and in particular, whether or not there is a causal relationship between such decisions and changes in the pattern and scale of illegal killing, the pattern and scale of illegal trade in ivory, the effort and resources being applied to detection and/or prevention and the monetary value of illegally traded ivory, as well as other factors that might affect these parameters, such as civil strife, the flow of illegal arms and ammunition, loss of habitat and drought. This programme has reported regularly on its findings and, for instance found no evidence to suggest that the 2008 legal sales of ivory and the establishment of a nine-year moratorium on further sales had any discernible impact, whether a rise or a reduction, on the trend in levels of illegal killing of elephants, which had started to increase in 2006. (https://cites.org/sites/default/files/eng/cop/16/doc/E-CoP16-53-01.pdf)	Thank you for this comment.

399	Lerambert, Adeline	4	69	2672	69	2675	Again, this reflects a failure of enforcement, domestic legislation/regulation, and demand reduction efforts, rather than a failure of CITES per se.	Thank you and noted. The text has been amended to make this point clear.
400	Morgan, David (CITES)	4	69	2685	69	2688	It is not clear what "administrative burden" is referred to, but it seems to be the task of complying with and enforcing CITES in developing countries. If this is the case, it is not just an administrative matter as in some cases it is a lack of capacity and political will. As we commented below, CITES implementation cannot be divorced from wider drivers of illegal trade such as weak governance, poverty, corruption and lack of resources for public bodies.	Thank you. The point has been clarified and includes some of the observations in the review comment.
401	Stewart, Davyth	4	69	2672	69	2675	This reflects a failure of national enforcement and demand reduction efforts, rather than a failure of CITES.	Thank you for your comment. This is mentioned elsewhere in the chapter.
402	Anissimoff, Michael and Corbell, Lise Anne	4	70	2706	70	2707	Change the wording for Inuit Inuvialuit Knowledge (IQ); recommend saying Indigenous Knowledge (IK). IQ is a specific type of Indigenous Knowledge, and only in Nunavut. IQ stands for Inuit qaujimajatuqangit. Indigenous Knowledge (IK) encompasses IQ and other forms of Indigenous Knowledge.	This comment was taken into consideration. Given this is a case study specific to Inuvialuit People, the more generalized terminology of IK was not used.
403	Morgan, David (CITES)	4	69	2689	69	2690	The activities and impact of CITES cannot be divorced from wider drivers of illegal trade such as weak governance, poverty, corruption, lack of resources for public bodies etc.	Noted and included in the relevant section.
404	Lerambert, Adeline	4	69	2694	69	2694	Clarify what is meant by 'feedbacks in the system'.	I have edited this text and added references.
405	Stewart, Davyth	4	69	2694			Clarify what is meant by 'feedbacks in the system'	This is a duplication. TSU please remove.
406	Korwin, Marie	4	69	2700	69	2705	<p>At present, listing a species on the Convention on International Trade in Endangered Species of Wild Fauna and Flora Appendices is based solely on biological criteria (CITES Resolution Conf 9.3. Rev. CoP 17), together with an assessment of the actual or potential impacts of trade, and this is likely to affect the ability of CITES to respond to the socio-ecological complexities of wild species trade.</p> <p>We strongly caution against the inclusion of socio-ecological considerations in listing decision-making, as this risks fatally damaging CITES' ability to protect wild species from overexploitation. Listing is about ensuring the survival of species and protecting them from over-exploitation by trade. Accordingly, the listing criteria are, and always have been, based on scientific and precautionary principles.</p> <p>CITES Parties have rejected attempts to incorporate socio-economic issues on the grounds that these are matters for national implementation and management, each country having its own social, economic and legal realities (CoP16 Inf. 21: The Working Group on CITES and Livelihoods set up at SC57 (Geneva, 2008) discussed the scope of a similar proposed amendment to Resolution Conf. 8.3 (Rev CoP13) on the Recognition of the Benefits of the Trade in Wildlife, and a majority of members affirmed their belief that the emphasis of the amendment should be clearly on the implementation of CITES-listing decisions, rather than on the listing of the species itself. It was also emphasized that consideration of the impacts of the implementation of the CITES-listing decisions on the livelihoods of the poor should not be a "backdoor" to discuss the criteria for listing species in CITES).</p> <p>Formally integrating socio-economic factors would block the listing process and reorient CITES, so that trade takes precedence over conservation: any trade restriction will have an economic consequence, and could be routinely opposed even if it is essential for conservation. Commercial industries such as the pet industry, fisheries and timber trade already exert intense pressure to</p>	Thank for this comment. This reflects a policy position and not any additional evidence. Nevertheless, the text has been amended to add greater clarity on what is deduced from the evidence.

407	Lindsay, Keith	4	69	2700	69	2705	<p>At present, listing a species on the Convention on International Trade in Endangered Species of Wild Fauna and Flora Appendices is based solely on biological criteria (CITES Resolution Conf 9.3. Rev. CoP 17), together with an assessment of the actual or potential impacts of trade, and this is likely to affect the ability of CITES to respond to the socio-ecological complexities of wild species trade.</p> <p>We strongly caution against the inclusion of socio-ecological considerations in listing decision-making, as this risks fatally damaging CITES' ability to protect wild species from overexploitation. Listing is about ensuring the survival of species and protecting them from over-exploitation by trade. Accordingly, the listing criteria are, and always have been, based on scientific and precautionary principles.</p> <p>CITES Parties have repeatedly rejected attempts to incorporate socio-economic issues on the grounds that these are matters for national implementation and management, each country having its own social, economic and legal realities (CoP16 Inf. 21: The Working Group on CITES and Livelihoods set up at SC57 (Geneva, 2008) discussed the scope of a similar proposed amendment to Resolution Conf. 8.3 (Rev CoP13) on the Recognition of the Benefits of the Trade in Wildlife, and a majority of members affirmed their belief that the emphasis of the amendment should be clearly on the implementation of CITES-listing decisions, rather than on the listing of the species itself. It was also emphasized that consideration of the impacts of the implementation of the CITES-listing decisions on the livelihoods of the poor should not be a "backdoor" to discuss the criteria for listing species in CITES). Formally integrating socio-economic factors would block the listing process and reorient CITES, so that trade takes precedence over conservation: any trade restriction will have an economic consequence, and could be routinely opposed even if it is essential for conservation. Commercial industries such as</p>	Thank for this comment. This reflects a policy position and not any additional evidence. It is not the role of the IPBES assessment to prescribe policy
408	Stewart, Davyth	4	69	2700		2705	<p>the inclusion of socio-ecological considerations in listing decision-making risks fatally damaging CITES' ability to protect wild species from overexploitation. Listing is about ensuring the survival of species and protecting them from over-exploitation by trade. Accordingly, the listing criteria are, and always have been, based on scientific and precautionary principles. Formally integrating socio-economic factors would block the listing process and reorient CITES, so that trade takes precedence over conservation.</p> <p>CITES Parties have repeatedly rejected attempts to incorporate socio-economic issues on the grounds that these are matters for national implementation and management, each country having its own social, economic and legal realities (CoP16 Inf. 21: The Working Group on CITES and Livelihoods set up at SC57 (Geneva, 2008) discussed the scope of a similar proposed amendment to Resolution Conf. 8.3 (Rev CoP13) on the Recognition of the Benefits of the Trade in Wildlife, and a majority of members affirmed their belief that the emphasis of the amendment should be clearly on the implementation of CITES-listing decisions, rather than on the listing of the species itself. It was also emphasized that consideration of the impacts of the implementation of the CITES-listing decisions on the livelihoods of the poor should not be a "backdoor" to discuss the criteria for listing species in CITES).</p> <p>In addition, the knowledge, interests and therefore the input that local communities can give are not homogenous but will vary depending on many different factors and the legislation in the various countries. CITES is open to observers, and community organisations can, and are represented as observers at CITES meetings.</p> <p>The importance of incorporating issues of livelihoods and rural communities in the conservation of species, wildlife trade and conservation is self-evident, but</p>	Thank for this comment. This reflects a policy position and not any additional evidence. It is not the role of the IPBES assessment to prescribe policy.
409	Orenstein, Ronald	4	69	2701	69	2705	<p>See comments above. This represents a narrow point of view that has been repeatedly rejected by the CITES Parties, who have specifically decided that socioeconomic concerns are matters for national implementation (given to differences among countries with respect to these concerns) rather than for listing decisions.</p>	Thank for this comment. This reflects a policy position and not any additional evidence. It is not the role of the IPBES assessment to prescribe policy.

410	Iverson, Sam	4	70	2706	71	2761	<p>Suggest revising the title of Box 4.3 to clearly indicate that the information included (how Indigenous Knowledge informs polar bear management in the Inuvialuit Settlement Region) is case study/example of a larger issue (how Indigenous Knowledge informs polar bear/wildlife management in Canada). TITLE SUGGESTION: Indigenous Knowledge (IK) and the Success of the Agreement on the Conservation of Polar Bears: Inuvialuit Settlement Area</p> <p>Similarly, recommend revising the text to flow more clearly from (i) the background/historical context - 1973 Agreement for the Conservation of Polar Bear provides a framework for cooperative management at an international scale; to (ii) in Canada the PBAC and PBTC were formed for reasons X and Y (which are well described in the text); to (iii) the general situation with regard to Indigenous involvement - namely that the 1973 Agreement and PBAC/PBTC were formed before the era of modern Crown-Indigenous land claims agreements. The way the rights of Indigenous people are included in wildlife management have changed over time (again, the text is generally good; to (iv) the specific case being talked about here - in the Inuvialuit Settlement Region... (this is what has been done).</p>	<p>Thank you for your comment. This 'case study text box' is already framed as a case study in the chapter so no other edits were made to reiterate it being a case study. The suggestion to revise the flow of the text was taken into consideration however, the suggested edits did not seem to add significant depth or changes in accuracy of the case study.</p>
411	Iverson, Sam	4	70	2706	71	2761	<p>Inuit co-management partners in Inuvialuit and across Canada have transitioned to using the term Indigenous Knowledge as an over-arching term. Suggest using it here (and not Inuit (Inuvialuit) Knowledge)</p>	<p>The term Inuit Knowledge / Inuit Qaujimajatuqangit is being used here as it is specific to this case study. Given it is a case study, the more generic terms of IK are not needed.</p>
412	Iverson, Sam	4	70	2711	70	2711	<p>change to "took shape in two committees", not two administrative committees. Rationale: only one of the committees is administrative (dealing with policy) the other is technical (dealing with scientific and Indigenous Knowledge assessment)</p>	<p>Thank you for this suggested edit. The word administrative has been deleted.</p>
413	Iverson, Sam	4	70	2708	70	2708	<p>The correct name of the Agreement is: "1973 Agreement on the Conservation of Polar Bears" [not International ... and Their Habitat]. See: https://polarbearagreement.org/</p>	<p>Thank you for your comment. The name of the agreement has been corrected.</p>
414	Iverson, Sam	4	70	2717	70	2717	<p>Authority' is the wrong word. PBAC does not have any legal decision-making authority. It is merely a forum for information exchange and coordination. Authority rests with fed/prov/terr government ministers. Suggest changing sentence to: "These committees pre-date the era of modern Crown-Indigenous land claims agreements, such as the Inuvialuit Agreement (1984), Nunavut Agreement (1993) and others. These agreements recognize the rights and authorities of Indigenous people within their areas of application to manage polar bear and other lands and resources.</p>	<p>The sentence fragment "and their authority" has been removed.</p>
415	Iverson, Sam	4	70	2720	70	2720	<p>As noted previously, suggest using Indigenous Knowledge throughout, and not Inuvialuit and Inuit knowledge</p>	<p>The term Inuit Knowledge / Inuit Qaujimajatuqangit is being used here as it is specific to this case study. Given it is a case study, the more generic terms of IK are not needed.</p>
416	Iverson, Sam	4	70	2721	70	2725	<p>Need to frame these sentences as the viewpoint of whomever supplied you with the information. "...however, science remains the dominant discourse and basis for decision-making" and "Despite inequities in voice between traditional knowledge holders and scientists...". I am not disputing that this is view held by Indigenous representatives or saying that it is wrong, but the position should be attributed to a person or organization. The position of the Government of Canada (and I would suspect the Government of the Northwest Territories) is that under the land claims agreements there is an obligation to consider IK alongside science and good faith steps are being made to do this.</p>	<p>Thank you for your comment. Additional references have been added to clarify the 'voice' and evidence associated with this statement.</p>
417	Pavitt, Aly	4	167	6394			<p>note that this somewhat contradicts earlier (line 2566) where it indicates that most orchids aren't in trade, and there are different numbers of orchids provided - presumably internal document consistency checks like this are still to come (based on the official CITES Checklist there are ~28000 species currently recognised by CITES)</p>	<p>Thank you for your comment. The text was updated accordingly.</p>
418	Kenward, Robert	4		9089		9089	<p>Maybe add: "For that reason, IUCN has launched a 50-language online network, suitable for children of 16, at www.naturalliance.org."</p>	<p>Thank you for your comment. We will evaluate the possibility of inserting your suggestion in the final draft.</p>
419	Kenward, Robert	4		9296		9307	<p>Needs to be merged into Box 4.36 at 8507 and another case used here.</p>	<p>Thank you for your comment. We will evaluate the possibility of inserting your suggestion in the final draft.</p>
420	Iverson, Sam	4	71	2764	4	2765	<p>The name of the Agreement is the Agreement on the Conservation of Polar Bears</p>	<p>Thank you. The name of the convention was corrected.</p>

421	Kenward, Robert	4		9755		9755	If the findings are indeed that multiple use systems are more sustainable than single-use systems, this is an important "bullet level" conclusion for the assessment. Indeed, this is probably the basis of the survival of indigenous people in their ecosystems and is one of the most important conclusions from the assessment: Box 4.37 is extremely important, and amplified nicely in Figure 4.21. Can further analysis be done to emphasise the importance of this aspect in other ecosystems?	This Box 4.37 refers to a case study on mangrove conservation so would not be major bullet level insight.
422	Ryan, Mark	4	72	2796	72	2797	I assume this should read "...but does NOT have a multilateral regional agreement..."	Thank you for your comment. Yes, it has been corrected.
423	Pavitt, Aly	4	General	0			This chapter would benefit from restructuring in some places (e.g. start line 2533) to ensure that points/arguments/opinions are more directly followed by their supporting evidence (and to clarify how the evidence supports the claim)	Thank you for your suggestions. A major restructuring was not considered necessary at this point in the assessment as the current structure was defined much earlier in the process.
424	Gallagher, Louise	4	General				General comments on Chapter 4 - Congratulations on a huge amount of work. It's really important and useful. - Language editing required throughout to harmonise the writing style - Unavoidable, and a testament to the scope of the effort, the document is extremely dense and it's hard to know one should do with all the information - Naturally and understandably there is some overlap and duplication between the various drivers discussions, i.e. social/environmental justice as political driver and a social driver. Marginalisation of women rights' as a political issue, social driver. Perhaps some greater precision in the language being used about what aspects of an intersectional issue are being discussed under that particular driver would be helpful.	Thank you for your comment, which is well taken. With the scale of work and a voluminous literature reviewed by multiple authors, it is unavoidable that we have some duplication, especially amongst some driver sections.
425	Kumagai, Joy	4	74	2859	74	2860	Figure 4.6 - Thanks for adding the disclaimer. Please gain approval to use in IPBES.	Thank you for your comment. Your comment has been considered. This figure is under license 4.0 (CC BY-NC).
426	Majda, Achach	4	74	2859	74	2859	Figure 4.6: the map of Morocco which appears on this figure is not correct. IPBES is kindly invited to adjust this situation and maintain the same approach adopted for the previous reports.	Thank you for your comment. Your comment has been considered. This figure is under license 4.0 (CC BY-NC).
427	Iverson, Sam	4	75	2764			Agreement on the Conservation of Polar Bear	Thank you for your comment. The text was edited following your suggestion.
428	Barbieri, Marco	4	75	2913	75	2913	In addition to AEWA, mentioned above, 6 other intergovernmental legally-binding Agreements and 19 memoranda of understanding have been concluded under the Convention on Migratory Species, dealing with the conservation and management of wild populations of migratory species subject to forms of consumptive and/or non-consumptive use. See https://www.cms.int/en/cms-instruments/agreements and https://www.cms.int/en/cms-instruments/mou	Thank you for your suggestion. We are not including MOUs in the table due to word limits.
429	Barbieri, Marco	4	75	2913	75	2913	A number of items in the table hardly qualify as International Agreements or Conventions. Suggested to either modify the title to better match the content or revise the content	Thank you for your comment. The title of the table was modified
430	Derelev, Sergey	4	75	2913	75	2913	Table 4.1 has omitted to reflect the Agreement on the Conservation of African-Eurasian Migratory Waterbirds (AEWA) which was established in 1995. This treaty, amongst other things, has a strong focus on sustainable use with initiatives and activities in place. See www.unep-aewa.org	Thank you for your comment. It was incorporated in the new version.
431	Germany	4	75	2913	77	2914	As this table's title refers to "[...] Conventions related to wild species" and includes UNCCD (in addition to CBD, of course), kindly consider including UNFCCC (as one of the Conventions related to wild species and/or a disclaimer to the effect of 'non-exhaustive list'.	Thank you for your comment. The list refers to conventions directly related to wild species.
432	Ryan, Mark	4	75	2913	77	2913	Consider adding Convention on Migratory Species (CMS) and African Eurasian Waterbirds Agreement (AEWA)	Thank you for your comment. The agreement was incorporated.
433	Barbieri, Marco	4	76	Table 4.1	76		The title of CMS is incorrect, the correct one is "Convention on the Conservation of Migratory Species of Wild Animals"	Thank you for your comment. The agreement was incorporated.
434	Guillemain, Matthieu	4	77				Table 4.1. Should be added: "1999: Agreement on the Conservation of African Eurasian Migratory Waterbirds (AEWA) "	Thank you for your comment. The agreement was incorporated.
435	Guillemain, Matthieu	4	78	2959			I don't understand this: bushmeat is not only composed of protected species?	Bushmeat comes from a variety of wild animals with different population status and categories of protection.
436	Guillemain, Matthieu	4	79	2966	79	2967	Also an issue when it comes to leisure hunting in the member states of the European Union, for example	Yes indeed. Unfortunately we lack a reference to support the statement.

437	Guillemain, Matthieu	4	79	2977	79	2980	Also true for migratory birds, hence the benefits of coordinated international management at flyway scale (https://www.unep-aewa.org/en/publication/aewa-conservation-guidelines-no-5-guidelines-sustainable-harvest-migratory-waterbirds-ts)	Thank you for your interesting suggestion. This was incorporated.
438	Lippai, Christine	4	82	2942	82	2942	spelling of 'activities'	Thank you for your comment, it was changed.
439	Lippai, Christine	4	General				good general information on types of SU of crocodilians can be found in https://www.iied.org/despite-covid-19-using-wild-species-may-still-be-best-way-save-them	Thank you for your comment, perhaps appropriate under certain specific conditions and contexts.
440	Núñez-Rojo, María Paulina (Mexico)	4	12	465	12	465	Fig 4.1 Although it is the most traditional way of schematizing sustainability, there are many more updated proposals where the environmental sphere encompasses the social and this, in turn, the economic. This scheme is obsolete since the economic and the social cannot exist without the ecological. You can consult this article Hilty, ML, Morris, J., Polman, P., Carlos, M., Rodriguez10, CS, Sanjayan12, M., ... & Zurita14, P. A Nature-Positive World: The Global Goal for Nature. https://capitalscoalition.org/wp-content/uploads/2021/04/Nature-Positive-The-Global-Goal-for-Nature-paper.pdf	Thank you for your comment. We have taken into consideration your suggestion of reconceptualizing this figure. The figure is not intended to be a comprehensive conceptualization of the social / environmental interactions but is simply the organizing structure for the content of this chapter. Additional conceptualizations of human-nature interactions can be found in ch1 and ch2. No edit made.
441	Hull, Amanda	4	93	3477	93	3477	This section could benefit from a discussion of North America's "Public Trust," an integral component of the uniquely successful North American wildlife management system.	Thank you for your comment. A paragraph has been added to the section on land tenure (later in the chapter that reads: "Public trust institutions such as those in the United States are among the emerging shifts in land tenure that create incentives for conservation. They involve the spending both public and private funds including donations to ensure lands are set aside for the purposes of conservation (Hodge 2012). While there is much literature on the how-to of creating land trust, evidence about their impact on conservation outcomes as well as sustainable use of wild species is limited (Merenlender et al. 2020)". "
442	White, Michael	4	89	3311	89	3311	I think UNDRIP should be 2007	Thank you for your comment, it was changed.
443	Hull, Amanda	4	89	3327	89	3328	I believe this refers to a mistaken perception that IPs "over-harvest," but the statement should be modified for clarity.	Thank you for your comment. It was incorporated in the new version.
444	Iverson, Sam	4	71	2756	71	2759	suggest changing from: "Current harvest levels for bears in the southern Beaufort area are lower than what is considered sustainable for the reported population (4.5%; Regehr et al. 2017)." to "Reported harvest levels for bears in the southern Beaufort area have been below quota and below what is considered sustainable at a population level in an otherwise healthy population (4.5%; Regehr et al. 2017)." Rationale: current total allowable harvest (i.e., quotas) are above what population modellers generally say is sustainable. I think the point our ISR colleagues are trying to make is that the actual harvest is below the allowed quota and within the bounds of what is generally considered sustainable in a healthy subpopulation.	Good point. This edit has been made to the case study as follows: "Reported harvest levels for bears in the southern Beaufort area have been below quotas set for "allowable harvest" (modelled by scientists and Inuit/Inuvialuit) or below what is considered sustainable at a population level in an otherwise healthy population (4.5%; Regehr et al. 2017)."
445	Iverson, Sam	4	71	2759	71	2761	Similar to a previous comment - this is a sentence that should be attributed the the opinion holder in some way. 'Outside pressure' is vague. It either needs to be elaborated upon, or the source of the viewpoint identified. Again, not disputing that this is an accurate representation of the views of Inuit leaders/organizations in the region, just need to be clear who is saying this.	This edit has been made to highlight the voice / citations associated with this point of view / evidence.
446	White, Michael	4	92	3435	92	3435	A globe doesn't have corners!	Thank you for the reminder.
447	Hull, Amanda	4	92	3462	92	3462	Consider changing to, "have changed significantly in many jurisdictions over the last thirty years". Centralized, top-down conservation approaches still exist and not also regions have adopted community-based institutions. Of those which have, not all have adopted effective community-based institutions.	Thank you for your comment. The agreement was incorporated
448	Hull, Amanda	4	93	3473	93	3473	Should this be related back to the comprehensive definition of IPLCs provided earlier in the document?	Yes, thank you.

