

**TEMPLATE FOR PEER REVIEW COMMENTS
STUDY RELATED TO ARTICLE 10 OF THE NAGOYA PROTOCOL**


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Title of document reviewed:	Study to Identify Specific Cases of Genetic Resources and Traditional Knowledge Associated with Genetic Resources that Occur in Transboundary Situations or for Which it is not Possible to Grant or Obtain Prior Informed Consent	
Comments on the study on traceability and databases		
Page #	Line #	Comment
0	0	The organisation of the text is confusing, with some topics mixed repeatedly, and examples repeated in different places but with little or no additional information. In some places the citations do not provide the information referenced. The text would benefit from strong editing.
0	0	The lack of methodological clarity, the lack of their own research especially on private ex-situ collections and the weakness of certain cases presented are major deficiencies in this study. Even though we recognise and appreciate the intentions of the authors to assess a complex situation, the approach taken is sometimes superficial and unclear. The study would benefit from evaluating the examples presented more closely with existing instruments offered by or developed under the umbrella of the NP, explaining if appropriate why existing measures do not work.
0	0	The term “country of origin” is widely used in this study as reference for geographical origin of GR. In many cases it is used where the CBD understanding would make ‘provider country’ the appropriate term. The text should be carefully checked and amended throughout.
0	0	The reflections on genetic resources in ex situ collections of untraceable origin are combined with discussion on pre-CBD material in many places in the document. However, these are quite different concepts, and by mixing them up the authors are generating confusion. The organisation needs to be clarified so single topics are discussed only once and coherently, not mixed and repeated.
0	0	There are many unquantified assessments in the text. It would be useful if the metrics the authors used for their assessment could be explained under <i>Methodology</i> to improve comparability of individual examples and the conclusions derived.

0	0	<p>The authors refer to <i>ex situ</i> collections in numerous places in the document, enumerating these in several places (e.g. list on p. 5 line 16). However, the focus appears to be on public <i>ex situ</i> collections and the text rarely mentions private collections held by commercial bodies with direct R&D interest or, for example, crops or domesticated animals, within or outside FAO programmes or the ITPGRFA, the Svalbard Global Seed Vault, etc. Any concepts presented for <i>ex situ collections</i> within this study should explicitly embrace all of these, noting their different characteristics where appropriate. Further, we assume the authors are referring to <i>ex situ</i> collections held in all countries, not just the global North, although examples given are only of these. It would be helpful if the authors could explain how the term <i>ex situ collection</i> has been used in this study, what it entails (i.e. which types of GR) and which main types of <i>ex situ</i> collections were investigated for this study (and which have been excluded).</p>
0	0	<p>In attempting to address transboundary situations the authors have introduced a new concept but mislabelled it as ‘genetic resources’. The term ‘genetic resource’ has a clear definition in the CBD context and refers to “genetic material of plant, animal microbial or other origin ...”. Such genetic material can only come from an individual organism (or multiple organisms, but physically treated to extract the genetic resources). Often ‘genetic resources’ is used as a shorthand to refer to the organism itself. In contrast, in much of the text the authors refer to species (e.g. p. 4 line 19: “genetic resources occurring in neighbouring countries (e.g. <i>Pentas longiflora</i>), across a range of countries (e.g. <i>Heliotropium foertherianum</i>), or even on different continents (e.g. <i>Catharanthus roseus</i>).” This is misleading, since this does not refer to the CBD definition of genetic resources as physical item, but to a species as an artificial concept that cannot be equated with a genetic resource. A basic premise throughout the document is therefore misleading. The authors need to clarify this difference, justify why species are being discussed and be very clear in the text when they are discussing individual genetic resources and when they are discussing species concepts.