449	Derelev, Sergey	4	71	2762	71	2762	Section 4.2.2.2.2 should describe also the Agreement on the Conservation of African-Eurasian Migratory Waterbirds (AEWA) with its provisions for sustainable use and initiatives in place, which include the European Goose Management Platform (EGMP) through which 6 populations of 4 species of geese are managed and harvested adaptively, plus currently a few other Single Species Action Plans with provisions for Adaptive Harvest Management (Eurasian Curlew, Long-tailed Duck, Velvet Scoter, Common Eider (in preparation)). More populations of declining waterbird species (ca. 30) have been prioritised for development of Action or Management Plans that involve Adaptive Harvest Management. More information at www.unep-aewa.org and https://egmp.aewa.info .	Thanks for your comment. This section highlighted by the reviewer describes the polar bear conservation agreements. The African-Eurasian Migratory Bird Agree (AEWA) does not seem to fit here. No edit made.
450	Germany	4	94	3541	94	3541	Please replace "indigenous people" with "indigenous peoples" (plural).	Thank you, noted.
451	Germany	4	95	3582	95	3587	Kindly consider including these three sentences as an additional key message, as/where appropriate.	Thank you for your comment.
452	Török, Katalin	4	97	2785		2792	the structure of this part is not clear, please check	Thank you for your comment. The section was revised.
453	White, Michael	4	99	3728	99	3730	Also LMMA (Locally managed marine areas) Network	Thank you for your comment. We will evaluate the possibility of inserting your suggestion in the final draft.
454	Germany	4	99	3745	99	3748	Please consider splitting this key message into two: one from line 3743-3845 and the other from 3745-3748, given the latter relates to fisheries only.	Thank you for your comment. It was incorporated in the new version
455	Gallagher, Louise	4	100	3777	100	3781	While it is a new and emerging legal question (but an old idea), the rights of nature is an interesting theme in that these rights secure the place of nature at the bargaining table as a political actor with interests when it comes to sustainable use. Real world cases include Ecuador, Colombia, New Zealand. https://www.therightsofnature.org/map-of-rights-of-nature/	Thank you for your interesting comment. The rights of Nature are discussed elsewhere in the report.
456	Germany	4	100	3793	100	3794	Incomplete sentence.	Thanks for letting us know. We have completed it in the new version.
457	Török, Katalin	4	101	3295			please delete 1652	Thank you for hte comment. The line might be another one as I do not see the number mentioned.
458	China	4	101	3831	101	3834	Delete "New infrastructure and resource extraction projects in China may pose a completely new challenge in conservation, rippling into far-away communities, who often still face elevated rates of livestock depredation (Millican, 2016; Rashid et al., 2020)".	Thank you for your comment. It was taken into account in the new version.
459	Török, Katalin	4	102	3033			through community-based..	Line 3033 is blank.
460	Török, Katalin	4	106	3158			"is" instead of in	Thank you for your comment.

461	Iverson, Sam	4	71	2767	4	2776	<p>The information provided is not well supported and the citations of Crockford 2013 and Ridley 2013 are highly problematic. These people are well-known climate change deniers who have a very adversarial relationship with government scientists and other leading reserachers in the polar bear world. Not sure who was consulted for this section, but a significant rewrite is strongly suggested. While Box 4.3 can be identified as information focused on the viewpoint of Indigenous organizations in the Inuvialuit Settlement Region, the text here is in the main body, and should align with the consensus view of international authorities/experts. As this IPBES document is an international document your best sources are the five polar bear range states (https://polarbearagreement.org/) and the IUCN Polar Bear Specialist Group (https://pbsg.npolar.no/web/en/status/index.html).</p> <p>Notably, the statements about polar bear abundance being the highest ever recorded does not account details about historical details about the scope and accuracy of previous inventories and fact that many regional estimates of abundance are badly out of date; the statement about subpopulation trends are not accurate (see PBSG assessment and Canada's PBTC assessment). The statement about the Indigenous Knowledge view should not focus narrowly on Inuvialuit, but encompass the whole of the Canadian Arctic, and Greeland/US as well.</p> <p>Here is a cut and paste of how the Polar Bear Range States have assessed this issue; you may want to use in section 4.2.2.2.2</p> <p>"In 1973, Canada, Denmark (on behalf of Greenland), Norway, the United States, and the Union of Soviet Socialist Republics signed the Agreement on the Conservation of Polar Bears (hereafter referred to as the 1973 Agreement). At the time of signing, representatives of the Parties (also referred</p>	<p>The main references of this section are the reports developed by the Inuvialuit and those who have done research in the Beaufort Sea. There are more than 15 references that offer a spectrum on knowledge and insights about the institutional arragements as well as issues of climate change. The reference to Crockford etc. is balanced by numerous other sources that have modeled the impacts of climate change on polar bears. No ch. The change made to the citation. The second issue raised by the reviewer is focused on CAP and the PBRS. A references to CAP was added in the case study as an example of an additional initiative that is aimed at "managing polar bears". The role of the CAP.</p>
462	Iverson, Sam	4	72	2805	72	2812	<p>The Agreement is called "The Agreement on the Conservation of Polar Bears"</p> <p>Suggest deleting this sentence "The Agreement on Polar Bear Conservation sets out terms for sharing of knowledge 2805 and monitoring populations which creates the foundation for local-regional decisions about Inuit harvest quotas" because it is inaccurate. In Canada, the foundation for local-regional decisions about Inuit harvest quotas come from Crown-Indigenous Treaties and Land Claims Agreements and federal and provincial/territorial legislation that govern how wildlife resources are managed. There is nothing in the international agreement that carries any force of law or could be said to be the foundation for harvest management. It is similar in other countries. The i1973 Agreement commits signatory countries to developing domestic legislation, and in each country that takes a different form.</p> <p>The sentenc: "There have been key examples of such knowledge documented by Inuit that strongly suggest bear populations are healthy, contrary to models and assumptions that sea ice melt is having an adverse impact (Clark et al. 2008)." is fine because it is the cited conclusion of an expert.</p>	<p>The importance of the Inuvialuti land claim is already discussed in the case study. Agreement suggests terms that are agreed upon by member states. (e.g., article vii). As you point out, they are not embedded in the IFA (Inuvialut Final Agreement) per se but are nonetheless with the agreement involving member states (in so far as that agreement is understood as binding). Your point that the 1973 agreement commits sig countries to develop their own legislation, however, is an important dimension of the value of the agreement which I have added to the case study.</p>
463	Lippai, Christine	4	82	2963	82	2965	<p>Suggest re-write of this sentence as it implies at in general, laws are applied in harmony, which is not always the case where environmental laws (and crimes) are not given sufficient weight to ensure their enforcement (and punishment). "In many countries, there is a need for coordinated multi-sectoral implementation of national laws to ensure that environmental issues are addressed. Legislation to ensure the sustainable use of wild species straddles multiple sectoral agencies, including Ministries of Finance, Justice, Transport, Customs, Tourism, Rural Development, etc [further details in Chapter 6]</p>	<p>This sentence has been reworded to state, "These laws CAN operate in harmony together to support desired outcomes BUT MORE OFTEN ARE adhoc and contradictory.</p>
464	Kumagai, Joy	4	86	3275	87	3276	<p>Table 4.2 - How were these papers compiled and grouped? The process and subsequent analysis should be documented in a data management report.</p>	<p>This table has been revised significantly to highlight different kinds of transboundary co-management / shared governance arrangenments and their effectiveness.</p>

465	Hull, Amanda	4	88	3292	88	3292	Consider rewriting this section to encompass not just indigenous peoples, but indigenous peoples and local communities (IPLCs). This would enable a better summary of lived circumstance, as well as maintain consistency with other chapters.	The specific rights of Indigenous Peoples were the focus here.
466	Venier, Lisa	4	89	3333	89	3339	I would use specific citations for each example rather than a list at the end. Some of these statements seem disputable as stated here. For example forest fragmentation is not usually an issue for moose that prefer forest edges for forage, caribou do not require old-growth forest and issue in northern Alberta are certainly as much caused by the oil and gas industry (seismic lines) as forest management.	Thanks for your comment. This is a very good suggestion - completed.
467	Orenstein, Ronald	4	112	4247	112	4249	Why is there no mention of the roles of international organized crime and international demand for luxury products as drivers having a significant impact on patterns of use of wild species? Unsustainable poaching, IUU fishing, illegal logging etc are as much patterns of use as are more sustainable options. That these are not considered extensively in this review makes it appear that sustainable use takes place in a vacuum, whereas illegal and unsustainable use may actually more widespread and have a greater ecological impact. Please consult van Uhm, D. P. (2016). The Illegal Wildlife Trade. In D. Siegel (Ed.), Studies of Organized Crime (Issue 15). Springer Nature. https://doi.org/10.1007/978-3-030-13666-6_3 as well as references cited in earlier comments.	Thank you for this comment. It has been taken into consideration in developing the updated draft.
468	Germany	4	112	4274	112	4274	As this section refers to social and not political drivers, kindly replace the word "political" with "social", so as not to cause any misunderstanding, please.	Thank you for your comment, it was changed.
469	China	4	113	4292	113	4292	Change "Hong Kong" to "Hong Kong, SAR of China" ; Change "Macao" to "Macao, SAR of China"	Thank you for your comment. It was included in the new version.
470	Hull, Amanda	4	113	4308	113	4308	The opposite is true in North America - see earlier comment for reference.	Thank you for your comment, it was changed.
471	Anissimoff, Michael and Corbeil, Lise Anne	4	113	4312	113	4313	Important to mention that the import of bushmeat is illegal in Canada. Include source and date for the affirmation	Illegal in many other Western countries
472	Hull, Amanda	4	113	4593	113	4593	Delete "man". I have not commented on other spelling and grammatical errors, but feared this one would not raise the spell-check or grammar-check red flag.	Thank you for your comment. The word was deleted
473	Hull, Amanda	4	120	4599	120	4599	This is unclear due to wording (perhaps missing words?)	Sorry, but i didn't see the problem
474	Hull, Amanda	4	121	4617	121	4617	It is important that this be changed to "indigenous peoples and local communities" or "indigenous peoples and rural communities" as this circumstance is not limited to IPs.	Thank you for your comment, it was changed.
475	Hull, Amanda	4	121	4619	121	4619	Consider changing, "from the 'south'" to "that are opposed to animal use". Not also vocal critics are geographically distant; nor is criticism necessitated by distance.	Thank you for your good comment. The section was revised.
476	Lippai, Christine	4	122	4508	122	4509	parentheses needed around 'established but incomplete'	Thank you for your comment. The parenthesis were included
477	Lippai, Christine	4	123	4531	124	4579	This sub-section has multiple spelling and grammar errors	Thank you for your comment. The section was revised.
478	Lippai, Christine	4	123	4532	123	4532	The sentence needs 'of' inserted before 'wild'	Thank you for your comment
479	Lippai, Christine	4	123	4571	123	4579	should read 'sense of PLACE', not lace. Entire Box 4.18 needs restructure as points are already made in preceding paragraph	Thank you for your comment, it was changed.
480	Lippai, Christine	4	124	4593	124	4593	should read 'many' fish species, not man	Thank you for your comment, it was changed.
481	Lippai, Christine	4	124	4594	124	4594	spelling of 'variation'	Thank you for your comment, it was changed.
482	Lippai, Christine	4	125	4615	125	4624	The beginning of the paragraph is missing words so sentence is incomplete. A final strong sentence is needed to conclude the paragraph	Thank you for your comment, it was changed.
483	Lippai, Christine	4	125	4626	125	4636	it should be stressed here that this was Chambers and Conway's discussion definition of livelihoods based on sustainable rural livelihoods and targeting the household level. Sustainable Livelihoods was first mooted by the Brundtland Commission on Environment and Development and then expanded by UNCED in 1992	Thank you for your comment, it was added.

484	Perez Gil, Ramon	4	125	4780	125	4798	typo... although.... States	Editing was made.
485	Ryan, Mark	4	125	4785	125	4787	It is worth noting here that women are the fastest growing segment among the hunting population, especially in North America and in Europe. See recent and less recent examples: https://www.forbes.com/sites/chrisdorsey/2020/07/09/why-women-are-the-fastest-growing-segment-of-the-population-who-hunt/?sh=1e59bef82158 and https://www.nationalgeographic.com/culture/article/131103-women-hunters-local-meat-food-outdoor-sports	Thank you for your comment.
486	Miller, Carly	4	125	4791	125	4799	Of note, trophy hunting on the other hand is not viewed as desirable by many local communities. A 2019 study looking into Facebook pages of three major social media players with a predominantly African followership, namely, BBC News Africa, News24.com, and NewsDay-Zimbabwe, revealed a dominant pattern of resentment towards what was viewed as the neo-colonial character of trophy hunting, in the way it privileges Western elites in accessing Africa's wildlife resources. In addition, criticism was directed at African politicians who were perceived as allowing wildlife exploitation to satisfy their own greed. In the words of the article's author, Mucha Mkono: "In this instance, far from [trophy] tourism being a facilitator of intercultural understanding and peace, it appears to reproduce images and wounds of a colonial past." Communities themselves feel they are being robbed of their natural heritage and resources when greed and profit maximization are at play. There is room to consider what is the trade off if using such sustainable use practices when it comes to our ethical commitment to our fellow humans beings, living alongside wildlife.	Thank you for your very interesting comment. We will share it with the colleagues that are writing on Trophy hunting
487	Hull, Amanda	4	125	4798	125	4798	Consider changing, "intertwined with violence and colonization" to "intertwined with the violent colonization"	Thank you for your comment, it was changed.
488	Hull, Amanda	4	125	4800	125	4800	Recreational hunting should include sports and trophy hunting since these are simply descriptors of motivations for recreational hunting.	Thank you for your comment. You are right. This was changed in the new version.
489	Miketa, Madison	4	125	4800	125	4807	I think it is important here to distinguish between indigenous and subsistence hunting vs trophy/sport and recreational hunting. This paragraph blends them together, but they are very different in their goals, motivations, and outcomes. Here are some additional papers on motivations behind trophy hunting: •Darimont, C. T., Coddig, B. F., & Hawkes, K. (2017). Why men trophy hunt. <i>Biology Letters</i> , 13(3), 5–7. •Mihalik, I., Bateman, A. W., & Darimont, C. T. (2019). Trophy hunters pay more to target larger-bodied carnivores. <i>Royal Society Open Science</i> , 6(9). •Ebeling-Schuld, A. M., & Darimont, C. T. (2017). Online hunting forums identify achievement as prominent among multiple satisfactions. <i>Wildlife Society Bulletin</i> , 41(3), 523–529.	Thank you for your comment. the differences between indigenous and subsistence hunting vs trophy/sport and recreational hunting is clearly put in evidence. The references were added
490	Miller, Carly	4	125	4800	125	4807	A reference to use on psychological reasons for Trophy hunting: Beattie, Geoffrey. <i>Trophy Hunting: A Psychological Perspective</i> . Routledge, 2019	Thank you for your comment. Unfortunately we can not get access to the book content.
491	Hull, Amanda	4	125	4804	125	4804	Motivations for recreational hunting may be expanded. Here is a good source that speaks to the motivations of North American hunters: Responsive Management. 2013. Nationwide survey of hunters regarding participation in and motivations for hunting. Harrisonburg, VA.	Thank you for your comment. it was added.
492	Ryan, Mark	4	125	4805	125	4805	Why only "trophy hunters"? Why not simply "hunters"? This would be more correct.	Thank you for your comment. It was changed.
493	Hull, Amanda	4	90	3346	90	3346	There is also an important link, even more broadly, to human rights.	This is an important point and has been added.
494	Török, Katalin	4	126	3766		3768	Involving all member of the community sounds good, but I doubt is feasible	Thank you for your comment.
495	Lippai, Christine	4	126	4645	126	4675	there are additional examples of small-scale fishing endeavours that would be useful here. Also would be useful to include other country examples that are similar to the situation described in West Africa. Blue Ventures have supported successful artisanal/small scale fishing operations in eg Timor-Leste, Belize. Madagascar (www.blueventures.org)	Thank you for your comment. At this stage, we are not allowed to add examples.
496	Lippai, Christine	4	126	4649	126	4649	the word 'dugout' would be more appropriate here	Thank you for your comment. it was changed.

497	Perez Gil, Ramon	4	126	4808	130	4987	typo... small SCALE... Ppractice	Thank you for your comment. it was changed.
498	Germany	4	126	4809	126	4810	Kindly consider adding agricultural practices that can enhance (agro-)biodiversity, such as agroecological practices/agroforestry (the latter would fit to Box 4.20 line 4843, p. 126). By doing so, one can avoid presenting small-scale agriculture with a negative bias, while sharing its bright lights as it is often characterized by diversified systems including for subsistence and resilience.	Thank you for your comment. References were added.
499	Aebischer, Nicholas	4	126	4812	126	4812	"desstuccon" should be "destruction"	Thank you for your comment, it was changed.
500	Aebischer, Nicholas	4	126	4812	126	4813	The wording "unsustainable uses of wild species including the rise of trophy hunting (e.g. redfox hunting)" implies that trophy hunting (e.g. red fox hunting) was unsustainable. Given that red fox hunting continued in Britain until its ban at the end of the 20th century (for reasons unrelated to fox conservation status, which was of least concern), it was clearly sustainable. I suggest rewording as "eradication of large predators and the rise of trophy hunting (e.g. red fox hunting)".	Thank you for the suggestion. We changed the sentence.
501	Ryan, Mark	4	126	4812	126	4813	"... unsustainable uses of wild species including the rise of trophy hunting (e.g. redfox hunting)...". Why is trophy hunting considered unsustainable? And especially so for "redfox"? Which I assume should read "red fox" (Vulpes vulpes). Where is the reference linked to such practices? If no references, important to delete as this seems like a reasonable leap of the imagination.	Thank you for the comment. The sentence was modified.
502	Hull, Amanda	4	126	4813	126	4813	This wording suggests that trophy hunting is inherently an unsustainable use of wild species, which is incorrect. The statement should be modified or qualified, i.e. "including the rise of trophy hunting of species, such as redfox, whose populations could not support such harvests".	Thank you for the comment. The sentence was modified.
503	White, Michael	4	128	4897	128	4897	Delete 1652	Thank you for your comment, it was changed.
504	White, Michael	4	128	4914	128	4916	Rewrite sentence to make clearer	Thank you for your comment, it was changed.
505	Kumagai, Joy	4	130	4972	130	4974	Figure 4.7 Please gain approval to use.	Thank you for your comment. The license to all figures will be provided in the legend of the figures.
506	Majda, Achach	4	130	4973	130	4973	Figure 4.7 : the map of Morocco which appears on this figure is not correct. IPBES is kindly invited to adjust this situation and maintain the same approach adopted for the previous reports.	Thank you for your comment. A disclaimer on this subject was added to the figure.
507	Lippai, Christine	4	132	4917	132	4919	The information in this box does not provide example of wild species use and seems out of place in the section that is discussing wild meat consumption in the Congo Basin and in the Amazon - although interesting, might need to rethink its location in the chapter	Thank you for your comment. This section addresses the practices in urban areas.
508	White, Michael	4	132	5026	132	5028	Excellent point, well done!	Thank you for your comment, we appreciate it.
509	White, Michael	4	133	5050	133	5054	Let's not forget that many indigenous folk do not have the skills or education to enter the industrial-consumer work force	Thank you for your comment.
510	Lippai, Christine	4	134	4987	135	4988	in order for the table to be representative of examples of practices in urban areas, additional species and case histories should be provided, such as the control of white-tailed deer in the US (through sales of permits to eg bow-hunt in peri-urban areas as a deer management tool - good summary and further reading available at https://bioone.org/journals/mammal-study/volume-42/issue-1/041.042.0108/Importance-of-Urban-Wildlife-Management-in-the-United-States-and/10.3106/041.042.0108.full), the sustainable harvest of alligator eggs for sale to alligator ranchers (information available at https://www.louisianaalligators.com/alligator-management-program.html), duck hunting, wild boar hunting in Hungary/Carpathians, etc	Thank you for your comment. We will evaluate the possibility of inserting your suggestion in the final draft.
511	Lippai, Christine	4	136	5033	136	5041	livelihoods can include income generation from the harvest and sale of fauna/flora such as for specialised collectors, propagators, breeders, etc. Subsistence can go beyond use for the pot...can be also a seasonal activity based on need (school fees? medical costs? drought/crop failure?) - addressed in lines 5102	Thank you for your comment, we agree.
512	White, Michael	4	138	5256	138	5257	sustainable profit making!	Thank you

513	White, Michael	4	138	5278	138	5280	Cook Islands Marae Moana Act 2017 declares entire EEZ to be a multi-use marine park that allows industrial fishing and potentially deep sea mining: MPAs of 50 nautical miles around each island prohibit industrial activity ~ subsistence fishing allowed	Thank you for this clarification
514	Miller, Carly	4	140	5341	140	5341	Social norms related to treating wild animals as "relatives" should also be included in this section; see chapter 1 page 24 offering more insights into this worldview: "In this worldview, the social and ecological dimension of wild species uses are inseparable" (Nadasdy, 2007; Polfus et al. 2016; Robinson & Raven, 2019). To be sustainable, wild species uses should ensure the wellbeing of both humans and other species (Sangha et al., 2015; Stephenson et al., 2014). Seen through this lens, to choose between human wellbeing and that of wild species is both unethical and untenable. The same goes for western cultures social norms around veganism, animal rights, and animal welfare.	Thank you for your comment. It is addressed in the section below, "Cultural drivers"
515	Germany	4	142	5416	142	5425	Suggestion: Please make the relationship between risk perception and sustainable use of wild species clearer, given the relevance attributed to risk perception in this subsection.	Thank you for your comment. We will evaluate the possibility of inserting your suggestion in the final draft.
516	Kumagai, Joy	4	144	5481	144	5486	Figure 4.8 - Thanks for adding the disclaimer, would it be possible to change the projection to the robinson projection? (https://ict.ipbes.net/geoinformation provides information on how) Please gain approval to use in IPBES.	Thank you for your comment. Unfortunately we could not change the projection since this is a copy of a published figure, and we could not have access to the specificity database.
517	Germany	4	144	5504	144	5504	Consider adding reference: Wunder et al. (2014) -- full reference: Wunder, S., Angelsen, A., Belcher, B. (2014). Forests, livelihoods, and conservation: Broadening the empirical base. World Development 64 (S1): 1–11. Available at < https://doi.org/10.1016/j.worlddev.2014.03.007 >.	Thank you for your comment. The reference has been added.
518	White, Michael	4	145	5542	145	5544	but we are 'time rich'	Thank for your comment. Point well taken.
519	White, Michael	4	147	5599	147	5603	True and very important	Thank for your comment. Point well taken.
520	White, Michael	4	147	5617	147	5620	True and very important	Thank for your comment. Point well taken.
521	China	4	148	5665	148	5668	It is suggested to delete the statement. COVID-19 is an emerging infectious disease and SARS-CoV-2 is a novel coronavirus. All people are susceptible to it. Susceptibility does not differ significantly from age, gender, social and economic level. In addition, China's infectious disease monitoring and early warning system covers all kinds of medical institutions at all levels, including remote areas and the most basic medical institutions. China's medical and health services also cover all residents of the country, including urban and rural residents. Moreover, the Chinese government has been strengthening the construction of primary health service system in recent years, focusing on improving the medical and health service level of residents in remote, poor and backward areas. Therefore, the statement in this report is not in line with the actual situation.	Thank you for your comment. This section is about indigenous people and poverty. Indigenous people did suffer a large impact due to COVID. It is true that all people are susceptible to it, however the impact of COVID on remote populations with no proper access to health service was very important in many countries/regions of the world. We have added a reference.
522	White, Michael	4	153	5871	154	5886	Stranded marine debris is a huge problem all across Oceania. Toxicans in marine food resources may be fat-dissolvable and passed to infants during breast-feeding. Global Partnership on Marine Litter is proving a useful tool at reducing plastics in the oceans. Still far to go.	Thank you for this interesting comment.
523	Gallagher, Louise	4	154	5887			Economic drivers section: Just scanned this quickly but was surprised that conservation finance and investment wasn't included in the analysis as a driver affecting sustainable use outcomes. It's sort of embedded in some of the discussion on ecotourism etc., but this does not cover a holistic picture of traditional conservation funding sources and goals, and how these are diversifying and growing : https://mava-foundation.org/wp-content/uploads/2020/04/ConservationFinanceFramework.pdf https://www.unep.org/resources/state-finance-nature https://www.credit-suisse.com/media/assets/corporate/docs/about-us/responsibility/environment/conservation-finance-en.pdf . If any financial flow is supposed to affect conditions for sustainable use it is conservation finance, though of course more work is needed to evaluate effectiveness and impact.	Thanks for the comment! We have added a small section on conservation finance and also cited the suggested reports.