</p> <p>To add biological and taxonomic context to explain why terms should not be used interchangeably:</p> <ul style="list-style-type: none"> a) A species, as a concept, is subject to taxonomic change according to new evidence or the opinion of a taxonomist. For example, <i>Heliotropium foertherianum</i> has the following synonyms, which taxonomists have proposed as being the same taxonomic entity: <i>Argusia argentea</i>, <i>Tournefortia arborea</i>, <i>Tournefortia sericea</i> and <i>Tournefortia velutina</i>. It is possible that a taxonomist may choose to resurrect one of these, potentially changing the distribution and understood transboundary nature of the species. b) Different taxonomists and, perhaps more importantly, national inventories or checklists, do not all use the same name for the same concept. The species <i>Pentas longiflora</i> is also known as <i>Dolichopentas longiflora</i>. Depending on how countries record names officially, it changes the applicability and content of the tag ‘transboundary’. c) Known distributions of organisms change with discovery. Perhaps most species are known from very few specimens, and available genetic sequences uploaded to INSDC databases usually refer to a single, rarely two or more specimens from the same country. Thus, capture or identification of more specimens e.g. in <i>ex situ</i> collections turn something from a species found in only one country to one occurring in many, and vice versa. d) A species is not genetically uniform throughout its range. This may be recognised formally by a subspecies or varietal name (e.g. <i>Catharanthus roseus</i> has a variety <i>Catharanthus roseus</i> var. <i>angustus</i> as well as a number of cultivars with slightly different genetic properties). Additionally, even where there are no named varieties or subspecies, there are likely to be different genetic compositions in different populations at different places. Vice versa, merely because a species occurs in more than one place it does not mean that a gene or allele of interest does.

0	0	<p>Comments regarding ‘genetic resources of untraceable origin’ are gathered together here to avoid repetition.</p> <p>There is a repeated statement that there are genetic resources of untraceable origin in public <i>ex situ</i> collections (5:12; 5:16; 7:16; 17:24; 19:17; 20:7, 9; 34:32). The number of times that this issue is raised implies it is a major component of such collections and of significance in the context of benefit-sharing (while it remains unclear for which kind of benefit sharing). However, there is virtually no analysis to support either assertion, and none at all to support the concept that such material is used for commercial purposes. The <i>ex situ</i> collections held by CETAF members contain more than a billion specimens. Of these the authors have identified ‘several examples’ from a single historical collection where detailed geographical information is not given on a public database (p. 21). They have not sought to discover if any further data are held in the collections without been digitised and accessible freely in databases in the public domain.</p> <p>The implication that large numbers of samples in <i>ex situ</i> collections lack key passport data (collection date, collector, locality, etc.) is not our experience as collection holders. The core mission of our collections is to document the provenance of the stored collection objects because otherwise they lose much scientific relevance and value for basic research. There are undoubtedly some such specimens, many of them early nomenclatural ‘type’ specimens that serve as international reference points for species.</p>
5	16-18	<p>Although the topic is raised as a subgroup the text is largely about a totally different issue, of pre-CBD <i>ex situ</i> material in general (see also above).</p>
19	17.	<p>The heading of the section is ‘genetic resources of untraceable origin’ but the text then immediately discusses not this but pre-CBD material. These concepts are different and must be considered separately.</p>
20	11-12	<p>The text refers to material of unknown origin being a candidate for a multilateral benefit sharing mechanism if used for commercial purposes, a sentence repeated on p. 24, lines 10-11. By this point one would expect that some evidence would be presented that such commercial use is known, but none is presented. The authors appear to have set up a scenario, repeated it numerous times, but provided no evidence that it ever occurs. Given that a benefit-sharing system is not cost free to any of the participants a cost-benefit analysis would be expected. However, with no evidence that commercialisation takes place, and no evidence of the scale of the situation, repeated mention seems unjustified. Clearly such a scenario is possible; however, as collection holders we are unaware of its actual existence and implied potential.</p>
24	6-7	<p>That passport data is missing from a public database does not mean that it is not there – this often requires additional research especially in historic material. It is impossible to accommodate such time-intensive research in mass-digitisation projects (to which the authors refer in their examples). However, if it is required to investigate the provenance (for whatever reason), it usually is possible to trace and enhance the passport data of such specimens (e.g. https://onlinelibrary.wiley.com/doi/pdf/10.1002/tax.12158)</p> <p>Overall, we would welcome a real quantitative assessment of the amount of GR of unknown origin, and the amount of commercial exploitation of these that there have been. In the absence of this, it would seem appropriate to reduce the space in the document given to this topic. It might also be appropriate to mention the enormous amount of non-monetary benefits already generated by the non-commercial public collections; these resources have been maintained for centuries, are accessible to scientists around the world and a core tool to implement the CBD’s Global Taxonomy Initiative.</p>

0	0	<p>It is suggested that where species occur in more than one country “The dispersed nature of such species could allow users to inaccurately claim acquisition from a country of origin which is not the actual country from which the resource was obtained to avoid a benefit-sharing requirement.” If a user is seeking to avoid such a requirement by inaccurately reporting the origin, one imagines that an equally simple way would be to inaccurately report the identity. In both cases appropriate analysis might well reveal the true origin, and would be a tool for a regulator to employ. However, if this argument is intended to provide support for the implementation of article 10 then the logic should be completed. The key result of the implied proposal is that any genetic resource belongs to a species so distributed would attract benefit-sharing obligations even if accessed in a country that does not require it. The authors should explore this.</p> <p>Similar statements are also made without analysis on p. 9 lines 14-16 and p. 32 lines 1-3 but no further comment is made here.</p>
4	22-25 Also p. 9, lines 16-19	<p>The authors raise the question as to which of two countries ‘has a more legitimate claim’ to authorise access and negotiate sharing of benefits for species distributed across national boundaries. The answer appears simple – a country has the sovereign right to its geographical territory and natural resources, thus it has rights to authorise access and negotiate sharing of benefits for genetic resources on its territory. This is a case where the author’s confusion of species with genetic resources leads to a spurious question.</p> <p>The argument is repeated almost word for word on p. 9: 16-18, an example of frequent repetition in the text.</p> <p>Given the scenario, why has Article 11 on Transboundary cooperation not been mentioned? Further, if GR were accessed legitimately in a country, how could ‘more legitimate claims’ of a second country possibly be justified?</p>
5	3	<p>Migratory species are not ‘shared amongst several countries’. The range of a migratory species may include a number of states, but ‘sharing’ a species is not relevant to the occurrence of a genetic resource and any sovereign rights that may apply. Applying prevailing access laws, sampling and sequencing blood samples from a Barn swallow in Norway - in full legal compliant fashion – does not require to get engaged with South Africa, just because the swallows *may* have spent the last winter there.</p>
5	5-7	<p>The term “...would not reward all those involved in the conservation ...” is curious. More neutral would be “...would not provide monetary benefits for all those involved in the conservation ...”. However, in this specific example, it is even unclear if all relevant countries could be considered, e.g. because the spawning grounds of the European Eel are still unknown.</p>
5	8	<p>“more appropriate for resources found in the global commons”. It is unclear what this refers to. It is unclear why ‘resources found in the global commons’ are mentioned separately when ‘DSI’ is explicitly mentioned in lines 14-15.</p>
5	14-15	<p>Some Providing Countries have covered ‘DSI’ in national access legislation and some plan to do so, even though it has not been agreed that ‘DSI’ falls under the CBD or NP; the reasoning why ‘DSI’ is included in group 2c is unclear and in contradiction with lines 11-12, page 4, as it obviously is not entirely impossible to negotiate PIC and MAT for ‘DSI’. More clarifications would be helpful to understand the grouping.</p>
5	16-22	<p>It is very unclear why GR held in <i>ex-situ</i> collections are discussed here. The first element is “holding of genetic resources of untraceable origin in ex situ collections”. However, the discussion then focusses on “specimens acquired before the entry into force of the CBD” – these are not untraceable, but are specimens for which it was not <u>required</u> to grant or obtain prior informed consent. See also our comment below on subsection ‘Temporal scope’.</p>
5	22	<p>The suggestion that the alleged situation “might be ameliorated by a global multilateral benefit-sharing mechanism” should be qualified to state explicitly that this ‘solution’ applies to any commercial users, not non-commercial <i>ex situ</i> collections (noting again that the authors fail to provide any evidence of commercial use of such genetic resources).</p>

5	23-28	Lines 27-28 state the genetic resources were “from Australia and Asia, but does not disclose how or where the specimens were obtained”. In many jurisdictions there is no requirement in patents to disclose origin of specimens, still less the contractual conditions under which they were obtained. There is no evidence whether PIC and MAT were obtained or not. It is unclear why this is a good example for group 2 (GR for which it is not possible to grant or obtain PIC). Clarification and evidence would be helpful.