524	Thebaud, Olivier	4	154	5887	194	7477	Some of the economic drivers of the use of wild species are directly related to governance (currently described under political drivers) and policy (currently described in chapter 6). For example, incentives created by open access or regulated open access situations determine the development of excess capacity in marine fisheries, while access regulations such as individual quotas create incentives to change fishing activities (see e.g. https://www.sciencedirect.com/science/article/pii/B9780123750679000450?via%3DIihub). Subsidies have also been shown to significantly impact the evolution of resource harvesting industries. These are dimensions that are developed in other parts of the report, in chapter 4 and also in chapter 6. Given their importance, I think they could still be developed in slightly more detail than currently done in this section of chapter 4, with links to the relevant sections where they are discussed in more detail, elsewhere in the report.	Thank you for your comment! We agree that those drivers and mediating factors are important. We will try to make more cross-links within the assessment.
525	Gallagher, Louise	4	107	4071	109	4131	I missed a discussion the effects of rearing or shrinking civic space on political participation (in lots of different ways), creating the enabling conditions for successful rights based approaches, protecting environmental defenders, citizen-led political action etc.. https://civicus.org/ is a great resource. I understand the focus on Indigenous Peoples and local communities - just to mention that businesses and civil society actors should also be recognised as having agency as political actors in this section with influence on political institutions, structures and processes affecting sustainable use outcomes positively. Generally, this section leans towards the negative. however seeking justice and equity through political actions has also challenged and changed political power dynamics for the good in some jurisdictions too. The paragraph on page 106 line 4034 to 4038 refers to these ideas but the discussion in this section is mostly on marginalisation and disempowerment only, and misses the hopeful part. There are some efforts on social & environmental / deliberative justice perhaps embedded most practically in the Just Transitions frameworks and discourses currently that seem like the best opportunity for real inclusion. Interesting real world cases perhaps is the growth in Indigenous evaluation in Canadian infrastructure project ESG risk assessments: https://fnmpc.ca/resources/ , https://gptec.gpichb.org/indigenous-evaluation-toolkit/ A link could be made here to the discussion on social movements as political movements in the social drivers section also [line 5233]. A final comment on the theme of equity here, though it is also relevant for other driver discussions: there is little attention paid to intergenerational equity or nonhuman equity issues. I'm sure that's because they are weak as drivers for sustainable use in the past but will that always remain so? The growing political and social power of Indigenous and local worldviews in biodiversity conservation might suggest that's changing or will change. Cf: my comments on rights of nature, indigenous evaluation themes	Thanks for the comments. There is alot to think about here but no specific suggested edits. We have taken into consideration your concerns about the tone of the previous section on Indigenous Peoples leaning toward the negative and have added an additional set of statements indicating the value of Indigenous Peoples knowledge, practices and beliefs to biodiversity conservation. The other comments here don't seem to correspond to the line numbers.
526	Thebaud, Olivier	4	154	5895	154	5897	I may have missed this in the chapter, but it seems to me that one of the key factors driving economic behaviour in the exploitation of wild species is energy costs, and this could also be included in the assessment ? (see eg https://onlinelibrary.wiley.com/doi/full/10.1111/faf.12087)	Thank you for your comment! Fuel costs is an important factor affecting profitability of exploiting wild species (and so are local prices and technological efficiency). However, we have not identified them as major factor affecting sustainable use. Therefore, they are not covered as part of this chapter.
527	Thebaud, Olivier	4	154	5906	154	5907	There is growing availability of economic data on the performance of industries relying on wild resources in certain regions of the world (see for example the European efforts to systematically document economic, and more recently social information on marine fisheries : https://stecf.jrc.ec.europa.eu/reports/economic) although incorporation of this in assessments is still lagging behind, and many regions of the world lack even basic statistics on the economic situation of harvesters. The sentence could be modified to reflect this.	Thank you for the comment! We have modified the sentence as suggested.
528	White, Michael	4	155	5922	155	5924	Good point	Thank you.
529	White, Michael	4	155	5927	155	5931	Remote government officials rarely get information when visiting IPLCs ~ they are simply not trusted by close-knit communities.	That is true and this point has been added.

530	Svizzero, Serge	4	155	5929	155	5934	It is claimed everywhere in this chapter (as well as in the others ones) that documented indigenous and local ecological knowledge (LEK) are crucial for the sustainable use of wild species. However an important question is what will happen to LEK transmission if foragers get specialized and shift from an economy of subsistence to a market economy? We contend that when foragers get specialized in order to trade their surplus on the market, the relationship between them shifts from cooperation to competition. In other words, specialized foraging and trade are not consistent with what is considered as the natural socio-economic structure of foragers societies. Since the latter is deeply transformed, it is less likely that specialized foraging may lead to sustainable economic development. For instance a fundamental input in the foraging process is LEK and its transmission among foragers is closely associated with the norm of sharing. While LEK is clearly a public good, its production and transmission across foragers and generations of foragers becomes uncertain when sharing is removed by the market. Foraging seems therefore unsustainable in the long term if it is specialized and market-oriented. Reference: S. Svizzero (2016), Foraging Wild Resources and Sustainable Economic Development, Journal of Economics and Public Finance 2(1): 132-153. https://doi.org/10.22158/jepf.v2n1p132	We have discussed this point with the experts in the 'economic drivers section'. First, we agree that the sustainability outcomes of a subsistence economy that transforming to a market economy are ambiguous. Second, indigenous peoples and local communities are actually very divers (gender, age, status) and also in their strategies and practices. So we feel to draw conclusions around sustainability outcomes, we need to carefully consider the context, which we do at length in the assessment. This gives a somewhat more nuanced view than the conclusion drawn here.
531	Germany	4	107	5057	107	4069	This section only contains key messages without any subsection/text that follows to support such key messages.	This section has been edited to address this structural problem.
532	Török, Katalin	4	108	3200			the number at the end of the line is strange: is it 232 million?	This line number does not seem to correspond.
533	Török, Katalin	4	109	3238		3239	again the numbers are different from above, please chec, it is not necessary to add the numbers 2 times, only under Migration	This doesn't see to correspond to any line number listed.
534	Svizzero, Serge	4	110	4192	111	4210	Given the aim of section 4.2.2.8.4, I also suggest to add, as an illustration, the following: "With the end of the cold war in the late 1990s, several previously republics of the USSR became independent countries; while most their consumption, including foodstuff, was provided regularly and at lower cost by the central authority, these flows were suddenly reduced and even stopped. These food shortages incentivized the development of an illegal market, especially for expensive products such as meat. Such incentives, with the help of cars, artificial lights and modern firearms, induced a strong increase of illegal hunting in all these newly independent countries." Reference: S. Svizzero (2019), Issues and Challenges in the Conservation of the Goitered Gazelle (<i>Gazella subgutturosa</i> ; Güldenstädt, 1780), Journal of Zoological Research 3(3): 1-9.	Thanks. This is a useful addition to this section and has been added.
535	White, Michael	4	110	4200	110	4200	but not illegal occupation by a foreign power	This is an important point and has been added. Specifically: "Where there is foreign or outsider control in post-conflict regions, however, these planning efforts and restructuring and creation of new institutions can be unstable, lack relevance to local contexts and have limited longevity (e.g., green-grabbing in Sierra Leone). (Cavenagh 2018; Fairhead et al. 2012).
536	White, Michael	4	156	5977	156	5979	Francis Hickey's work in Vanuatu is good	Thank you. for your comment.
537	Vause, James	4	156	5992	158	6054	This box feels a little one sided, is there another side of this around the potential sustainable use of smaller fish which could be brought forward? That said, another reference on the risk of unsustainable use of forage fish can be found here: https://doi.org/10.1016/j.resconrec.2019.104456	Thank you for your comment and the suggested reference with a broad overview on the multiple values of forage fish. We cannot add additional text to the chapter due to word length restrictions. Nevertheless, we will add this reference Konar, M., Qiu, S., Tougher, B., Vause, J., Tlustý, M., Fitzsimmons, K., . . . Cao, L. (2019). Illustrating the hidden economic, social and ecological values of global forage fish resources. Resources, Conservation and Recycling, 151, 104456. doi: https://doi.org/10.1016/j.resconrec.2019.104456
538	White, Michael	4	156	5995	156	5995	'developing country' is a very bad expression. We need something different i.e. 'developing into what?'	The classification of developing countries and developed countries is widely used in policy documents.

539	White, Michael	4	157	6002	157	6005	And pollution-related health impacts from fisheries kept in the same place: waste food particles causing biological degradation, bacteria & viruses accumulating beneath pen-nets	Thank you for your comment. The risk of pollution-related health has been put in evidence in a report, edited by the « Association Pour la Promotion et la Responsabilisation des Acteurs de la Pêche Artisanale Maritime » (APRAPAM) Aprapam. (2017). La production de farine de poisson ; Enjeux pour les Communautés Côtières Ouest-africaines. Rapport du forum annuel, Mbour, Retrieved from Dakar, Senegal.
540	Thebaud, Olivier	4	158	6063	158	6065	In marine systems, only limited economic analysis of subsistence harvesting systems have been carried out to date, although such analysis is needed to better understand the drivers of changes in these systems (see e.g. https://www.sciencedirect.com/science/article/pii/S0308597X21001366?via%3Dihub)	Aprapam. (2017). <i>La production de farine de poisson ; Enjeux pour les Communautés Côtières Ouest-africaines</i> . Rapport du forum annuel, Mbour, Retrieved from Dakar, Senegal.
541	Hull, Amanda	4	125	4807	125	4807	This statement should be removed. Self-efficacy is not the same as a desire for control over nature. There is an implication here that recreational hunting motivated by the desire to obtain a hunting trophy is linked with social violence, or even psychosis, which is not supported by the scientific literature. If the authors wish to address this another way, they may speak to the mistaken generalized perception of those who participate in the activity, for which academic references exist.	Thank you for your concern about this statement. The tone of the statment has been softened, clarification of the statement made and references added.
542	Perez Gil, Ramon	4	158	6106	158	6108	Trade bans have not had in our part of the world the positive effect the paragraph states, on the contrary, everything becomes illegal, no information is gathered, prices go up and the activities increase.	Thank you for your comment. We agree. The text was modified.
543	Orenstein, Ronald	4	159	6106	159	6018	I would disagree that the "unintended consequences" have been established (as opposed to alleged). See comments and references cited above.	Thank you for your comment. There are a number of publications referred to in other sections with regards to the impact of trade bans on local livelihoods.
544	Vause, James	4	160	6146	160	6154	Lots of the biodiversity impacts reported here are associated with land use change associated with trade in agricultural commodities rather than expansion of unsustainable use due to trade so this is potentially misleading.	Thank you for your comment. Still, trade may be a driver undermining sustainable use of wild species (perhaps mediated by land use change), so we think this is relevant for our review and the comment does not provide a valid reason to remove this sentence we decided to keep it in the assessment.
545	Germany	4	160	6151	160	6151	Suggestion to add at the end of the sentence: ", which are often imbalanced and characterized by dependence from harvesters on traders/middle(wo)men".	Thanks for your comment. We have included as suggested.
546	Thebaud, Olivier	4	162	6224	162	6227	Some work exists for marine fisheries, which could be considered here: see e.g. https://doi.org/10.1016/j.jjeem.2018.04.008 and references therein.	Thank you for your comment. We will look into those references.
547	European Commission - Joint submission	4	162	6246	165	6315	Two paramount issues are missing from this part of the assessment: telecoupling and actions on the demand side. First, international trade of wild species is inherently linked to the concept of telecoupling, this should be explicit. Second, more space could be given to the indirect drivers and especially those that generate trade. The assessment is very much focused on the supply side of trade of wild species. What can be said, and what can be done, on the demand side?	Thank you for your comment. These are indeed two important issues, but they are both covered. First, there is a very extensive section 3.2.4.3 on "Globalization and telecouplings". Second, there is a section 3.2.4.4 on "Consumer values, behaviours and choices" that deals with demand.
548	Vause, James	4	162	6246	162	6246	If useful - this paper contains estimates of the overall scale of trade in species - https://doi.org/10.1016/j.gecco.2021.e01455	Thank you very much por suggesting this very interesting paper. Your suggestion was included in the new version
549	Miller, Carly	4	163	6251	163	6253	Trophies are missing from this list.	Thank you for your comment. We opted not to include trophies in this list.
550	Miller, Carly	4	163	6254	163	6255	The sentence should be rewritten: "Several wild species are hunted around the wild for their perceived potency of certain body parts in traditional and religious practices, as well as for trophy collections."	Thanks, we have included as suggested.
551	Svizzero, Serge	4	163	6254	163	6254	typo, species, twice	Thank you. Noted.
552	Orenstein, Ronald	4	163	6257	163	6258	This statement may be true for species for which price and demand increases with increasing rarity, but it may not be true for species with a low per-individual price point (eg small fishes such as anchovies and herring), for which profitable use may not be possible if the population drops below a certain level (commercial or economic extinction). Please consult Ulman, A., Zengin, M., Demirel, N., & Pauly, D. (2020). The Lost Fish of Turkey: A Recent History of Disappeared Species and Commercial Fishery Extinctions for the Turkish Marmara and Black Seas. <i>Frontiers in Marine Science</i> , 7(August). https://doi.org/10.3389/fmars.2020.00650 .	Thank you for this very good point and reference which was included in the new version.

553	China	4	163	6286	163	6288	Delete "China". All parts of China have implemented a comprehensive ban on hunting and wild meat consumption, and strengthened the protection of wild species as well, so there is no such threat to endemic mammals.	Our assessment is based on evidence gathered from peer reviewed literature, but thank you for your comment which is noted.
554	Ryan, Mark	4	164	6290	164	6291	The following "... wealthier nations exacerbate or even drive the problem by inflating demand and prices for meat, trophy..." is an incorrect and over-simplistic conclusion to draw. Revising as follows would make the sentence more realistic and representative: "... wealthier nations CAN exacerbate or POSSIBLY drive the problem by inflating demand and prices for meat, trophy..." However, whether or not this is the case depends on a number of other factors include legislative, socio-economic and ecological factors. Poor enforcement is given as an example in the next paragraph (line 6300).	Thank you for your comment. It was taken into account in the new version.
555	Hull, Amanda	4	164	6291	164	6291	I don't think "inflating" is what is actually meant here.	Thank you for your comment. "Inflating" is actually used in the papers we are citing.
556	Hull, Amanda	4	164	6291	164	6292	What is a trophy product? Is this statement referencing legal or illegal wildlife trade?	Thank you for comment, "product" refers to "ornamental products"; the statement refers to legal and illegal uses of wildlife, see Rippley et al paper.
557	Vitale, Jessica	4	165	6303	165	6304	Suggest rephrasing "An analysis of Convention on International Trade in Endangered Species of Wild Fauna and Flora trade database from 1975 to 2004 (Hartfoot et al 2018)" to the following: "An analysis of CITES trade data from 1975-2014 (Harfoot et al. 2018)..." (please note the year is 2014 not 2004) with a footnote citation for the database "Source: CITES Trade Database, UNEP-WCMC, Cambridge, UK"	Thank you for your comment. It was taken into account in the new version.
558	European Commission - Joint submission	4	165	6316	166	6364	This section could use a successful example of trade ban. Although whales are not fish, and the success of the moratorium is ambiguous, conclusions could still be drawn from the ban of whaling and whale products. This should at least be discussed. See, for example: Hurd, 'Almost Saving Whales: The Ambiguity of Success at the International Whaling Commission', Ethics & International Affairs; New York Vol. 26, Iss. 1, (Spring 2012): 103-112 (DOI:10.1017/S0892679412000081) or Roman et al. 'Lifting baselines to address the consequences of conservation success' Trends in Ecology & Evolution Volume 30, Issue 6, June 2015, Pages 299-302, (https://doi.org/10.1016/j.tree.2015.04.003);	Thanks for the comment! We have included the whaling example and the suggested references.
559	Malsch, Kelly	4	165	6316	165		FAO report on CITES-listed trade in marine species may also be useful/relevant for this section: http://www.fao.org/documents/card/en/c/cb2971en/	Thanks for the suggestion! We have included it.
560	Malsch, Kelly	4	166	6355			Should say "Non-lethal" -- typo	Thank for your comment. Point well taken.
561	Pavitt, Aly	4	166	6355			Work on the international trade in marine ornamental fish (in addition to P. kauderni) might be relevant e.g. https://pubmed.ncbi.nlm.nih.gov/33139655/ also note that there are CITES Decisions relating to the sustainability of marine ornamental fish trade https://cites.org/eng/node/56212 to ID conservation priorities and management needs	Thanks for the suggestion! We have included the reference.
562	Perez Gil, Ramon	4	166	6355			this chapter has many more typos.... I will no be indicating them further	Thank you. They were revised.
563	Swizzero, Serge	4	166	6355	166	6355	typo, lethal	Thank for your comment. Point well taken.
564	Vitale, Jessica	4	166	6355			should this say "non-lethal fishing"?	Thank for your comment. Point well taken.
565	Pavitt, Aly	4	167	6392			see also cacti (also family level CITES listing) https://www.nature.com/articles/nplants2015142	Thank you for this very good point and reference which was included in the new version.
566	White, Michael	4	155	5951	155	5953	In Oceania this might be an entire small island, or part of a larger island	This is an interesting additional reflection on scale but not considered a necessary edit to this section.
567	Germany	4	155	5953	155	5953	Suggestion to consider adding the following text between the words "to" and "addressing": "adapting to COVID-19 induced disruptions of supply chains and"; and/or consider adding reference to IPBES Workshop Report on Biodiversity and Pandemics.	Your suggestion is well taken but these page/line numbers don't match the comment and suggested text.
568	Pavitt, Aly	4	167	6410			need evidence to back up claim that it is "well established that [...] trade is a driver of unsustainable use"	Thanks for your comment. We provide that evidence elsewhere, but the statement seems to misplaced at that part of the text. We have rewritten that sentence, highlighting the role about economic and social outcomes.

569	Pavitt, Aly	4	168	6479			Case study in this report might be useful in the context of CITES-listed hunting trophies: https://www.researchgate.net/publication/308985879_Southern_Africa's_wildlife_trade_An_analysis_of_CITES_trade_in_SADC_countries	Thank you for your comment! We have added the reference to the assessment.
570	Orenstein, Ronald	4	169	6479	173	6633	This text presents a much more realistic picture of the problems posed by the wildlife trade than does earlier text on this issue (the subject of many of my prior comments). Sustainability may be the exception rather than the rule for the majority of species in trade. I would point out that trade to distant markets also means that the proportion of revenue and the degree of control over management decisions by local communities within a species' range will frequently decrease, with most of the benefit and control devolving to middlemen and trade kingpins. See Mohapatra, R. K., Panda, S., Nair, M. V., Acharjyo, L. N., & Challender, D. W. S. (2015). A note on the illegal trade and use of pangolin body parts in India. TRAFFIC Bulletin; Nijman, V. (2019). Souvenirs, shells, and the illegal wildlife trade. Journal of Ethnobiology, 39(2), 282–296. https://doi.org/10.2993/0278-0771-39.2.282 (cited above).	Thank you for your comment. The positive feedback is greatly appreciated by the chapter authors. We cannot add additional text to the chapter due to word length restrictions. As this is another example to support a point already made, and not crucial to our critical evaluation, we have chosen not to include it.
571	Ryan, Mark	4	169	6492	169	6493	The following does not make sense: "Typically, domestic trade is substantially larger than domestic trade..." Assume the later term "domestic" should be international.	Thanks for spotting this! You are right and it has been corrected.
572	Hoffmann, Mike	4	170	6524	170	6528	These are all factually correct. It can be supplemented by the findings in Marsh et al. which revise these results and expand them to other taxa. These findings show that across the 25,009 species in 10 taxonomic groups, 10,098 (40%) had some purpose of use documented. The proportion of species documented as having at least one purpose of use coded ranged from 15% (crustaceans) to nearly 100% of cone snails (544 of 545 species) among aquatic groups, and 11% (amphibians) to 76% (conifers) among terrestrial groups.	Thanks for the suggestion! We have included the information and the reference.
573	Takehara, Mari (Ministry Environment of Japan)	4	171	6551	171	6555	we believe that the bear nuisance management system is largely dysfunctional, undermining sustainability goals." does not necessarily capture the current situation in Japan. Regarding the protection and management of bears, Japan carries out bear population management, habitat maintenance, and damage control systematically with the revision of Protection and Control of Wild Birds and Mammals and Hunting Management Law in 2014. More specifically there are measures under this law: the first-class Specified Bird and Mammal Conservation Plans (when the population has decreased significantly or the range of its habitat has decreased) and the second-class Specific Bird and Mammal Management Plan (when the population has increased significantly or the range of its habitat has expanded), which are developed by prefectural governments. In developing such a plan, medium- to long-term goals and measures for the protection or management of birds and mammals are set in a scientific and systematic manner, with the agreement of experts and a wide range of stakeholders in each prefecture. Eight prefectures have made the first-class specific bird and mammal protection plans, and 14 prefectures have made second-class specific bird and mammal management plans. http://www.env.go.jp/nature/choju/plan/plan3.html (in Japanese) The national government provides guidelines so that prefectures can use it as a reference when making specific plans. http://www.env.go.jp/nature/choju/plan/plan3-2c/index.html (in Japanese) In addition, we have made a manual on what to do when bears appear. http://www.env.go.jp/nature/choju/docs/docs5-4a/index.html (in Japanese) (The transition of hunting and controlled capture (permitted capture) is also posted on pages 122 to 123 of the manual.) In addition, in order to prevent damage to agriculture and forestry caused by	Thanks for these additions. We agree that our initial wording was too strong given developments that took place after the cited paper was published. We have rephrased the text accordingly in light of a more contemporary paper.
574	Takehara, Mari (Ministry Environment of Japan)	4	171	6551	171	6555	Please add an article by Mano and Ishii (2008) to the References since it is missing.	Thanks! This has been added.

575	Hull, Amanda	4	171	6577	171	6577	It would be helpful to remind readers here that the term "hunting" is being used here to connote capture that is intended to be non-lethal.	Thanks! We replaced 'hunting' by 'harvesting'.
576	Ryan, Mark	4	171	6577	171	6577	The following suggests that pet trade drives hunting: "Pet trade can be an important driver of biodiversity loss and hunting of wild species". Is this correct? Or is "non-lethal harvesting" supposed to replace "hunting" in this instance.	Thanks for the comment! We replaced it by non-lethal harvesting as suggested.
577	Pavitt, Aly	4	171	6578			zoonotic diseases being spread internationally could be another indirect impact of live animal harvesting and trade (see https://hub.jncc.gov.uk/assets/964ae259-410e-4205-8ec7-e2c54f5c6e3d for zoonotic potential of CITES trade)	Thanks for the comment. Though zoonotics will be primarily covered in other section, it is a good idea to mention it here as well. So we have added your suggestion.
578	China	4	172	6619	172	6623	In China the captive bred animals are treated in laws the same as ones from the wild. Most of the cases in Ni et al. 2018 involved primate bred from captive facilities. But in this assessment, the captive breeding populations are not covered. As a result the citation and case should be deleted from the chapter.	Thank you for the comment! The paper mentions that the animals may come from wild and captive populations, so the citation is relevant for the assessment. But we have removed the specific numbers as they are a combination of wild and captive population and add little to the assessment.
579	Kumagai, Joy	4	174	6664	174	6665	Figure 4.10 Please gain approval to use.	Thank you for your comment. The license to all figures will be provided in the legend of the figures on the final version of the chapter.
580	Vause, James	4	174	6678	174	6687	Again many of these references relate to impacts of trade beyond sustainable use, so perhaps are a little misleading as many impacts again come from land use change.	Trade may give incentives to harvest timber for sale, and also to convert land, both undermining sustainable use. So we think it should be part of the assessment.
581	Lippai, Christine	4	175	6576	175	6582	Where is the Goode 2005 reference? This article was based on research on reptile harvesting in Arizona, USA and the destruction of rocks to collect reptiles - as a very site-specific piece of research, would be good to either corroborate findings with other similar research, or delete completely.	Thanks for the comment. We have added two additional references to support that statement.
582	Morgan, David (CITES)	4	175	6708	175	6719	The difficulties of distinguishing between rosewood of different species is clear but is the point being made that sustainability would best be addressed at generic level or that illegal trade could be better combatted if regulation was at generic-level?	Yes, if taxonomic confusion makes enforcement and sustainable use impossible a more generic approach (e.g. uplisting to Appendix I) may be better to combat illegal trade and also prevent further degradation (though this is second-best: it would be better for livelihoods and economic sustainability of sustainable use was possible). Also, what is very clear is that the combination of specific CITES listings and very crude codes down the value chain (e.g. trade data) makes it almost impossible to trace or detect illegal harvests. So this point we added for clarification.
583	Pavitt, Aly	4	175	6710			what species of rosewood are CITES-listed. Useful to provide correct scientific names	Thanks for giving us the opportunity to clarify. In 1992, Brazilian rosewood (<i>Dalbergia nigra</i>) was placed on CITES Appendix I in 1992. In 2013, Siamese rosewood (<i>Dalbergia cochinchinensis</i>) and all Malagasy species of <i>Dalbergia</i> and <i>Diospyros</i> (ebony) were added to Appendix II (Waeber et al. 2019). This has been added.
584	Orenstein, Ronald	4	175	6721	175	6722	The cited paper by Natusch and Lyons is omitted from the references: Natusch, D.J.D. and Lyons, J.A. (2014). Assessment of python breeding farms supplying the international high-end leather industry. A report under the 'Python Conservation Partnership' programme of research. Occasional Paper of the IUCN Species Survival Commission No. 50. Gland, Switzerland: IUCN. 56pp.	Yes, enforcement would be easier, but it is not a priori clear that it is necessarily better (as one would also have to restrict species that are not threatened) which is undesirable, too. What is very clear is that the combination of specific CITES listings and very crude codes down the value chain (e.g. trade data) makes it almost impossible to trace or detect illegal harvests. So this point we added for clarification.
585	Pavitt, Aly	4	175	6722			"python" rather than "phyton"	Thank you. change was made.
586	Orenstein, Ronald	4	175	6723	175	6726	It also depends on how benefits are distributed. If most of the revenues from trade go to middlemen etc., there may be little incentive on the part of local people to conserve the resource.	This is very true. We have included your comment.
587	Lippai, Christine	4	176	6593	176	6593	spelling of 'pets' and 'Africa'	Thank you. Spelling was corrected.
588	Lippai, Christine	4	176	6607	176	6611	there is a reference to 'we'...who is the 'we'? Is this taken directly from the article being cited?	Thanks for spotting this! The paragraphs has been rewritten.
589	Lippai, Christine	4	176	6625	176	6627	it is important not to confuse sustainability with legality. Where species are under total protection and their trade is banned either nationally or internationally, then those species should not enter into commercial markets. Whilst the pet trade can have negative consequences on some populations, this is often due to ineffectual policy, poor management and loose enforcement. Examples of sustainable use for the pet trade	We agree that sustainability and legality are different issues. We also agree that trade in combination with weak governance, lack of enforcement and management can lead to sustainable use. We cannot add additional text to the chapter due to word length restrictions. As this is another example to support a point already made, and not crucial to our critical evaluation, we have chosen not to modify the text.

590	Orenstein, Ronald	4	176	6728	176	6732	This is not always true and should not be assumed. In a study of trapping for the wildlife trade in Madagascar (Robinson, J. E., Griffiths, R. A., Fraser, I. M., Raharimalala, J., Roberts, D. L., & St. John, F. A. V. (2018). Supplying the wildlife trade as a livelihood strategy in a biodiversity hotspot. <i>Ecology and Society</i> , 23(1). https://doi.org/10.5751/ES-09821-230113), the authors found that "Because trapping households were significantly more likely to agree that traded wildlife groups were important for income compared to nontrappers, we might expect those benefiting financially to have more positive opinions regarding its conservation. However, despite generally positive perceptions regarding species and habitat conservation, there was no evidence of improved perceptions among wildlife trappers, suggesting trapping may not offer sufficient incentives to lead to enhanced stewardship of traded species and their habitats."	Thanks for this comment and valuable suggestion. We have included the suggested paper.
591	Pavitt, Aly	4	176	6728			light on specific examples	Thank you for your comment. This sentence as not very clear. We have rephrased it and also added one example.
592	Orenstein, Ronald	4	176	6741	176	6745	The word here is "if". Frequently trade does not deliver the promised benefits to local people, or the value derived diminishes over time as a result of population influx into the area. See Dzvimbo, M.A., Monga, M., Magijani, F., 2018. The dilemma on reconceptualizing natural resources in campfire areas in Zimbabwe. <i>Adv. soc. sci.</i> 5(8), 522–533, cited above.	Thanks for the comment! We have slightly rephrased in light of your comment and added the reference.
593	Lippai, Christine	4	177	6628	177	6628	suggest including the words 'precious skins, and leather' after 'fiber' [also check that fiber/fibre is spelled consistently as either American or UK]	Thanks for the comment! This section is about non-lethal harvesting and, hence, the focus on fiber (and not skin, leather).
594	China	4	177	6795	177	6796	Delete the sentence. This description is one-sided. The killing of elephants is also caused by local armed conflicts, human elephant conflicts, poor governance, and corruption. Especially, China has completely banned domestic ivory trade since the end of 2017 and strengthen the nation-wide law enforcement in the underground markets through multi-departmental cooperation. China has always taken a "Zero-tolerance" attitude in cracking down on illegal and criminal activities involving endangered species, while actively providing technical and financial support to African government departments in strengthening the protection of endangered animals such as elephants. At the same time, there are still some countries in the world which have not imposed a trade ban on ivory, and ivory can still be freely traded in these countries.	Thanks for the comment and addition. We cannot add additional text to the chapter due to word length restrictions. We agree that the sentence on prices was not so relevant and have deleted it.
595	Ryan, Mark	4	177	6797	177	6797	Important to use this opportunity to introduce the term "poaching". This is used elsewhere in the report. Mention it in brackets here and continue to use elsewhere when referring to "illegal hunting"	We have introduced the term 'poaching', as suggested.
596	Orenstein, Ronald	4	177	6799	177	6799	In fact all species of pangolin are under severe threat from illegal trade.	We now refer to all pengolin and give Chinese pangolin as an example.
597	Orenstein, Ronald	4	178	6830	178	6834	It is an overstatement to imply that enforcement solutions are ineffective across the board. Although illegal trade is far from having been eliminated (in fact, there are very few, if any, laws that have totally eliminated criminal activity in any sphere) this is an injustice to the operations of ICCWC, Interpol and many national governments that have worked hard to control it. Please consult Nurse, A., White, R., Jarrell, M., Brisman, A., Kramer, R., & Newman, R. (2016). <i>Environmental Crime and Collaborative State Intervention</i> . Palgrave Studies in Green Criminology.	Thanks for the comment. We have rephrased and included the suggested reference.
598	Bennett, Elizabeth	4	179	6874	181	6956	As in the previous section on CITES on pages 62-67, this section is a serious concern as it both again highly biased, full of inaccuracies, and more, shows almost no understanding of CITES or how it functions. Its knowledge of the literature is extremely limited and one-sided and, as in the previous section, is unaware of the fact that most relevant data around CITES is in documents on the website itself. Like for the previous section, this one needs totally re-writing by someone in the CITES Secretariat or one of many people highly experienced in CITES issues.	Thanks you for your very critical comment. We have decided to remove this part entirely from the 'economic drivers' section. A completely revised and rewritten piece covering CITES is now part of the 'political drivers section'.
599	Pavitt, Aly	4	179	6874	181	6956	very one sided view of CITES - same as mentioned above, needs more balance (e.g. when or why it does work)	Thanks! We have removed that part from the economic drivers section and included a new and more balanced section on CITES in the 'political drivers' section.

600	Orenstein, Ronald	4	179	6876	179	6878	Preventing extinction, though certainly an end goal, is nowhere referred to in the CITES text. Please use the actual language in the Convention: "the protection of certain species of wild fauna and flora against over-exploitation through international trade".	Thanks for your comment! This section has been removed and integrated with the 'political drivers' section. We will make sure that your comment is taken into account.
601	China	4	179	6882	180	6894	CITES now has 38700 species of plants and animals. The number of listed species in each Appendix should be updated.	Thanks for your comment! We will use the updated number.
602	Vitale, Jessica	4	179	6883			Currently includes approximately 38,700 species: https://cites.org/eng/disc/species.php	Thanks for your comment! We will use the updated number.
603	Vitale, Jessica	4	179	6884			'appendices' should be capitalised, as it is later in the paragraph - check for consistency throughout CITES sections	Thanks! We will do that.
604	Bennett, Elizabeth	4	179	6885	179	6885	The are not Endangered species, but species that are threatened by international commercial trade. Some of which are Endangered, but by no means all.	You are right. In the updated version on CITES (in the political drivers section) the comment will be taken into account.
605	Orenstein, Ronald	4	179	6885	179	6886	Other than in the title, the word"endangered" occurs nowhere in the treaty text. Appendix I is for species threatened with extinction, but species on Appendix II are "not necessarily threatened" but either may become so without regulation or are need to be listed in order to assist in the regulation of trade in other species (look-alikes). It is unacceptable a document of this type one of the major multinational environmental agreements cannot be described accurately.	You are right. In the updated version on CITES (in the political drivers section) the comment will be taken into account.
606	Orenstein, Ronald	4	179	6888	179	6890	Species on Appendix I also require a non-detriment finding before being imported or exported. See previous comment; instead of saying there are "several" appendices could the accurate number not be provided?	We have removed this part from the 'economic drivers' section and give a more complete overview on CITES in the political drivers section.
607	Vitale, Jessica	4	179	6888			the number of species that are currently listed on Appendix II is approximately 37,400 (https://cites.org/eng/disc/species.php)	Thanks for the comment! The section has been removed, but we will make sure your comment is addressed.
608	Bennett, Elizabeth	4	179	6889	179	6890	Not all Appendix II species are subject to NDFs.	Thanks for the comment! The section has been removed, but we will make sure your comment is addressed.
609	Vitale, Jessica	4	179	6889			official term is 'non-detriment finding' (as mentioned in previous sections, check for consistency throughout)	Thanks for the comment! The section has been removed, but we will make sure your comment is addressed.
610	Vitale, Jessica	4	179	6890			Scientific Authority should be capitalised	Thank you. Change was made.
611	Vitale, Jessica	4	179	6898	179	6902	General consistency check for in-text citations where some references give the first initial or name of the first author (e.g. J. Phelps et al 2010 and Jessica A. Lyons and Natusch 2011) instead of the surname only (the standard format for most of the report)	Thanks, we will double check all references!
612	Orenstein, Ronald	4	180	6895	180	6895	Why were the authors entrusted to write this text so unfamiliar with the Convention they are writing about that they seem to be unaware that it is almost invariably referred to by its acronym, CITES?	We have decided to remove this part entirely from the 'economic drivers' section. A completely revised and rewritten piece covering CITES is now part of the 'political drivers section'.
613	Bennett, Elizabeth	4	180	6897	180	6897	Again, this is biased, and also unspecific -- what adverse incentives? And what about the many positive incentives?	We have decided to remove this part entirely from the 'economic drivers' section. A completely revised and rewritten piece covering CITES is now part of the 'political drivers section'.
614	Bennett, Elizabeth	4	180	6898	180	6900	This shift is seen in some taxa, but only a very small proportion. The majority of CITES-listed species in trade are still mostly wild-sourced.	You are right. In the updated version on CITES (in the political drivers section) the comment will be taken into account.
615	Orenstein, Ronald	4	180	6898	180	6890	This is a very broad generalization that does not apply to all listed species.	You are right. In the updated version on CITES (in the political drivers section) the comment will be taken into account.
616	Bennett, Elizabeth	4	180	6902	180	6909	This is irrelevant to any discussions around sustainable use since there is no discussion here around that topic, just a list of data from one part of the world.	This part has been removed.
617	Orenstein, Ronald	4	180	6904	180	6910	Instead of relying on a paper published in 2010, the authors not have researched the CITES Trade Database to get much more recent figures? Statements about chief importing countries are seriously out of date, as China has become more and more and in the market for wildlife trade.	We have decided to remove this part entirely from the 'economic drivers' section. A completely revised and rewritten piece covering CITES is now part of the 'political drivers section'.
618	Vitale, Jessica	4	180	6908	180	6909	This should be in past tense since the trade already occurred ("The main importers were...")	Thanks for spotting this!
619	Bennett, Elizabeth	4	180	6910	180	6911	Only a small proportion of CITES listed species are on Appendix I so international commercial trade is banned. And the purpose is to conserve the species, nothing to do with biological invasions.	Thanks for the comment! The section has been removed, but we will make sure your comment is addressed.
620	Vitale, Jessica	4	180	6910	180	6923	The focus of this paragraph is unclear - the first sentence mentions trade bans reducing biological invasions, then it moves onto domestic trade, and then how trade bans can affect demand/illegal trade. Suggest reworking the flow of concepts presented in this paragraph.	We have decided to remove this part entirely from the 'economic drivers' section. A completely revised and rewritten piece covering CITES is now part of the 'political drivers section'.

621	Bennett, Elizabeth	4	180	6911	180	6915	It is an international treaty, so is about international trade. Domestic trade is the responsibility of individual countries with their sovereign rights. Although in some cases, CITES does influence domestic trade if it potentially threatens species in international trade. e.g., A CITES Regulation calls for the closing of domestic ivory markets if they threaten elephant populations in the wild; a CITES Decision calls for the closure of tiger farms since they threaten tigers in the wild by potentially allowing for laundering of bones from wild animals.	Thanks for these suggestions! We have decided to remove the CITES part entirely from the 'economic drivers' section. A completely revised and rewritten piece covering CITES is now part of the 'political drivers section'.
622	Vitale, Jessica	4	180	6914			latin names for species should be italicised	Thanks! We will do that.
623	Bennett, Elizabeth	4	180	6915	181	6938	Again, this is highly biased. As with any area potentially involving low capacity to implement, it is not perfect. But multiple species are in far better shape globally due to being listed on CITES, starting with primates, fur-bearing species and orchids and so many more. CITES is also the international conservation treaty with the strongest teeth, and can implement strong penalties on countries for consistent non-compliance. Implementation and enforcement is the province of individual Parties so is uneven across countries, not an issue with the treaty itself	In light of your critical comments (and many comments by others raising similar issues), we have decided to remove this part entirely from the 'economic drivers' section. A completely revised and rewritten piece covering CITES is now part of the 'political drivers section'.
624	Orenstein, Ronald	4	180	6915	180	6918	As noted above, this is not always true. See Robinson, J. E., Griffiths, R. A., Fraser, I. M., Raharimalala, J., Roberts, D. L., & St. John, F. A. V. (2018). Supplying the wildlife trade as a livelihood strategy in a biodiversity hotspot. <i>Ecology and Society</i> , 23(1). https://doi.org/10.5751/ES-09821-230113 , cited above.	Thanks for this suggestion! We have decided to remove the CITES part entirely from the 'economic drivers' section. A completely revised and rewritten piece covering CITES is now part of the 'political drivers section'.
625	Orenstein, Ronald	4	180	6915	180	6918	This text, in common with much of the rest of the text in this section, repeatedly cites the same authors, usually in publications that are 10 years out of date or more. They represent a narrow and biased, and often inaccurate, point of view. There is in fact very little evidence showing that trade in listed species is driven underground (as opposed to illegal trade continuing in the face of a commercial trade ban, as has been the case with Ivory and rhinoceros horn), although other loopholes, such as fraudulent claims of captive breeding, may be resorted to. In fact there is evidence of the reverse: the absence of a ban facilitates the laundering of contraband goods into legal trade streams, as was frequently the case with ivory. See Sakamoto, M. (2007). Destination Japan: An investigation into the Japan seizure and laundering of illegal ivory. <i>Japan Wildlife Conservation Society</i> ; Symes, W. S., McGrath, F. L., Rao, M., & Carrasco, L. R. (2018). The gravity of wildlife trade. <i>Biological Conservation</i> , 218(February 2019), 268–276. https://doi.org/10.1016/j.biocon.2017.11.007 , cited above. A legal trade could also increase demand for rhinoceros horn; see Dang Vu, H. N., & Nielsen, M. R. (2018). Understanding utilitarian and hedonic values determining the demand for rhino horn in Vietnam. <i>Human Dimensions of Wildlife</i> , 23(5), 417–432. https://doi.org/10.1080/10871209.2018.1449038 .	In light of your critical comments (and many comments by others raising similar issues), we have decided to remove this part entirely from the 'economic drivers' section. A completely revised and rewritten piece covering CITES is now part of the 'political drivers section'.
626	Orenstein, Ronald	4	180	6920	180	6923	The paper cited in support of this statement (MacMillan et al, 2017) is not listed in the bibliography (a distressingly common occurrence in this document). The relationship between poaching levels and price is far more complex than this text suggests, and the relationship with trade restrictions even more so. For example, China's recent closure of its legal ivory market was followed by a fall in both price and demand as well as a drop in poaching rates. Please consult Hauenstein, S., Kshatriya, M., Blanc, J., Dormann, C. F., & Beale, C. M. (2019). African elephant poaching rates correlate with local poverty, national corruption and global ivory price. <i>Nature Communications</i> , 10(1). https://doi.org/10.1038/s41467-019-09993-2 .	Thanks for this suggestion! We have decided to remove the CITES part entirely from the 'economic drivers' section. A completely revised and rewritten piece covering CITES is now part of the 'political drivers section'.

627	Miller, Carly	4	180	6924	180	6933	Please review literature examining the benefits of trade bans including: Mweetwa, Thandiwe, David Christianson, Matt Becker, Scott Creel, Elias Rosenblatt, Johnathan Merkle, Egil Droge, Henry Mwape, Jones Masone, and Twakundine Simpamba. "Quantifying Lio (panthera leo) demographic response following a three-year moratorium on trophy hunting." PLoS one 13, no. 5 (2018): e0197030; https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0197030 Also: Science Magazine, Volume 366, Issue 6464, 25 October 2019. Discussion on trophy bans.	Thanks for this suggestion! We have decided to remove the CITES part entirely from the 'economic drivers' section. A completely revised and rewritten piece covering CITES is now part of the 'political drivers section'.
628	Orenstein, Ronald	4	180	6924	180	6924	See comment 150 above.	We have decided to remove the CITES part entirely from the 'economic drivers' section. A completely revised and rewritten piece covering CITES is now part of the 'political drivers section'.
629	Bennett, Elizabeth	4	180	6926	180	6930	CITES does not list endangered species -- the IUCN Red List of Threatened Species does that. CITES lists species on its Appendices. Red sandalwood (not Red Sanders) is on Appendix II, so can be traded legally with appropriate permits.	You are right. In the updated version on CITES (in the political drivers section) the comment will be taken into account.
630	Vitale, Jessica	4	180	6926	180	6933	Pterocarpus santalinus was listed on CITES Appendix II - I would use this phrasing rather than 'put on the list of endangered species by CITES' The phrase 'restricting international trade substantially' should also be reconsidered, as it seems to imply that an Appendix II listing is itself outlawing trade. I also don't think "(as it is illegal)" on line 6933 is a fair statement - an Appendix II listing doesn't make timber harvesting illegal, it is regulating the trade	You are right. In the updated version on CITES (in the political drivers section) the comment will be taken into account.
631	Blömer, Nynke	4	181	6347	181		New paper on <i>Hippocampus</i> trade: https://www.mdpi.com/1424-2818/13/5/187	Thanks for this suggestion! We have decided to remove the CITES part entirely from the 'economic drivers' section. A completely revised and rewritten piece covering CITES is now part of the 'political drivers section'.
632	Vitale, Jessica	4	181	6939	181	6956	- Bycatch is a challenge for CITES implementation, but the way this paragraph is phrased seems to disregard the issues with fisheries practices and enforcement on the ground - this paragraph comes across like it is simply a CITES shortcoming. -Expert opinion is that the officially reported CITES trade data accurately reflects the dominant species in trade (see CITES and the sea report https://www.researchgate.net/publication/348966617_CITES_and_the_sea_Trade_in_commercially_exploited_CITES-listed_marine_species). And while many seahorses are captured as bycatch, the CITES mandate only covers the international trade in these specimens rather than being responsible for fishing practices that result in bycatch - The sentence about the slow process for uplisting also feels out of place here given that this paragraph is about bycatch - uplisting seahorses to Appendix I would prohibit commercial international trade but would not impact domestic activities. - Please also consider these comments in relation to page 166 lines 6347-6354 which includes much of the same information as the paragraph discussed	In light of your critical comments (and many comments by others raising similar issues), we have decided to remove this part entirely from the 'economic drivers' section. A completely revised and rewritten piece covering CITES is now part of the 'political drivers section'.
633	Vitale, Jessica	4	181	6941	181	6942	The <i>Hippocampus</i> genus listing went into force in 2004. Also suggest including the genus name in this sentence.	Thanks for this suggestion! We have decided to remove the CITES part entirely from the 'economic drivers' section. A completely revised and rewritten piece covering CITES is now part of the 'political drivers section'.

634	Orenstein, Ronald	4	181	6943	181	6950	This is again a highly one-sided statement (see Vincent, A. C. J., Sadovy de Mitcheson, Y. J., Fowler, S. L., & Lieberman, S. (2014). The role of CITES in the conservation of marine fishes subject to international trade. <i>Fish and Fisheries</i> , 15(4), 563–592. https://doi.org/10.1111/faf.12035 , cited above, which notes that "inclusion in Appendix II has helped generate significant progress on captive production for sturgeon, seahorses in live trade and tridacnid giant clams" and that "CITES has a significant opportunity to make a contribution to conservation of marine fish species and to complement national fishery management initiatives." See also Kuo, T.C. and Vincent, A. (2018). Assessing the changes in international trade of marine fishes under CITES regulations – A case study of seahorses. <i>Marine Policy</i> 88, 48-57. https://doi.org/10.1016/j.marpol.2017.10.031 ., which found that "This study found that the total weight of seahorses in documented trade decreased significantly after CITES implementation, recorded trade became concentrated in fewer countries, and prices increased. Seahorse source countries were found having more fishers, demersal fish catch and general trade with China, compared to other range states."	In light of your critical comments (and many comments by others raising similar issues), we have decided to remove this part entirely from the 'economic drivers' section. A completely revised and rewritten piece covering CITES is now part of the 'political drivers section'.
635	Thebaud, Olivier	4	181	6957	191	6957	In addition to global financial flows, there is a need for more empirical studies of investment behaviour and drivers of investment behaviour in resource harvesting, based on adequate economic data (see e.g. https://dx.doi.org/10.5950/0738-1360-26.2.95 in the case of fisheries)	Thank you for your comment. We cannot add additional text to the chapter due to word length restrictions. We feel that reviewing investment behavior and drivers of investment and assessing their impacts on sustainable use is beyond the scope of the chapter.
636	Lippai, Christine	4	184	6892	184	6894	Need to check the number of species listed in Appendix III - USFWS fact sheet notes 260. Also, add a date after the number, as this is a dynamic Appendix	Thanks you for your comment. This section has been deleted as CITES is now covered in the political drivers section. We will make sure your comment is reflected there.
637	Perez Gil, Ramon	4	185	7096	185	7101	Indeed remittances at the Sierra Gorda Biosphere Reserve in Mexico has released some of the pressure but on the other hand has "produced" more idle individuals that became "happy triggers" out of boredom. We documented an increase in outings for hunting purposes and indeed illegal hunting practiced by individuals whose "occupation" is receiving remittances or who are using up their "savings" made as migrant workers in the North (USA and Canada) Please refer to: Local Perspectives on Conflicts with Wildlife and Their Management in the Sierra Gorda Biosphere Reserve, Mexico Inés Arroyo-Quiroz, Raúl García-Barrios, Arturo Argueta-Villamar, Robert J. Smith, Ramón Pérez Gil Salcido <i>J. of Ethnobiology</i> , 37(4):719-742 (2017). And also:	Thanks for the comment. We have included your suggested reference.
638	Hull, Amanda	4	185	7130	185	7130	Same issue with wording here as previously.	Thank you for your comment, but we can see no connection between the highlighted text and the comment, so we are unable to respond appropriately.
639	Hull, Amanda	4	185	7132	185	7132	change "most cases" to "many cases"	Thank you for your comment. Suggested change was made.
640	Hull, Amanda	4	185	7132	185	7133	This should be reworded. I don't believe "extractive tourism" is referenced at all (not by this term) in other chapter. I see the term is explained in some detail later in this chapter, beginning at line 7312.	Thanks you for your comment. We have clarified that extractive forms of tourism refers to terrestrial animal harvesting and fishing.
641	Ryan, Mark	4	185	7132	185	7132	To state "in most cases" is a large stretch, especially when the statement is listed as unresolved. This could certainly be replaced with "in some cases"	Thank you for your comment. Now we say 'many' cases; as suggested in comment 662.
642	China	4	189	7276	189	7278	Delete this sentence as China's ivory trade ban has been in place in the end of 2017.	Thank you for your comment. This statement is factually correct as it refers to a period 2010-2012. Since the reference is relevant for our review and the comment does not provide a valid reason to remove this sentence we decided to keep it in the assessment.
643	Hull, Amanda	4	190	7313	190	7313	I would not describe trophy hunting as a dimension of tourism since it does not always necessitate travel over a significant distance. The authors appear here to equate the broader idea of trophy hunting only with foreign hunters who travel to Africa to hunt big game. Trophy hunting also occurs in other regions, i.e. North America, and is practiced by local residents.	Thanks for the comment! We agree that trophy hunting occurs globally (and very often practiced by locals), but note that this section is about tourism as a driver with an emphasis on those that travel long distances. Trophy hunting is a part of that reality, so it is discussed here. But see ch. 3 for a much more comprehensive treatment of trophy hunting as a practice.
644	Ryan, Mark	4	190	7313	190	7313	The start of this line should read: So-called 'trophy hunting'... It must be reminded, as it mentioned in other parts of this draft report, that there is rarely ever one sole objective of any type of hunting. A 'trophy' for example is only a part of the overall experience.	Thanks you for your comment! We have incorporated your suggestion.

645	Miller, Carly	4	190	7314	190	7315	We suggest that the "often elite" section in parentheses be removed unless you can provide a citation that would support its inclusion.	Thanks for your comment. We removed 'often elite'.
646	Ryan, Mark	4	190	7314	190	7315	It is worth highlighting here that, in many cases hunters themselves do not approve of certain types of images of hunted iconic species, or non-iconic species for that matter. This is also the reason why a number of organisations have developed guidelines for taking photos which demonstrate the true ethics and respect of genuine fair chase hunters for wildlife and nature e.g. https://www.conservationfrontlines.org/2019/10/hunting-social-media-namibia-has-a-position-on-that/	Thanks for your comment. Thanks for saharng that example, which is really interesting. However, we cannot include due to length restrictions.
647	Hull, Amanda	4	190	7316	190	7316	Are we talking here about the idea of trophy hunting being unappealing to people or about actual images of trophy hunting, i.e. those communicated by hunters via social media, being unappealing to people? This is unclear.	Thanks for your comment. This refers to both and has been clarified.
648	Hull, Amanda	4	190	7319	190	7319	sometimes, not "often"	Thank you for your comment. Since the comment does not provide a valid reason to change this sentence we decided to keep it as is in the assessment.
649	Hull, Amanda	4	190	7319	190	7319	Conservation benefits are quite clear in many circumstances	Thank you for your comment. Yes, sometimes they are very clear, but often not. We have specified that conservation benefits are in many cases unclear (which implies that they are quite clear in various cases).
650	Ryan, Mark	4	190	7319	190	7319	"... Often not benefiting local communities" would need to be backed up by comparative statistics. Should be replaced by "...not always benefitting local communities" as they are countless examples of instances where local communities benefit both directly (meat, income, livelihoods) and indirectly (tax revenues and infrastructure development).	Thank you for your comment. The cited references (e.g. Campbell 2013) are quite clear that it 'often' does not benefit local communities. Campbell, for example writes "Analysis of literature on the economics of trophy hunting reveals, however, that communities in the areas where hunting occurs derive very little benefit from this revenue." Since the comment does not provide a valid reason to change this sentence we decided to keep it as is in the assessment.
651	Ryan, Mark	4	190	7319	190	7319	"... conservation benefits are unclear" is not correct and contradicts many concrete examples presented elsewhere. A correct re-phrasing would read "... conservation benefits are not always immediately obvious" or "... Conservation benefits are not always clear"	Thanks for your comment. This has been changed to 'not clear in many cases'.
652	Hull, Amanda	4	190	7328	190	7328	Does it put pressure on a population if it is well-regulated and managed in line with scientific principles?	Thanks for your comment. We have integrate dyour comment in the text.
653	Ryan, Mark	4	191	7361	191	7361	Another example where similar principles are at play is the "Age Related Trophy Measuring System" (http://www.napha-namibia.com/fileadmin/user_upload/Age_Related_Trophy_Measurement_System.pdf)	Thank you for your comment. We cannot add additional text to the chapter due to word length restrictions. As this is another example to support a point already made, and not crucial to our critical evaluation, we have chosen not to include it.
654	Miller, Carly	4	191	7371	191	7372	Rewrite sentence to read, "If monitoring, quotas, and age-based harvesting are difficult to enforce, a full moratorium or a complete ban may be a good option to ensure sustainability." We note that there is a stated objection against bans in this paragraph, but this is a very controversial topic and one that should show both sides. This paragraph is biased towards the anti-ban approach. Please review literature examining the benefits of trade bans including: Mweetwa, Thandiwe, David Christianson, Matt Becker, Scott Creel, Elias Rosenblatt, Johnathan Merkle, Egil Droge, Henry Mwape, Jones Masonde, and Twakundine Simpamba. "Quantifying lion (Panthera leo) demographic response following a three-year moratorium on trophy hunting." PloS one 13, no. 5 (2018): e0197030; https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0197030 Also: Science Magazine, Volume 366, Issue 6464, 25 October 2019. Discussion on trophy bans. Also, there needs to be a mention of alternative funding schemes to allow communities to generate income, such as alternative livelihood development, and remote funding mechanisms such as the Rhino Bond, Rebalance Earth, the Lion's Share and (see citations in other comments for this chapter).	Thanks for the comment! We have revised the sentence as suggested. The discussion on trophy bans in 'science' are interesting, but we cannot add additional text to the chapter due to word length restrictions. The controversies around benefits and livelihoods related to trophy hunting (and alternatives) are already discussed in the assessment.
655	Thebaud, Olivier	4	192	7390	192	7390	Could this section also include reference to recent and projected trends in the demand for wild species, in at least some of the main sectors (timber, fisheries, ...)? See e.g. https://www.nature.com/articles/s41586-020-2616-y for marine fisheries.	Thank you for your comment. Since there is a dedicated chapter to 'future scenarios', we believe it is addressed there.
656	White, Michael	4	192	7418	192	7422	Particularly true for CO2 emissions, no awareness of individual impact	Thank you for your comment. The feedback is greatly appreciated by the chapter authors.

657	Government of Argentina	4	192	7390	194	7477	<p>Para la sección 4.2.4.4 se recomienda tener en cuenta las siguientes referencias: - Bolkovic M. L. y D. E. Ramadori (eds) 2006. Manejo de fauna silvestre en la Argentina. Programas de uso sustentable. Dirección de Fauna Silvestre, Buenos Aires.</p> <p>- Banchs R. A. y F. N. Moschione. 2006. Proyecto Elé. Para la conservación y el aprovechamiento sustentable del loro hablador (Amazona aestiva) en la Argentina. Pp. 15–25 en: Bolkovic, M. L. y D. Ramadori (eds) Manejo de fauna silvestre en la Argentina. Programas de uso sustentable. Dirección de Fauna Silvestre, Buenos Aires. - Coconier A. y G. Lichtenstein (2014). Loros, Gripe Aviar y Soja: Los Alcances de Políticas Globales sobre Proyectos Locales.</p> <p>- Peris P, Pildain MB, Barroetaveña C. 2021. Micogastronomía Patagónica. Nuevos recursos productivos para la región. (En Prensa). CIEFAP, Esquel. 173 p. ISBN 978-987-28380-2-7. https://issuu.com/de-la-ciencia-a-la-mesa/docs/micogastronom_a_patagonica_2021-digital. - Barroetaveña C, López SN, Pildain MB. 2020. Cocinar con hongos silvestres. Descripción nutricional, propiedades, modos de consumo y preservación de los hongos silvestres de Patagonia. Manual N°20 CIEFAP, Esquel. 88 p. ISSN 1514-2256. - Llompert, F. M., Colautti, D. C., & Baigún, C. R. M. (2012). Assessment of a major shore-based marine recreational fishery in the southwest Atlantic, Argentina. <i>New Zealand Journal of Marine and Freshwater Research</i>, 46(1), 57-70</p> <p>- Guidi, C., Baigún, C. R. M., Ginter, L. G., Soricetti, M., Rivas, F. G., Morawicki, S., ... & Solimano, P. J. (2021). Characteristics, preferences and perceptions of recreational fishers in northern Patagonia, Argentina. <i>Regional Studies in Marine Science</i>, 101828.</p> <p>- Llompert, F. (2011). La ictiofauna de Bahía San Blas (Provincia de Buenos Aires) y su relación con la dinámica de las pesquerías deportivas y artesanales.</p>	Thank you for the suggested references. We consulted the papers and, due to lack of space, we inserted those that most could contribute to the section.
658	Orenstein, Ronald	4	193	7444	193	7447	<p>This statement ignores important recent literature. Please consult Veríssimo, D., & Wan, A. K. Y. (2019). Characterizing efforts to reduce consumer demand for wildlife products. <i>Conservation Biology</i>, 33(3), 623–633. https://doi.org/10.1111/cobi.13141 and MacFarlane, D., Hurlstone, M. J., Ecker, U. K. H., Ferraro, P. J., Linden, S. van der, Wan, A. K. Y., Veríssimo, D., Burgess, G., Chen, F., Hall, W., Hollands, G. J., & Sutherland, W. J. (2020). Reducing Demand for Overexploited Wildlife Products: Lessons from Systematic Reviews from Outside Conservation Science. <i>OSF Preprints</i>. https://osf.io/8935b/, cited above. Also please consult Greenfield, S., & Veríssimo, D. (2019). To What Extent Is Social Marketing Used in Demand Reduction Campaigns for Illegal Wildlife Products? <i>Insights From Elephant Ivory and Rhino Horn</i>. <i>Social Marketing Quarterly</i>, 25(1), 40–54. https://doi.org/10.1177/1524500418813543</p> <p>Thomas-Walters, L., Veríssimo, D., Gadsby, E., Roberts, D., & Smith, R. J. (2020). Taking a more nuanced look at behavior change for demand reduction in the illegal wildlife trade. <i>Conservation Science and Practice</i>, 2(9), 1–10. https://doi.org/10.1111/csp2.248.</p>	Thank you for suggesting these recent references. They were included in the text.
659	Biondo, Monica V.	4	193	7457	193	7457	<p>There are no regulations about selling and buying marine ornamental fishes online.</p>	Thank you for this remark. It was inserted with reference in the text.
660	Government of Argentina	4	194	7478	223	8476	<p>Para la sección 4.2.5. se recomienda tener en cuenta las siguientes referencias de trabajos en uso sustentable de hongos por parte de comunidades indígenas: Soledad Molares, Carolina V. Toledo, Gabriel Stecher & Carolina Barroetaveña (2019): Traditional mycological knowledge and processes of change in Mapuche communities from Patagonia, Argentina: A study on wild edible fungi in Nothofagaceae forests. <i>Mycologia</i>, DOI: 10.1080/00275514.2019.1680219. - Olivera S. 2018. Análisis de la cadena de valor de la goma brea para la valorización del producto con identidad territorial e indígena. Trabajo de Intensificación para obtener el grado de Licenciado en Economía y Administración Agrarias otorgado por Universidad de Buenos Aires. Facultad de Agronomía. 104 p. Recurso electrónico. Disponible en http://ri.agro.uba.ar</p>	Thank you for the suggested references. They were inserted in the section.
661	White, Michael	4	195	7520	195	7522	<p>The Sacred grove is the 'temple' wherein deities are worshipped, not usually the grove itself. In cities people do not worship the church, but attend church as a place of worship (communion) with the gods</p>	Thank you for your comment. We cannot add additional text to the chapter due to word length restrictions, although your remark is relevant

662	White, Michael	4	195	7531	195	7532	Custodianship can follow 2 main paths e.g.a 'shark' tribe might not eat their totemic animals, or they might be the only allowed ones to take	Thank you for your comment. We cannot add additional text to the chapter due to word length restrictions.
663	Ryan, Mark	4	198	7628	198	7628	Reference "Brandon et al., 2011" should likely read "Anthony et al., 2011. Assuming reference is being made to: Anthony, B. P., Abonyi, S., Terblanche, P., & Watt, A. (2011) and noting that there are no other "Brandon... (2011)" listed in the references.	Thanks for this suggested change. We have included it in the new version.
664	White, Michael	4	204	7816	204	7842	Tongareva Atoll, Northern Cook Islands, uses rahui as a traditional resource closure, opened & closed as needed. At the moment 3 species are protected (Tridacna maxima clams, kaveu or coconut crab Birgus latro and Sooty tern eggs Onychoprion fuscatus)	Thank you for this clarification. We cannot add additional text to the chapter due to word length restrictions
665	Kumagai, Joy	4	205	7843	205	7844	Figure 4.12 Please gain approval to use..	Thank you for your comment. The license to all figures will be provided in the legend of the figures.
666	Germany	4	206	7867	206	7867	Suggestion to include a more recent reference on the number of indigenous peoples worldwide.	Thank you for this comment. The reference has been updated from UNESCO : indigenouspeoples@unesco.org
667	Germany	4	207	7915	207	7916	Suggestion (Figure 4.13.): To consider adding the following text after "land": "and other natural resources".	Thanks for this suggested change. We have included it in the new version.
668	Germany	4	207	7915	207	7916	Suggestion for ease of understanding (Figure 4.13.): To consider adding arrows on relationships between grouped variables/words.	Thank you for your suggestion. We will work on the figures with our human resources
669	White, Michael	4	208	Box 4.31	208		Some text is duplicated in the box	Thank for your comment. Point well taken.
670	China	4	211	8055	211	8072	Box 4.33 wrongly identifies the so-called "Arunachal Pradesh" as India's territory. China has never recognized the so-called "Arunachal Pradesh" established by India on the illegally occupied Chinese territory. China's position on the east sector of the China-Indian boundary, or Zangnan (the southern part of Tibet, Province of China), is consistent and clear. To avoid the report involving China-India land and sovereignty dispute, it is recommended to delete box 4.33 and relevant two references (Rai 2005; Srivastava et al 2010).	Thank you for your comment. The box was deleted.
671	Kumagai, Joy	4	214	8137	214	8138	Figure 4.14 Please gain approval to use.	Thank you for your comment. The license to all figures will be provided in the legend of the figures.
672	China	4	216	8209	216	8213	Delete "Tibet", and change "some parts of China" to "some parts of China, e.g., Tibet Autonomous Region". Tibet is part of China.	Corrected as suggested.
673	China	4	217	8257	217	8258	It lacks support of scientific evidence, which affects the scientificity and objectivity of the report. It should be deleted.	Thank you for your comment. we have added scientific-based evidences (references).
674	Kumagai, Joy	4	222	8415	222	8417	Figure 4.15 Please gain approval to use.	Thank you for your comment. The license to all figures will be provided in the legend of the figures.
675	Korwin, Marie	4	223	8460	223	8462	A growing challenge facing science-based policy-making on sustainable use is the growth in dominance of intrinsic (and ecological) values and morals opposing the sustainable use, particularly of iconic species such as elephants, lions and rhino. I am concerned with the inclusion of this sentence and strongly recommend its deletion. This sentence reflects a fundamental misunderstanding of the issue. Science-based policy making requires analysis of a range of factors to assess whether use of wildlife is ecologically, biologically and culturally sustainable. "Cultural sustainability" includes an assessment of the relationship between wildlife, nature and people. As more information becomes available concerning the extent to which animals are sentient creatures, experience pain, have societal structures, etc. this necessarily changes peoples own perceptions of wildlife and their own relationships to nature. These are factors that need to be incorporated into any assessment of whether wildlife exploitation is culturally sustainable. These perceptions about intrinsic and ecological value are not in conflict with science-based policy making, they are instead factors that need to be understood and incorporated into any scientific study on whether certain use is ecologically, biologically and culturally sustainable.	Thank you for your comment. We will evaluate the possibility of inserting your suggestion in the final draft.

676	Lerambert, Adeline	4	223	8460	223	8463	<p>This section reflects an incredibly biased perspective.</p> <p>"A growing challenge facing science-based policy-making on sustainable use is the growth in dominance of intrinsic (and ecological) values and morals opposing the sustainable use, particularly of iconic species such as elephants, lions and rhino."</p> <p>This statement is based on the false assumption that international commercial trade in high value wildlife products, such as those derived from elephants, lions, rhinoceros and other iconic species, can be considered 'sustainable'. There is a great deal of scientific evidence clearly identifying the growth of international commercial trade in these species, and even discussion of the revival of legal international trade, as a potential or actual cause of their decline through the legitimisation of products in the eyes of potential consumers, and subsequent demand stimulation. For example, while elephant poaching markedly reduced following the international ban on ivory trade introduced through CITES in 1989, 'one off' ivory sales sanctioned by CITES some years later, and the continued existence of legal domestic ivory markets, has resulted in a substantial subsequent increase in elephant poaching.</p> <p>https://doi.org/10.1093/bjc/azp030.</p> <p>See study by Nadal and Aguero, which provides a comprehensive overview of the complexity of wildlife markets, and the dangers inherent in the promotion of commercial trade as a conservation tool on the basis of simplistic economic arguments.</p> <p>https://www.environment.gov.za/sites/default/files/docs/reviewoftheeconomicanalysis_wildlifetrade.pdf</p>	Thank you for your comment. We will evaluate the possibility of inserting your suggestion in the final draft.
677	Lerambert, Adeline	4	223	8460	223	8476	<p>Ethical views crucially need to be incorporated into science and policy making. Adopting evidence-based strategies which recognise that wildlife is worthy of protection in its own right, and weaving this intrinsic value into wildlife policy and management, are key to achieving sustainable development. The consideration of animal welfare science as a key component of good conservation practice will lead to a reduction in harm to individual wild animals, a greater appreciation of their intrinsic value, and ultimately, improved conservation outcomes.</p>	Thank you for your comment. The positive feedback is greatly appreciated by the chapter authors.
678	Lindsay, Keith	4	223	8460	223	8462	<p>A growing challenge facing science-based policy-making on sustainable use is the growth in dominance of intrinsic (and ecological) values and morals opposing the sustainable use, particularly of iconic species such as elephants, lions and rhino.</p> <p>We are concerned with the inclusion of this sentence and strongly recommend its deletion. This pre supposes that those opposing sustainable use are making value judgments, while others (proponents of sustainable use) are not. There needs to be more balance in the report, and the recognition that biodiversity is worthy of protection in its own right.</p>	Thank you for your comment. We will evaluate the possibility of inserting your suggestion in the final draft.

679	Miller, Carly	4	223	8460	223	8462	<p>This report is supposed to provide policy makers and other stakeholders with an overview of all the information and approaches existing in relation to sustainable use. Stating that the growing public demand to consider morality and intrinsic value of wild animals and nature is a "challenge facing science-based policy-making" is biased and does not fit in this report. We request this comment to be erased and replaced with recognition of this growing public demand and that it, too, is based on science as well as on ethics. If included in this report, we fear it will undermine the integrity of the entire chapter, if not the report itself.</p> <p>References: Scientific: In 2012, prominent neuroscientists gathered to review scientific evidence of animal consciousness at a University of Cambridge summit. The most advanced quantitative techniques of measuring and monitoring consciousness were presented, investigating properties of model organisms ranging from flies and rodents to elephants and dolphins. Findings led to a consensus on animal sentience and to the signing of The Cambridge Declaration on Consciousness in Non-Human Animals. This declaration is backed by over 2,500 additional studies discussing animal sentience. The recognition that animals are sentient beings that experience pain reveals that injuring and killing them is ethically contentious. Low, P., Panksepp, J., Reiss, D., Edelman, D., Van Seinderen, B., and Koch, C. (2012). The Cambridge Declaration on Consciousness. In: Proceedings of the Francis Crick Memorial Conference 2012, UK. http://fcmconference.org/ World Animal Protection (2018), Sentience Mosaic. World Animal Protection USA. https://www.worldanimalprotection.us/discover-animal-mosaic Ethics, Philosophy: There is a body of research conducted in philosophy on this specific sustainable use practice of trophy hunting showing that it offers ethical difficulties. This means that if practices a trade-off is made: human beings ethical standing for the sake of other considerations. In some papers, the practice of trophy hunting is cited as the practice "in a Western cultural</p>	Thank you for your comment. We will evaluate the possibility of inserting your suggestion in the final draft.
680	Orenstein, Ronald	4	223	8460	223	8476	<p>This paragraph attempts to ascribe all objections to sustainable use practices in southern Africa to a moral position, in particular to an "animal-rights" philosophy. Although it is certainly true that some people do feel this way, Southern African writers have for years used the term "animal-rights" as a pejorative label to apply to anyone who disagrees with their management policies, even if the objections are scientifically based and refer to genuine issues of management and conservation. In particular, the label is used to blame Westerners as responsible for interfering with Southern African wildlife management even when the strongest objections in an international context come from other African countries. An accurate and unbiased discussion of the topic in this paragraph would have recognized the use this term for what are basically propaganda purposes, and accepted that criticisms of such things as lion trophy hunting practices or attempts to restore legal trade in ivory and rhinoceros horn can be objected to on rational scientific grounds, and frequently are by experienced experts.</p>	Thank you for your comment. We will evaluate the possibility of inserting your suggestion in the final draft.
681	Stewart, Davyth	4	223	8460	223	8463	<p>This sentence reflects a fundamental misunderstanding of the issue. Science-based policy making requires analysis of a range of factors to assess whether use of wildlife is ecologically, biologically and culturally sustainable. "Cultural sustainability" includes an assessment of the relationship between wildlife, nature and people. As more information becomes available concerning the extent to which animals are sentient creatures, experience pain, have societal structures, etc. this necessarily changes peoples own perceptions of wildlife and their own relationships to nature. These are factors that need to be incorporated into any assessment of whether wildlife exploitation is culturally sustainable. These perceptions about intrinsic and ecological value are not in conflict with science-based policy making, they are instead factors that need to be understood and incorporated into any scientific study on whether certain use is ecologically, biologically and culturally sustainable.</p>	Thank you for your comment. We will evaluate the possibility of inserting your suggestion in the final draft.
682	White, Michael	4	155	5955	155	5957	<p>North Americans in particular take food then waste it. Remote islands will give food scraps to pigs and chickens, little is wasted</p>	This is very interesting reflection but was not considered a necessary edit to this sentence.

683	Gallagher, Louise	4	223	8477			Technology section: The concept of digital civic space is important as a driver with relationships to the political and social drivers discussion. A good case might be the work of this foundation in Latin America: https://www.avina.net/en/technology-for-social-change/ . Other resources: https://www.digitalhub.ohchr.org/civicspace https://www.oecd.org/dac/Digital-Transformation-and-the-Futures-of-Civic-Space-to-2030.pdf https://www.ids.ac.uk/opinions/impact-of-digital-technologies-on-the-civic-space/	Noted with thanks.
684	Government of Argentina	4	223	8477	246	9350	Para la sección 4.2.6 Scientific and technological innovation and education se recomienda tener en cuenta las siguientes referencias: Patagonia Fungi Senderos y Sabores. Plataforma de investigación, desarrollo e innovación del Centro de Investigación y Extensión Forestal Andino Patagónico (CIEFAP). https://www.ciefap.org.ar/index.php/patagonia-fungi . - App para celular donde se pueden identificar hongo silvestres comestibles y también las buenas prácticas de cosecha https://play.google.com/store/apps/details?id=io.kodular.fungiapp.fungiapp	Include box on this topic - added to appropriate section.
685	Orenstein, Ronald	4	224	8508	224	8512	"Biological factories" such as open sea fish farms can also have serious negative consequences on ecosystems. Please consult Quiñones, R. A., Fuentes, M., Montes, R. M., Soto, D., & León-Muñoz, J. (2019). Environmental issues in Chilean salmon farming: a review. <i>Reviews in Aquaculture</i> , 11, 375–402. https://doi.org/10.1111/raq.12337 .	Thank you. This case is added broadly on 1.2.1.4 with reference.
686	Guillemain, Matthieu	4	225	8527	225	8528	unclear what you are considering here (or something I am not aware of)	Noted.
687	Orenstein, Ronald	4	225	8527	225	8531	The problem referred to here appears to have had a serious effect on the current document. Publishing in a mainstream academic Journal such as the ones selected for review here can involve costs, particularly for open access, that may be out of reach for many researchers, particularly in developing countries. The result can be a highly skewed situation in which institutions with large publishing budgets, but decidedly one-sided points of view, can dominate both the literature and reviews based on that literature. It is unfortunate that the authors of this document do not appear to take this into account.	This is an excellent point and we are aware of the challenge of representation, bias and loss of voices from the ground due to the restriction of using published literature. The ILK working group was one method used to try to compensate for this, but is clearly insufficient.
688	Guillemain, Matthieu	4	226	8600	226	8603	Also a better understanding of how exploitation affects populations (e.g. Williams, Nichols & Conroy 2002 <i>Analysis and Management of Animal Populations</i> . Academic Press.	Thank you for this remark. We have covered it under -"management and monitoring of species".
689	Funk, W. Chris	4	227	8623	227	8645	In this section on developments in genomic technology, the authors could also highlight the power of these new technologies to quantify the three genetic indicators that we recommend be monitored in the context of international policy and regulation related to the sustainable use fo biodiversity. These indicators are: 1) the number of populations with effective populations size (N_e) > 500 compared to the populations with N_e < 500; 2) the proportion of populations maintained in a species; 3) the number of populations and species in which genetic diversity is monitored through DNA-based methods (Hoban et al. 2020; https://www.sciencedirect.com/science/article/pii/S0006320720307126).	Thank you for this remark. Provided information is now added with reference in the text.
690	Guillemain, Matthieu	4	227				This whole section focuses a lot on genetic (and genomic) issues, but it should also be added that progresses in mathematics, computer science (big data) and other kinds of technology (e.g. miniaturized satellite tags deployed onto animals) have considerably increased our ability to collect and analyse huge volumes of new data, allowing a much better understanding of wildlife and plant behaviour and population dynamics, and the consequences of their exploitation	Thank you for your comment. The positive feedback is greatly appreciated by the chapter authors. We have included your suggestion.
691	Lippai, Christine	4	228	8508	228	8512	this is an important consideration for sustainable use of crocodylian species, as the promotion of 'mock croc' products and vegan leathers can seriously undermine sustainable use programs and impact negatively on community tolerance of crocodylians/sustainable development	Thank you for your suggestion.

692	Guillemain, Matthieu	4	228				Same comment as above: more generally speaking it can be explained that new technology (satellite tags, smartphone apps, camera and audio traps) provide pile of new data, which can now be explored more in depth by new analytical methods (deep learning, advanced mathematical models, etc)	This is an interesting point and weaves together the different sections of Science and Technology- we have summarised this.
693	Guillemain, Matthieu	4	229	8687	229	8688	it could also be stated that beyond a better understanding of the populations, species, and ecosystems (NB: this order is more natural), we also have today a better understanding of how the process of harvest affects them	Thanks for this suggested change. We have included it in the new version.
694	Guillemain, Matthieu	4	232	8812	232	8813	also include here the production of information by the people themselves (i.e. citizen science programs relying on data collection through smartphone apps)	Thanks for this suggested change. We have included it in the new version.
695	Orenstein, Ronald	4	232	8829	232	8836	Mention should be made of the use by poachers of GPS locality data taken from wildlife photography, including camera traps, and other sources to locate populations of rare and local species. Many descriptions of new species in recent years have had to exclude precise locality data for the same reason. Please consult Choo, Y. R., Kudavidanage, E. P., Amarasinghe, T. R., Nimalrathna, T., Chua, M. A. H., & Webb, E. L. (2020). Best practices for reporting individual identification using camera trap photographs. <i>Global Ecology and Conservation</i> , 24, e01294. https://doi.org/10.1016/j.gecco.2020.e01294 .	Thank you for this remark. It is now inserted with reference in the text.
696	Guillemain, Matthieu	4	232	8837	232	8844	drones are also increasingly used to monitor terrestrial animals and plants	Noted with thanks.
697	Török, Katalin	4	233	6952			the sub-section statements seem to me very similar with repetitions in the heading, may be this could be avoided by giving shorter titles not repeating advances in science	Longer headings/titles are intended to guide the reader, but we have considered this in every possible places.
698	Guillemain, Matthieu	4	234	8898	234	8904	Plus satellite tags to study wildlife movement and habitat use. In addition, such tags can include various captors providing associated data (e.g. pressure sensor to study diving depth in penguins, etc). See for example how these data are compiled and made available through the Movebank database (https://www.movebank.org/cms/movebank-main)	Thank you for this remark. It was inserted with reference in the text.
699	Orenstein, Ronald	4	234	8917	234	8919	See paper cited in previous comment (Choo et al., 2020) on camera trapping.	Thank you for this remark. It was inserted with reference in the text.
700	Guillemain, Matthieu	4	235	8958	235	8963	In addition to an increase in the volume of data, it should also be stated that our ability to analyse the data in depth has considerably improved thanks to progresses in mathematics and biostatistics. Knowledge and science in this field is also more readily accessible nowadays (e.g. most scientists now rely on the R software for statistical analyses, which is a collaborative, open source and free system constantly being improved by the users themselves (https://www.r-project.org/))	This is echoed in other comments and we have addressed this point in the revised text.
701	Germany	4	238	9060	238	9060	Figure 4.16: Suggestion for consideration: To increase resolution of both (sub)figures as the one on the right hardly readable and the subfigure on the left is not readable.	Thank for your comment. The figure will be updated for the final version.
702	Guillemain, Matthieu	4	238				Fig 4.16: the text on this figure cannot be read	Thank for your comment. Point well taken.
703	Orenstein, Ronald	4	239	9103	239	9114	One of the consequences of international curricula is that children in highly biodiverse countries may not have the opportunity to learn about their own biodiversity. In Malaysia, for example (based on my own experience) local biodiversity does not form part of the school curriculum. The result is that urban children in these countries may know less about their own biodiversity than children in other countries who have greater access to nature documentaries and other materials. This may be exacerbated by feelings of fear or dislike of the wild by urban parents in these countries, including a reluctance to allow children to go on field trips for fear that they will encounter 'dangerous' wildlife.	Thank you excellent point. Due to space restrictions we cannot directly refer to this but we do so in other examples.
704	Kumagai, Joy	4	243	9235	243	9236	Figure 4.16 Please gain approval to use. Add the citation into the caption as well	Done -- citation added.
705	White, Michael	4	156	5962	156	5965	Seasonality too: some resources are only present, or taken, at certain times	Thank for your comment. Point well taken.

706	Gallagher, Louise	4	247	9351			<p>Interactions section: The section does a good job of showing how complex it is to consider interactions and it could probably go a little further in the main messages to explain why accepting this complexity is critical and how we can work with drivers analysis under complexity and uncertainty. The section a good job in showing that the drivers interact (already quite clear from the overlapping discussions throughout the whole document) and perhaps does not get to grips enough about how different people are getting to grips with that reality in assessing drivers.</p> <p>Translating the interactions analysis into a universal causal loop diagram is a really good idea that shows the interactions between different drivers and polarity for the relationship of the driver to sustainable use outcomes. However figure 4.20 is too small and dark and doesn't use the same framework that the document does. I'd recommend redoing this and putting it upfront and perhaps using it to guide the reader through the dense discussion.</p> <p>Such a conceptual model could become a good online resource if also made interactive, i.e. being able to click on a variable, a relationship arrow and the polarity sign and have the relevant text pop up. I'd recommend Prof. Birgit Kopainsky at the University of Bergen as someone who is an expert in these methods.</p> <p>David Leclère and co. have explored these interactions in their work on terrestrial biodiversity - might be worth seeking a deep technical review from them? https://www.nature.com/articles/s41586-020-2705-y#Sec12</p>	<p>Thank you for your comment. We redid figure 4.20 in a similar framework (consistent labels) as the other figures and help readers through the discussion. Thank you for your suggestion on possible ways to improve the diagram, however we do not have plans to make any of our figures interactive for this chapter.</p>
707	Germany	4	247	9357	347	9357	<p>Suggestion: To consider adding to respective text as a new sentence after "context". "Considering interactions among drivers may help avoid potential unintended consequences resulting from accounting for a category of driver only in the relation to (un)sustainable use of wild species at stake".</p>	<p>Thank you for your important suggestion. We have now added a sentence "Considering interactions among primary drivers may offer insights and help avoid potential unintended consequences resulting from accounting for a category of driver only in the relation to (un)sustainable use of wild species at stake. "</p>
708	Germany	4	247	9365	247	9365	<p>What about political drivers - if governance/(in)formal institutions play a role, kindly consider including here, as seen to fit.</p>	<p>Thank you for your suggestion. We have added political into the sentence "Cultural, social and socialpolitical drivers often interact with economic drivers which are further mediated by factors such as species biology to shape the sustainability outcome of hunting, with the bulk of the studies coming from the developing tropics. "</p>
709	Kumagai, Joy	4	248	9404	248	9406	<p>The database described here should be included in a data deposit package with a data management report specifying the methodology. These are important results and should be made accessible.</p>	<p>Thank you. This is supposed to be an illustrative conceptual figure with no real data so we are removing it to avoid confusion. The data is actually being presented in Figure 4.19.</p>
710	Kumagai, Joy	4	250	9438	250	9440	<p>Figure 4.18 Please remove country borders (and then the disclaimer is not necessary). Please project the map into the Robinson Projection. The ict portal (https://ict.ipbes.net/geoinformation) has information on how to do so. The north arrow is not necessary</p>	<p>Thank you. Suggested change will be made.</p>
711	Majda, Achach	4	250	9438	250	9438	<p>Figure 4.18 : the map of Morocco which appears on this figure is not correct. IPBES is kindly invited to adjust this situation and maintain the same approach adopted for the previous reports.</p>	<p>Thank you for your comment. We have removed the country border for the map so this is not an issue anymore.</p>
712	Aebischer, Nicholas	4	250	Figure 4.18 heading	250	Figure 4.18 heading	<p>"speices" should be "species"</p>	<p>Thank you. We have remove the unnecessary heading above the map.</p>
713	Kumagai, Joy	4	251	9450	251	9452	<p>Figure 4.19 Please provide the code + analysis behind this figure in a data deposit package with a data management report.</p>	<p>Thank you for your comment. We will add a data management report.</p>
714	Marcoux, Marianne	4	251	9450	251	9450	<p>Consider adding the title of each column directly in the figure on top of each column (Fig 4.19)</p>	<p>Thank you. We have added the title of each column.</p>
715	Guillemain, Matthieu	4	251	9466	251	9468	<p>there could well be a publication bias here, sustainable use being considered a "negative" results hence getting underreported</p>	<p>Thank you for your comment. The authors have gathered evidence from peer reviewed publications using key word search and our analysis has been presented based on what we found.</p>
716	Funk, W. Chris	4	252	9471	252	9504	<p>Here, there is a missed opportunity to highlight the effects of fisheries on genetic diversity. There is an excellent paper highlighting the loss of genetic diversity in exploited fish species: https://onlinelibrary.wiley.com/doi/abs/10.1111/mec.12509</p>	<p>Thank you for your suggestion. At this time, we are unable to add new references or draw upon their findings.</p>

717	Orenstein, Ronald	4	252	9478	252	9482	Mention should be made of the reverse situation, in which humans and dolphins cooperate in fishing with mutual benefit. For a well-studied example in southern Brazil see Daura-Jorge, F. G., Cantor, M., Ingram, S. N., Lusseau, D., & Simões-Lopes, P. C. (2012). The structure of a bottlenose dolphin society is coupled to a unique foraging cooperation with artisanal fishermen. <i>Biology Letters</i> , 8(5), 702–705. https://doi.org/10.1098/rsbl.2012.0174 Santos, M. L., Lemos, V. M., & Vieira, J. P. (2018). No mullet, no gain: Cooperation between dolphins and cast net fishermen in southern Brazil. <i>Zoologia</i> , 35, 1–13. https://doi.org/10.3897/zoologia.35.e24446 Zappes, C. A., Andriolo, A., Simões-Lopes, P. C., & Di Benedetto, A. P. M. (2011). "Human-dolphin (<i>Tursiops truncatus</i> Montagu, 1821) cooperative fishery" and its influence on cast net fishing activities in Barra de Imbé/Tramandaí, Southern Brazil. <i>Ocean and Coastal Management</i> , 54(5), 427–432. https://doi.org/10.1016/j.ocecoaman.2011.02.003 .	Thank you for your comment and references. Very interesting and these instances of cooperation are exceptions to the general finding of cetacean bycatch mortality leading to declines in dolphin populations
718	Orenstein, Ronald	4	254	9560	254	9564	Critical to this discussion should be consideration of the drivers of unsustainable use, including organized criminal activity and corruption, and the extent to which these may undermine any attempts to use resources sustainably at a local level. Please consult the following papers, also cited in my earlier comments: Alden, C., & Harvey, R. (2021). Chinese Transnational Criminal Organisations and the illegal Wildlife Trade in Tanzania. <i>The European Review of Organised Crime</i> , 5(1), 10–35. Di Minin, E., Brooks, T. M., Toivonen, T., Butchart, S. H. M., Heikinheimo, V., Watson, J. E. M., Burgess, N. D., Challender, D. W. S., Goettsch, B., Jenkins, R., & Moilanen, A. (2019). Identifying global centers of unsustainable commercial harvesting of species. <i>Science Advances</i> , 5(4), 1–8. https://doi.org/10.1126/sciadv.aau2879 TRAFFIC. (2008). What's Driving the Wildlife Trade? A Review of Expert Opinion on Economic and Social Drivers of the Wildlife Trade and Trade Control Efforts in Cambodia, Indonesia, Lao PDR and Vietnam. In <i>East Asia and Pacific Region Sustainable Development Discussion Papers</i> . https://doi.org/10.1111/j.1467-9388.2012.00760.x	Thank you for your comment. However, we are unable to add new references at this time and to factor in their findings into our analysis.
719	Cuadros-Casanova, Ivon	4	254	9597	255	9601	It is suggested that to remove the threat of unsustainable hunting by miners, access to sustainable meat sources should be made. Although this may work well in areas where mining is taking place legally, it overlooks the reality of illegal mining, which is a common driver of the unsustainable use of species in developing countries. I consider this suggestion has to be made with caution, since in illegal contexts it is unlikely other meat sources will be made available, unless higher trade accompanied by small new settlements takes place, which in turn could also exacerbate the demand for bushmeat.	Thank you for your comment. In the face of weak governance mechanisms, and limited technical knowledge and tools to monitor the populations of endangered species, we have suggested bringing the hardwoods under the ambit of Appendix I of CITES
720	Guillemain, Matthieu	4	254				Section 4.3.2.3. the processes could be very different for subsistence (and commercial) hunting and for leisure hunting: should these be considered separately?	Thank you for your comments. We do indicate that sustainability outcome is conditional on a range of drivers and scales.
721	Germany	4	255	9589	255	9594	The relation between mining and bushmeat hunting could be clearer in this paragraph; the sentence beginning with 'Because' seems incomplete.	Thank you for your comment. We have suitably corrected the sentence.
722	Cuadros-Casanova, Ivon	4	255	9602	256	9652	The discussion of this section is centred in the sustainable use of timber, however there is no mention to the unsustainable trade of fauna that is exacerbated by timber companies since they have the capacity to enter and exploit remote areas of forest. Big timber exploitations are seeing by locals as medium to long term companies, and thus it sets the perfect conditions for new settlements to be established in forested remote areas. After the companies are settled, migration to near by areas of the exploitation becomes common, however since places continue to be remote and far from urban centres, people are left without many options to consume meat and thus wildmeat become their main source of protein. Overall, I consider the effect of industrial logging as a driver of unsustainable use of fauna could be better explored in this section.	Thank you for your comment. We are not able to add new references and their findings aligned to your comment at this stage of the review. However, we have flagged this issue, as perhaps an unintended consequence of timber harvesting opening up opportunities for new settlements remote from urban centres and markets. Consequently there could be localized unsustainable extraction of fauna.

723	Cuadros-Casanova, Ivon	4	255	9602	256	9652	For a general overview of the impact of industrial logging you may referred to the following references: 1. Cawthorn, D. M., & Hoffman, L. C. (2015). The bushmeat and food security nexus: A global account of the contributions, conundrums and ethical collisions. Food Research International, 76, 906-925. 2. Poulsen, J. R., Clark, C. J., Mavah, G., & Elkan, P. W. (2009). Bushmeat supply and consumption in a tropical logging concession in northern Congo. Conservation Biology, 23(6), 1597-1608. 3. Cuadros-Casanova, I., & Rondinini, C. (2021). Conserving mammals. In N. Batini (Ed.). The Economics of Sustainable Food: Smart Policies for Health and The Planet. (pp. 228 - 256). Washington DC: Island Press. I could share the last reference if it is considered useful.	Thank you for your suggestion. However, we are unable to add new references at this stage of the review.
724	Guillemain, Matthieu	4	257	9686	257	9694	Another example from the European leisure hunting world is the European Goose Management Platform of AEWA, which seeks to promote adaptive management of these populations and their harvest, to combine the expectations of hunters (hunting opportunities), farmers (damage to crops), airports (air safety) and the general public (enjoying to watch geese): https://egmp.aewa.info/	Thank you for your comment.
725	Kumagai, Joy	4	258	9725	258	9729	Figure 4.20 Please gain approval to use.	Thank you. Yes, we will gain approval.
726	Guillemain, Matthieu	4	259	9737	259	9741	Again, it should be explained that the system and constraints may be very different for leisure hunting	Thank you for your comment.
727	China	4	264	9897	264	9907	have no idea why mentioning 'east Africa/China' here as an example of the increasing human-animal conflict. Must specify the case like the polar bear vs Inuit people.	Peer reviewed literature points to significant poaching of animal parts such as ivory, rhino horns and other body parts linked to demand originating from China.
728	Iverson, Sam	4	264	9897	264	9901	The statements about polar bear tourism should be framed as the hypothesis of specific researchers or concerns of specific groups. They are presented as established facts, when they are not. I can validate that polar bear tourism has been raised as a concern by Nunavut Inuit in Western Hudson Bay, but there is no evidence to so categorically say polar bear viewing is being privileged over Inuit harvest (current harvest quotas in this region of Nunavut were set under a goal of maximum sustainable harvest and at or above the level across the territory) or that bears are becoming acclimatized because of interactions with tourism operators (this is an opinion that deserves research to address an important issue raised by Inuit, but there is not factual basis for saying it is true at this time).	Thank you for your comment. We acknowledge that there may be some degree of uncertainty. However we are flagging it as an issue of concern as there is a cost to perfect information.
729	Orenstein, Ronald	4	264	9897	264	9901	The Polar Bear example is not the consequence of a simple tradeoff between wildlife viewing (and I certainly take exception to seeing this characterized as a 'perverse incentive') and local harvest. The text implies that increased human-bear conflict is entirely the result of the former. However, the effect of climate change on the loss of sea ice and the foraging opportunities available to the bears, not tourism, has been identified as the major factor driving human-bear conflict, with starvation being the chief factor driving increasing numbers of bears to enter human settlements. Please consult Wilder, J. M., Vongraven, D., Atwood, T., Hansen, B., Jessen, A., ... Gibbons, M. (2017). Polar bear attacks on humans: Implications of a changing climate. Wildlife Society Bulletin, 41(3), 537-547. https://doi.org/10.1002/wsb.783 .	I didn't write this part too.
730	Germany	4	264	9908	264	9910	Access, use and participation by whom? Please consider specifying, so it is clear.	Thank you for your query. The text has been edited incorporating "local communities".
731	Germany	4	265	9917	265	9917	Please consider adding the following text "peoples and local" between the words "Indigenous" and "communities".	Thank you. Change made.

732	Germany	4	265	9937	265	9937	Kindly consider adding text on trade to the "conclusion and option" section of chapter 4, otherwise trade would be missing in this section. Such text could be a synthesis of the following key message (B.3.4) of the SPM: "Global trade provides an important income source for exporting countries, often higher income for harvesters, and can diversify sources of supply. Yet, global trade decouples the consumption of wild species from the place of origin, introduces structures and dynamics different from those that govern local trade relations and practices, and can shift governing strategies from collective actions to individual based strategies. In the absence of functioning regulation that operates across the supply chain (from local to global), global trade generally increases pressure on wild species, leading to unsustainable use and sometimes to wild populations collapses (e.g., shark fin trade) (well established) (4.2.4.3.1)" (lines 415-423, p.14 <i>SPM</i>).	Thank you for your comment with which we agree and this can be a key message for policy makers.
733	Orenstein, Ronald	4	267	9999	267	10000	Part of this should be an examination of the change in harvesting patterns over time as a result of shifts in society. For example, utilization that might be sustainable as long as the harvesting community remains relatively small and the environment where utilization is taking place remains relatively stable can become unsustainable following degradation of habitat or the influx of large numbers of people to the area, perhaps drawn by the possibility of financial gain from the formerly-sustainable harvest regime. Please consult the following paper, also cited in my earlier comments: Dzvimbo, M. A., Monga, M., & Magjani, F. (2018). The Dilemma On Reconceptualizing Natural Resources In Campfire Areas In Zimbabwe. <i>Advances in Social Sciences Research Journal</i> , 5(8), 522–533.	Thanks for the comment. We have revised the sentence in line with your suggestion. The Dzvimbo paper is cited at other parts of the assessment, so we decided to not cite again here.
734	Germany	4	267	10008	267	10009	Suggestion for ease of understanding: Kindly consider adding the word "in" between "disparities" and "the", and replacing "leads to" with "is entailed by".	Thank you for you comment. Change was made.
735	Germany	4	267	10016	267	10016	There are words missing between "and" and "remain".	Thank you for your comment. the missing word was added.
736	China	4	288	10877	288	10880	the citation is not cited and should be deleted.	Thank for your comment. Citation was deleted.
737	Kumagai, Joy	4	319	12166	320	12188	For all IPBES references for assessments or summary for policy makers, please add the associated DOI. It can be found within the IPBES community on Zenodo here: https://zenodo.org/communities/ipbes/search?page=1&size=20&keywords=Glo%20Assessment&keywords=Summary%20for%20Policymakers	Thank for your comment. Reference updated.
738	Lippai, Christine	4	329	12394	329	12395	A newer and very important paper published by Keesing should be included as reference in this document, particularly with regard to ecosystem integrity as a management tool for mitigating zoonotic disease. Keesing & Ostfeld, 2021: Restoration of biodiversity is an important frontier in the management of zoonotic disease risk.	Thank you. This reference is superuseful. It as been added now.
739	Pilling, Dafydd	4	332	11089	332	11091	This list of things that "informal trade includes" does not appear in the document cited. And the list does not make complete sense given that gathered wild foodstuffs include mushrooms and berries, i.e. they are not separate items.	TSU/ can't find what the reviewer is referring to.
740	Germany	4	384	14772	384	14786	This section should also take into account the increasing use of aviation vehicles such as helicopters and drones to hunt animals, please.	Thank you. We added a line on UAV supported hunting.

741	Trocchi, Valter	4	384	14788	385	14817	It cannot be overlooked that "Falconry, a living Human Heritage": this is the term with which falconry was inscribed in the UNESCO Intangible Cultural Heritage List by the Intergovernmental Committee meeting in Addis Ababa from 28 November to 2 December 2016 (11.COM). The recognition of UNESCO confirms the cultural value of this millenary discipline that has come down to the present day: the reasons for the registration underline how in many countries it represents one of the few still existing links with ancient local traditions and with the natural environment. Originally a method of obtaining food, the practice of falconry has evolved over time to be more associated with nature conservation, cultural heritage and social engagement within and amongst communities. Following their own set of traditions and ethical principles, falconers train, fly and breed birds of prey (which includes besides falcons, birds such as eagles and hawks) developing a bond with them and becoming their main source of protection. The practice, present in many countries around the world, may vary regarding certain aspects, for example the type of equipment used but the methods remain similar. Falconers regard themselves as a group and may travel weeks at a time engaging in the practice, while in the evenings recounting stories of the day together. They consider falconry as providing a connection to the past, particularly for communities for which the practice is one of their few remaining links with their natural environment and traditional culture. Knowledge and skills are transmitted in an intergenerational manner within families by formal mentoring, apprenticeship or training in clubs and schools. In some countries, a national examination must be passed in order to become a falconer. Field meets and festivals provide opportunities for communities to share knowledge, raise awareness and promote diversity. https://ich.unesco.org/en/RL/falconry-a-living-human-heritage-01209	This section has been deleted.
742	Horikiri, Tatsuya	4	Chapter Title				It is clear in the definition section below that the "drivers" negatively or positively influence sustainable use. If possible, it might be of worth to put adjectives of "positive and negative" before the word "Drivers" in the title of this chapter, as the word "driver" here may give an impression that the word is something similar as "promoter" of sustainable use.	Thank for your comment. Point well taken.
743	Burgess, Neil	4	Figure 4				Does this provide further updates : https://www.biorxiv.org/content/10.1101/2020.11.04.367763v2	Thank you for your comment. We have included the outcomes from the recommended sources.
744	Bennett, Elizabeth	4	General	0			Overall, the section here on CITES is a serious concern as written. It is highly one-sided in its use of the literature and its perspective. It falls well short of IPBES's usual extremely high standard. It shows a lack of understanding of CITES and the way it works. Some specific comments are below, but the whole section should be re-written by someone in the CITES Secretariat, or by a practitioner highly familiar with CITES (of which there are many).	Thank you for your comment. The whole section on CITES was revised.
745	Burgess, Neil	4	General	0			Amazing amount of material. Huge work!	Thank you for your comment. Highly appreciated.
746	Burgess, Neil	4	General	0			Not really enough maps or graphs for me. A lot of text.....	Thank you for your comments. Following all the revision and editing of the chapter according to the comments, the text has been reduced and more balanced number of maps and the graphs exist in the current version.
747	Burgess, Neil	4	General	0			This could be relevant for the zoonosis sections: https://data.jncc.gov.uk/data/964ae259-410e-4205-8ec7-e2c54f5c6e3d/JNCC-Report-678-FINAL-WEB.pdf	Thank you for providing this useful reference. It is now added.
748	Burgess, Neil	4	General	0			This pre-print of a paper almost accepted in a Journal gives a good overview of where pressures fall on species globally. So these are some of the kinds of drivers that affect potential for sustainable use	Thank you for your comment. We have included the outcomes from the recommended sources.
749	Kenward, Robert	4	General	0		0	In Chapter 4, the subsections are not linked to the Index and are in some cases seem not to be numbered. That makes it very hard to check the basis for assertions made in summaries that have numbers cited for them. There is also too much grammar that needs correction in this chapter, in some cases leading to ambiguities which can feed polarisation of (conservation) politics, regarding for example zoonotic disease. The chapter needs to be reviewed again when these issues have been addressed.	Thank you for your comment. The subsections will be linked to the index and all subsections will be numbered. A thorough check for linguistic mistake, and grammatical errors will be conducted to remove any confusion and ambiguities.

750	Kenward, Robert	4	General	0		0	Much of this chapter is excellent. However, the subsections are not linked to the index and are in some cases seem not to be numbered. That makes it hard to check the basis for assertions made in summaries that have numbers cited for them. Spelling was too infrequently wrong in some sections for there to be time to record all cases. There is also appreciable grammar that needs correction, in some cases leading to ambiguities which can feed polarisation of (conservation) politics, regarding for example zoonotic disease. Noting also that concluding sections on driver interactions are incomplete, the chapter needs to be reviewed again when these issues have been addressed.	Thank for your comment. All your point were well taken.
751	Germany	4	156	5973	156	5973	Suggestion to consider adding the following text and reference "and markets (Wunder et al. 2014)" after the word "community". In addition, one could consider including government transfers as part of income, as - if such transfers are provided - respective dependence on natural resources can be diminished (Wunder et al. 2014) -- full reference: Wunder, S., Angelsen, A., Belcher, B. (2014). Forests, livelihoods, and conservation: Broadening the empirical base. World Development 64 (S1): 1–11. Available at < https://doi.org/10.1016/j.worlddev.2014.03.007 >.	Thank you for your comment. We will evaluate the possibility of inserting your suggestion in the final draft.
752	Pavitt, Aly	4	General	0			Throughout the document, there is also inconsistency in whether species are referred to by common name or scientific binomial - ideally provide scientific binomial accompanied by common name e.g. pg 175 6751-6752 endangered frog "M cowani" - species name needs to be full binomial and correctly formatted.	Thank you for your comments. Scientific binomial nomenclature will be provided and species names will be correctly formatted
753	Pavitt, Aly	4	General	0			Assume considerable proof-reading, standardising and copy editing still to be done (including consolidating repetition and conflicting statements)	Thank you for your comments. Proof-reading, standardizing and copy editing will be maintained in the final draft.
754	Svizzero, Serge	4	158	6073	158	6075	It is claimed that "Market economies can also significantly influence the sustainability of indigenous economies and their use of wild species"; one should also mentioned that such conclusion is far from being obvious, see for instance S. Svizzero (2016). Foraging Wild Resources and Sustainable Economic Development, Journal of Economics and Public Finance 2(1): 132-153. https://doi.org/10.22158/jepf.v2n1p132	Thank you for your comment. We will evaluate the possibility of inserting your suggestion in the final draft.
755	Thebaud, Olivier	4	154	5889	154	5890	I fully agree with this statement, which I feel could be more strongly stated in the summary of the chapter (see also my previous comments on the importance of economic drivers)	Thank for your comment.
756	Török, Katalin	4	General				The Chapter is very long - this should be considered in transmitting the messages. The topic is very complex and the assessment tries to demonstrate all aspects, which is good to have gathered, but the SPM will be very important from this Ch. Congratulations to the authors so far, and I cross fingers to have further enthusiasm for completeing the task.	Thank you for your comment. Highly appreciated.
757	Kenward, Robert	4		123		123	The statement here needs qualification in view of the statement at line 216.	Thank you for your comment. we have made the clarification in light of what was stated in line 216
758	Kenward, Robert	4		232		232	delete first comma	Thank you. Suggested change was made.
759	Kenward, Robert	4		242		242	"... how the costs..."	Thank you for your comment. Thank you for your comments. Suggestion has been considered.
760	Kenward, Robert	4		282		282	Delete one "tourism" – a simple mistake in a Chapter which handles tourism correctly	Thank you for your comments. the word has been deleted.
761	Kenward, Robert	4		295		299	To conform with the revision in 4.2.4.3.3 at line 7132 (see below), this must be revised to "However, in some cases tourism revenues do not reach local communities and conservation projects, in which case the extractive tourism can be unsustainable (unresolved)."	Thank you for your comment. Thank you for your comments. Suggestion has been considered.

762	Kenward, Robert	4		1379		1379	Please recognise here the importance of hunting as a driver of restoration by inserting "Hunting of small game is also increasingly becoming a driver of de-intensification of farming in ways which improve the food chains of the hunted species and many other species, notably pollinators (Sotherton 1991, Ewald et al. 2012, Brewin et al. 2020)." References are: Brewin, J., Buner, F.D., & Ewald, J.A. 2020. Farming with Nature - Promoting Biodiversity across Europe through Partridge Conservation. Game & Wildlife Conservation Trust, Fordingbridge. Ewald, J.A., Potts, G.R., & Aebischer, N.J. 2012. Restoration of a wild grey partridge shoot: a major development in the Sussex study, UK. Animal Biodiversity and Conservation, 35: 363-369. Sotherton, N.W. 1991. Conservation Headlands: a practical combination of intensive cereal farming and conservation. In: Firbank, L.G., Carter, N., Darbyshire, J.F. & Potts, G.R. (eds) Ecology of Temperate Cereal Fields: 373-397. British Ecological Society Symposium, Blackwell Scientific Publications, Oxford.	We have added the sentence and references. Thank you.
763	Kenward, Robert	4		1512		1512	for consistency "... the 19th and 20th centuries..."	Made the suggested changes. Thank you.
764	Kenward, Robert	4		1715		1715	"... and Diclofenac on vultures and other raptors "	Thank you for your comment. It is an improvement and we have adopted it.
765	Kenward, Robert	4		1748		1776	These two sections fail to consider adequately the importance of bioaccumulation along food chains, which make pollutants which bioaccumulate especially damaging for sustainable use. Thus, the impact of POPs on top/meso predators that occurred from 1950s, as especially noted in Rachel Carson's "Silent Spring", which removed predators and gave rise to false expectations of overabundant prey populations (and caused conflict with cultivation and conservation) until the most harmful chemicals were widely banned. Bioaccumulation, e.g. also of radionuclides from Chernobyl, also affects human health and hence utility of contaminated wild species (as recognised later in the chapter, for example in the excellent Section 4.2.3.7).	Thank you for your comment. Yes bioaccumulation is an issue. Though referred to, it has been emphasized more as suggested.
766	Kenward, Robert	4		1749		1749	Missing name for reference here	Thank you for your comment. Missing name for reference added in the new version
767	Kenward, Robert	4		2178		2178	spelling "customary" (registering spelling errors is now intermittent due to time shortage, the document needs a thorough check)	Thank you for your comment. The typo was edited.
768	Kenward, Robert	4		2186		2186	spelling "products"	Thank you for your comment. The typo was corrected.
769	Kenward, Robert	4		2217		2217	spelling "related"	Thank you for your comment. The typo was corrected.
770	Kenward, Robert	4		2229		2229	spelling "definitions"	Thank you for your comment. The typo was corrected.
771	Kenward, Robert	4		2250		2250	spelling "governance"	Thank you for your comment. Spelling was corrected
772	Kenward, Robert	4		3034		3034	spelling "subsistence"	Thank you for your comment. Spelling was corrected
773	Kenward, Robert	4		4389		4390	which figure, 232 or 1661, is correct?	Thank you for your comment. The correct figure is 232 million. This has been corrected.
774	Kenward, Robert	4		4571		4571	spelling "place"	Thank you for your comment. Spelling was corrected.
775	Kenward, Robert	4		4593		4593	spelling "many fish"	Thank you for your comment. This was changed
776	Kenward, Robert	4		4690		4690	spelling "livelihoods"	Thank you for your comment. This was changed
777	Kenward, Robert	4		5145		5145	"income, also to meet cooking and heating needs ..."	Thank you. It is corrected.
778	Kenward, Robert	4		5209		5209	Surely there are many examples of "sustainable use of wild species associated with income generation and sustainable rural development" throughout this report, so the reference should not just be to (Sher et al., 2017) but also to relevant sections elsewhere (including in this Chapter).	You are right. Thank you.
779	Kenward, Robert	4		5223		5232	This paragraph is about development of cultivation/farming, and is highly important (e.g. to the switch from wild harvest to propagation driven by CITES in Section 4.2.2.1), but needs also to refer to these other sections in the report to properly illustrate the problem of moving from wild harvest to increasingly intensive cultivation.	Thank you for your comments. This was taken into account

780	Kenward, Robert	4		5384		5414	Please attend to line-break hyphenation in this useful box.	Thank you. Point taken.
781	Kenward, Robert	4		5519		5519	spelling "coercive"?	Thank you, typo corrected.
782	Kenward, Robert	4		5566		5566	A very general introduction segues into one precise example. Is there a heading and missing, or should there be a "For example..."? Or is the example, for shell-fish, actually displaced from the incorrectly labelled section on mangroves commented next?	Thanks for the relevant comment. We deleted the first sentence related to Latin America and South-East, Asia
783	Kenward, Robert	4		5604		5604	The heading is "Africa" yet the subject is "In Latin America and South-East Asia". Rural areas in Africa certainly deserve attention here.	Thanks for the comment. This has been done.
784	Kenward, Robert	4		6132		6132	Insert comma after "town"	Thanks for the comment. This has been done.
785	Kenward, Robert	4		6262		6266	It is important to separate deliberate extraction from indirect effects here, and possibly marine from terrestrial. In marine systems much of the threat is from direct utilisation, though an appreciable part is bycatch. In terrestrial systems much of the harm is due to over-exploitation of non-target species; thus logging threatens far more species than those harvested from forests.	Thanks for the comment. We have included your suggestions.
786	Kenward, Robert	4		6355		6355	Spelling "non-lethal"	Thanks! This has been corrected.
787	Kenward, Robert	4		6431		6434	Care is needed in assigning decline of fungi to over-exploitation at a time of changing climate. The harvest of fruiting bodies of ectomycorrhizal fungi has little effect on the subterranean mycelian net, which is more extensive and more durable - unless soil conditions change (Egli et al. 2006, Pilz et al. 2003). References are: Egli, S., Peter, M., Buser, C., Stahel, W. & Ayer, F. 2006. Mushroom picking does not impair future harvests – results of a long-term study in Switzerland. <i>Biological Conservation</i> 129: 271-276. Pilz, D., Norvell, L., Danell, E., Molina, R., 2003. Ecology and Management of Commercially Harvested Chanterelle Mushrooms. Gen. Tech. Rep. PNW-GTR-576. Portland OR: Department of Agriculture, Forest Service, Pacific Northwest Research Station. pp. 1-83.	Thank you for your comment! We fully agree that it can be difficult to disentangle the impacts from exploitation and climatic changes. This point is made very strongly in the section on 'interaction of drivers', so we do not see the need to make that point also here.
788	Kenward, Robert	4		6773		6773	To avoid ambiguity "Informal wild species trade within countries ..."	Thanks! We have included your suggestion,
789	Kenward, Robert	4		6823		6823	"...incompletely understood (...)"?	Thanks for the comment. We have reworded.
790	Kenward, Robert	4		6845		6845	To be clear: "What make sustainable uses more difficult is the the use of unselective capture techniques."	Thanks you! We have included your suggestion.
791	Kenward, Robert	4		7314		7315	"... also for many hunters" could be added to provide balance.	Thanks for your comment. The Manfredo reference is quite explicit about the urban population and increases polarization, so we have kept the emphasis on urban populations.
792	Kenward, Robert	4		7492		7492	delete one "communities"	Thank you. It is deleted.
793	Kenward, Robert	4		7506		7507	Is the meaning (from 9924-9927) "Relationships of people with wild species should be as good as the relationships between people, and wild animals and plants can be understood as relatives within a family."?	Thank you. The sentence is slightly modified.
794	Kenward, Robert	4		8172		8172	"animal symbolism"	Thank you. It is corrected.
795	Kenward, Robert	4		8222		8222	Whereas "bile" and "phlegm" are recognisable in human health terms, could there be a better word for "wing"?	Thank you for your comments. Actually, the terminology is from the original paper.
796	Kenward, Robert	4		8288		8288	The Red-list is run by IUCN whereas CITES has Appendices.	Thanks. It is corrected.
797	Kenward, Robert	4		8307		8326	This paragraph makes valid observations, but certainly not the first sentence and starting with the third sentence might be best.	Thanks. it is updated.
798	Kenward, Robert	4		8331		8331	The word required here and through the box is "finning (removing fins)", not the payment of fines.	Thanks. It is corrected.
799	Kenward, Robert	4		8419		8419	For clarity "... of the South" or "of southern parts of the globe"	Thanks. Updated.
800	Kenward, Robert	4		8512		8512	For clarity " on this income and therefore conserve the ecosystems."	Thanks. Updated accordingly.
801	Kenward, Robert	4		8790		8790	For clarity, one could usefully add: "This is liable to reduce local motivation to conserve the ecosystems on which those species depend."	Thanks. Updated.
802	Kenward, Robert	4		8951		8951	Delete "should"	Deleted.

803	Kenward, Robert	4		5482		5482	The colour axes for Figure 4.8 are unlabelled.	Thank for your comment. Point well taken. It will be updated in the final version.
804	Kenward, Robert	4		4804		4807	This sentence contains two controversial assertions without a citation to support either. The first assertion may apply to any hunting, foraging or angling, not just "trophy hunting". The second, "and may also be interconnected with social values that are seen as less desirable or pathological (e.g., social violence)" is inflammatory and should not occur in a UN report without very good evidence.	Thank for your comment. Point well taken. Text was updated accordingly.
805	Núñez-Rojo, María Paulina (Mexico)	4	96	3604	96	3610	Address the existing power struggles in any place and any project to complement this section. Likewise, address the form of organization of the communities, each case is particular and not all communities have the capacity and desire to work together. For collective action to exist, there must be a history of prior collaboration that speaks of an existing social capital that allows creating institutional arrangements for the governance and management of its natural resources, which can be effective and maintained over time. In addition, it must be considered that participation and the institutions created vary over time, and that there are no fixed rules to explain how the governance of success stories works. Consult Gibson et al. 1999, Aguilar et al 2001, Durston 1999, Ostrom 1998, Ostrom 1999, Gasca 2014. They could also talk about the leverage points of an ecosystem partner of Donella Meadows 1999, leverage points, which are points to intervene and achieve collective action .	Thank you for your comment. We will evaluate the possibility of inserting your suggestion in the final draft.
806	Kenward, Robert	4		9390		9390	Delete one "species"	Thank you for your comment. The word has been deleted
807	Kenward, Robert	4		9592		9592	Should this read "... activity, most miners ..."?	Thank you for your comment. Your suggestion has been considered.
808	Kenward, Robert	4		9612		9612	This should read "... harvest, for instance because..."	Thank you for your comment. Your suggestion has been considered.
809	Kenward, Robert	4		9656		9656	Should this read "...is a threatened freshwater species valued by the Aboriginal Owners...?"	Thank you for your comment. Your suggestion has been considered.
810	Kenward, Robert	4		9729		9731	There are more than two node categories and "er" is not one of them.	Thank you for the comment. We have relabeled all nodes so "er" is no longer relevant.
811	China	4	12	464	12	464	the conceptual framework of the sustainable use as an outcome is not consistent with the concept in Chapter 1.	The IPBES Conceptual Framework described in Chapter 1 provides a model of interactions between people and the rest of nature, across spatial scales, themes and regions. There are 6 elements for consideration in determining sustainable use outcomes, one of which is broadly termed as indirect and direct drivers of change. In Chapter 4 assessment, we shine the spotlight on the complex socio-ecological systems, which interact to produce outcomes. In particular, we assess the influence of many of the prominent drivers on the sustainability or otherwise of wild species being used through the activities, practices and uses for the products. So, the Chapter 4 assessment methodology is consistent with the conceptual framework postulated in Chapter 1.
812	Kenward, Robert	4		9930		9931	insert comma after "communities" on this line and the next	Thank you for your comment. The required change was made.
813	Kenward, Robert	4		9960		9960	spelling "revealed"	Thank you for your comment. The required change was made.
814	Kenward, Robert	4		14734		14768	The Appendix on poverty could usefully be updated before publication of the assessment with the latest data on the impact of the Covid-19 pandemic.	Thank you for your comment.
815	Kenward, Robert	4		14771		14776	The box on lead pollution from ammunition, which does not appear to be cited in the main text, is out of date. It needs to be noted that international organisations for hunting have already acted on this issue and that, for example, shooting with lead over wetlands is banned in Europe. This report needs to encourage hunters to work with manufacturers of lead ammunition to promote use of alternatives in all cases where there is risk to ecosystems and human health.	Thanks for highlighting this. We agree the issue might be a little old. The box is deleted.
816	Kenward, Robert	4		14788		14817	The Falconry box is badly out of date on this story, having missed not least the CMS Saker Global ActionPlan of 2014 and associated relevant literature. It needs adjustments at several lines, including two in its final paragraph, followed by a new paragraph, followed by references, as follows:	Thank you for the comments. The outdated text is removed.

817	Kenward, Robert	4		14788		14817	The Falconry box, which again does not seem to be cited in the main text, is badly out of date on this story, having missed not least the CMS Saker Global Action Plan of 2014 and associated relevant literature. At the least it needs adjustments at several lines, including two in its final paragraph, followed by a new paragraph, followed by references, as follows:	TSU/Duplication, please remove
818	Kenward, Robert	4		14790		14790	"with trained birds" (delete "the")	Thank you for the comments. The outdated text is removed.
819	Kenward, Robert	4		14792		14792	Evidence now is for origin in Central Asia; replace "Middle East" by "Asia",	Thank you for the comments. The outdated text is removed.
820	Kenward, Robert	4		14805		14805	"and has resulted" because latest evidence is not only of recovery for both species but that the main problem for Saker Falcons may have been electrocution on power lines.	Thank you for the comments. The outdated text is removed.
821	Kenward, Robert	4		14807		14807	"However, Saudi Arabia and the UAE took the necessary steps to conserve the dwindling populations of Houbara Bustards." UAE stopped hunting local Houbara before KSA.	Thank you for the comments. The outdated text is removed.
822	Kenward, Robert	4		14813		14813	"... populations had declines..."	Thank you for the comments. The outdated text is removed.
823	Kenward, Robert	4		14815		14816	"... species was considered ... threats listed initially as habitat ..."	Thank you for the comments. The outdated text is removed.
824	Kenward, Robert	4		14817		14817	Add references "Dixon, A. 2016. Commodification of the Saker Falcon Falco cherrug: Conservation problem or opportunity?. In: Angelici, F. M. (Ed). Problematic wildlife: A Cross-Disciplinary Approach (pp. 69-89). Springer International Publishing Switzerland. Dixon, A., Rahman, M.L, Galtbalt, B., Gunga, A., Sugarsaikhan, B., Batbayar, N. 2017. Avian electrocution rates associated with density of active small mammal holes and power-pole mitigation: implications for the conservation of Threatened raptors in Mongolia. Journal of Nature Conservation 36, 14-19. Kenward, R.E. & Gage, M.J.G. 2008. Opportunities in falconry for conservation through sustainable use. Pp. 181-204 in Sielicki, J. & Mizerta, T. (eds.): Peregrine Falcon Populations - status and perspectives in the 21st Century: EPFWG/Turul, Warsaw. Kovács, A., Williams, N.P. & Galbraith, C.A. 2014. Saker Falcon Falco cherrug Global Action Plan (SakerGAP), including a management and monitoring system, to conserve the species. Raptors MOU Technical Publication No. 2. CMS Technical Series No. 31. Coordinating Unit - CMS Raptors MOU, Abu Dhabi, United Arab Emirates."	Thank you for the comments. The outdated text is removed.
825	Kenward, Robert	4		14817		14817	Add new paragraph "This situation was taken in hand in 2011 by CMS, which established a task force to draft a Saker Global Action Plan with engagement of all stakeholders. The SakerGAP proposed an approach based on conservation through sustainable use (Kovacs et al. 2014). Evidence had accumulated not only that electrocution on power lines was a much greater threat to sakers (and other raptors) than initially realised, but also that sakers were quite robust to harvest so that artificial nests grids in areas lacking breeding sites could rapidly produce thousands of young for restocking or falconry (Dixon 2016, 2017). Worldwide, falconry is associated with the restoration of raptor populations following decimation by environmental pollutants and other benefits for conservation (Kenward & Gage 2008), and is inscribed by UNESCO as an intangible cultural heritage."	Thank you for the comments. The outdated text is removed.
826	Kenward, Robert	4		1000		1000	"e)" before "via"	Thank you for your comment. The required change was made.
827	Kenward, Robert	4		1001		1001	"f)" before "unaided"	Thank you for your comment. The required change was made.
828	Kenward, Robert	4		1058		1058	delete one "of"	Thank you for your comment. The required change was made.
829	Kenward, Robert	4		1179		1179	"...and scales, although there was ..."	Thank you for your comment. The required change was made.
830	Kenward, Robert	4		1401		1401	It would be best to use either ha or km2 throughout the report, certainly on the same line.	This is an important point. We will discuss about it to make it consistent
831	Kenward, Robert	4		2110		2110	"... dangerous pathogen can reduce..." should be written "dangerous pathogens may reduce..." to avoid giving credence to what is an unproven assertion.	It has been changed. Thank you.

832	Kenward, Robert	4		2111		2111	"The protected areas can play role..." should be written "Protected areas may play a role ..." to avoid giving credence to what is an unproven assertion.	It has been changed. Thank you.
833	Kenward, Robert	4		2117		2117	It is seriously misleading to assert "... species are the cause of zoonotic disease". This must be corrected to "... species may be a cause of zoonotic disease..." because on one hand an association with "Intensified contact" and "increased demand for meat and medicine" is an inference and on the other hand much zoonotic disease has originated from domestic animals.	It has been changed. Thank you.
834	Kenward, Robert	4		479		479	replace "these species" by "primates" to ensure clarity	Thank you for your comment. The required change was made.
835	Núñez-Rojo, María Paulina (Mexico)	4	0	0	0	0	In chapter 2 and in chapter 4 sustainability using natural resources (fisheries, forest use and animals such as bushmeat) is highly mentioned but at the same time there is a contradiction, for example, with respect to CITES, whose objective is the legal and sustainable use of species, I think they highlight the negative aspect of said convention, without mentioning those cases of success in the management of natural resources, so the reader is left with the idea that there are no alternatives for the sustainable use, or with the idea that those that exist do not work.	Thank you. This comment is noted and the text has been modified to address this inconsistency.
836	Kenward, Robert	4		4811		4813	It is more correct to write "... onwards is associated with land clearing, destruction of habitat for some wild species and persecution of others." This is because although loss of habitat (e.g. drainage of marshland) removed many species, and firearms enabled increased persecution of predators, collection of trophies on walls started centuries (if not millenia earlier in other forms); moreover <i>Vulpes vulpes</i> was hunting initially as a predator and publications show fox hunting tended to increase the size of its populations compared with shooting and snaring.	Thank you, point taken.
837	Kenward, Robert	4		6577		6577	would best read "...driver of biodiversity loss and extraction of wild species..."	Thanks for the comment. We use now 'harvesting' consistent with the language of the assessment.
838	Kenward, Robert	4		7132		7133	The sentence "However, in most cases the revenues do not reach local communities and 7132 conservation projects, and extractive tourism is unsustainable (unresolved)" is very misleading. This is because hunting is given as an example in the previous sentence. Comparative studies (as cited in following paragraphs) have shown benefits of hunting for local communities to be greater per tourist than for observational tourism and tourist hunting. Moreover, Chapter 3 notes that trophy hunting is typically sustainable, and also without forgetting the long sustainable tradition of such hunting within Europe and North America as well as the widespread sustainable angling tourism, the last phrase of the sentence is wrong as now written. The sentence would be correct if re-written to "However, in some cases tourism revenues do not reach local communities and conservation projects, in which case the extractive tourism can be unsustainable (unresolved)."	Thanks you for the comment. The sentence has been revised. The key message now reads as 'In some cases, extractive forms of tourism (i.e. terrestrial animal harvesting and fishing) have a positive impact on ecological, social, and economic sustainability by generating revenues for conservation and livelihoods. However, in many cases the revenues do not reach local communities, do not contribute to conservation, and extractive tourism is unsustainable'
839	Kenward, Robert	4		7319		7319	The word "often" is too strong, because comparative studies have shown benefits of hunting for local communities to be greater per tourist than for observational tourism. The end of the sentence also implies that conservation benefits are always unclear. It should read "small compared to total tourism expenditures, while sometimes not benefiting local communities and with unclear conservation benefits (Campbell 7319 2013; Grijalva 2016)".	Thanks for the comment! The sentence has been changed to 'The revenues by trophy hunting are sizable, but small compared to total tourism expenditures and often not benefiting local communities, leaving conservation benefits unclear in many cases (Campbell 2013; Grijalva 2016).'
840	Kenward, Robert	4		7345		7345	Peter Andrew Lindsey is cited in the Reference section (at 12689-12696) as Lindsey, P.A., and should be "Lindsey" alone in the text here and at 7355, 7357, 7363, 7365, 7374 & 7378.	Thanks! We changed it.
841	Kenward, Robert	4		995		995	"There are six broad 995 introduction mechanisms of..."	Thank you for your comment. The required change was made.
842	Salazar, Alejandra (Mexico)	4	2	51	2	52	Highlight link on how climate change or changes in practices due to impacts from climate change have contributed to the global marine fish yield decrease between 1930 and 2010..	Thank you for your comment. Section 4.2.1.2.2 accounts for climate change have influenced the global marine fish yield.
843	China	4	167	6394	167	6398	Delete "In China". Few references are cited and relevant argumentation data is insufficient.	Thank you for your comment. We have considered your suggestion and the sentence has been modified.
844	Núñez-Rojo, María Paulina (Mexico)	4	2	55	2	55	The word "species" appears twice.	Thank you for your comment. The repeated word was removed.

845	Salazar, Alejandra (Mexico)	4	6	216	6	217	Correct "species due access to the market" to "species due to access to the market"	Thank you for your comment. The requested change has been made.
846	Salazar, Alejandra (Mexico)	4	7	242	7	242	Change to "gender inequity in how the costs/benefits of wild species"	Thank you for your comment. The requested change has been made.
847	Salazar, Alejandra (Mexico)	4	8	292	8	292	The word tourism is duplicated.	Thank you for your comment. duplicated word was removed.
848	Núñez-Rojo, María Paulina (Mexico)	4	8	302	8	302	There is a low dash that should not be there.	Thank you for your comment. The dash has been removed.
849	Núñez-Rojo, María Paulina (Mexico)	4	85	3242	85	3243	The reference to Pomeroy & Williams need clarification/correction.	Thank you for your comment. The reference has been corrected.
850	Núñez-Rojo, María Paulina (Mexico)	4	13	478	13	478	There is a space missing in "including aquatic".	Thank you for your comment. The space was removed.
851	Núñez-Rojo, María Paulina (Mexico)	4	14	544	14	544	"Practices" is written twice.	Thank you for your comment. The repeated word was removed.
852	Núñez-Rojo, María Paulina (Mexico)	4	17	630	17	633	Mention that they not only impact on a small scale but that not everyone has access, it is not a possibility for everyone since it is more expensive. That is, not only the problem is that it is on a small scale but the reason for that small scale.	Thank you for your comment. We agree with your idea, however the point made is not related only to organic foods (which is not a possibility for everyone for its cost) but related to the growth of some practices worldwide with positive impact on the resources. The scale of the impact is still very small compared to the impact of degradation of natural habitats.
853	Núñez-Rojo, María Paulina (Mexico)	4	17	633	17	633	There is a vignette that should not be there.	Thank you for your comment. Your Suggestion has been considered.
854	Núñez-Rojo, María Paulina (Mexico)	4	56	2178	56	2178	Customary is misspelled.	Thank you. Text updated.
855	Núñez-Rojo, María Paulina (Mexico)	4	57	2200	57	2200	Institutions is misspelled.	Thank you. Text updated.
856	Núñez-Rojo, María Paulina (Mexico)	4	57	2204	57	2204	Institutions is misspelled.	Thank you. Text updated.
857	Núñez-Rojo, María Paulina (Mexico)	4	57	2217	57	2217	Related is misspelled.	Thank you. Text updated.
858	Núñez-Rojo, María Paulina (Mexico)	4	59	2276	59	2278	It is not clear if it is the description of Box 4.1	Thank you. This was taken into consideration
859	Núñez-Rojo, María Paulina (Mexico)	4	60	2330	60	2330	Economic is misspelled.	Thank you. Text updated.
860	Núñez-Rojo, María Paulina (Mexico)	4	60	2332	60	2332	Outcomes is misspelled.	Thank you. Text updated.

861	Núñez-Rojo, María Paulina (Mexico)	4	61	2371	61	2371	Statutory is misspelled.	Thank you. Text updated.
862	Núñez-Rojo, María Paulina (Mexico)	4	62	2399	64	2462	In the paragraphs where CITES is addressed, it is not necessary to put CITES or the full name of the convention so many times, this makes reading that section confusing and repetitive.	Thank you. Point well taken.
863	Núñez-Rojo, María Paulina (Mexico)	4	64	2477	64	2479	CITES has not reduced trade because its role is not to reduce it, but to regulate it by making it legal, traceable and sustainable.	Thank you. Text updated.
864	Núñez-Rojo, María Paulina (Mexico)	4	71	2778	71	2778	Use "ñ" in "vicuña".	Thank you. Text updated.
865	Núñez-Rojo, María Paulina (Mexico)	4	84	3176	84	3176	Principle is misspelled.	Thank you. Text updated.
866	Barbieri, Marco	4	245	9307	245	9307	The way the last sentence is written suggests that India joined the Convention on Migratory Species following the case of harvest of the Amur Falcon. Actually India has been a Contracting Party to CMS since 1983.	Thank you for your comment. The text has been suitably modified.
867	Núñez-Rojo, María Paulina (Mexico)	4	90	3369	90	3369	Organizations is misspelled.	Thank you. Text updated.
868	Núñez-Rojo, María Paulina (Mexico)	4	91	3383	91	3383	And is misspelled.	Thank you
869	Núñez-Rojo, María Paulina (Mexico)	4	93	3437	93	3437	A space is missing between the scientific name and the word how	Thank you. Text updated.
870	Núñez-Rojo, María Paulina (Mexico)	4	94	3533	94	3533	These is misspelled.	Thank you
871	Núñez-Rojo, María Paulina (Mexico)	4	94	3543	94	3544	Delve more into why in some cases it has not worked.	Thank you for your comment. We will evaluate the possibility of inserting your suggestion in the final draft.
872	Núñez-Rojo, María Paulina (Mexico)	4	108	4085	108	4085	Corbena et al. Falta... the year is missing	Thank you for your comment. Citation is updated.