5	29-30	The second ‘involves’ should probably be replaced by ‘and is focussed on’. The current text is clumsy and unclear.
5	39	Steviol glycosides are not GR per se, but derivatives resulting from biosynthesis of this plant. The text should be adjusted accordingly.
6	6-10	Such information often is included as notes on herbarium sheets. For new acquisitions it is possible to seek PIC from IPLCs and this is generally considered good practice (cf. CETAF Code of Conduct, page 6 footnote 10 and Annex 2 Section1).
6	18-21	It is difficult to understand why items (a), (c) and (d) in group 1 of this study match with point 4 (a) in decision CBD/NP/MOP/DEC/3/13; for items (a) and (c) MAT can and should be negotiated bilaterally (see UNEP/CBD/ABS/A10/EM/2016/1/4, point 41 (a)) depending when and where it is planned to access respective GR, BBNJ falls out of the scope of the CBD. Further explanations would be helpful.
6	28-33	It would be helpful if a list of interviewed persons/institutions (depending on confidentiality –cf. scoping study 4 on ‘DSI’) could be added. Some CETAF member institutions mentioned in this study doubt that they had the opportunity to contribute views despite the fact that they are prominently mentioned.
7	5-9	An addition stating all sources or that used sources have been fully referenced in available footnotes would be helpful, as the study lacks a specific ‘reference’ section.
6-7		The section ‘Methodology’ describes which sources have been consulted, but not how they have been analysed and results were compiled; this might be worth adding, so that readers understand how the authors proceeded.
7	11-15	It is difficult to understand the reasoning for the selection, analysis and presentation of case examples; please explain (cf. general comments above on ‘transboundary GR’).
8	23-27	The term ‘special characteristics’ should be replaced by ‘distinctive properties’ in line with CBD Art 2.
9	1	Individual genetic resources as defined in the CBD cannot be distributed across national boundaries (see general comments). The term used should be ‘species’ or ‘taxa’.
9	2	Species cannot be <u>endemic</u> to more than one country (‘endemic’ means ‘only found in’); from the context it seems “ native ” or “ resident ” is meant and respective adjustments might be appropriate to improve clarity; if ‘endemic’ to a specific region, area of habitat is meant (e.g. “endemic to East Africa”), the sentence should be adjusted likewise. In the current form it sounds awkward from a biological perspective; for general comments on exclusive occurrence of GR in individual countries (includes “endemism”, please see general comments).
9	5	Either the plant occurs in Madagascar and India or is native in both; but not endemic (see above). The text should be adjusted accordingly.
9	7	“endemic” – ditto; C1 gives the “Geographical distribution”, thus the range where this plant is native (but not endemic).
9	8	Of course organisms (including humans) share same genes and protein biosynthesis pathways (see general comments); but the text relates to the distribution of species not genes or alleles; it would be helpful to clarify with relevant data.
9	12	Please replace “endemic” with native for the reasons given above; in the current form misleading and with an incorrect biological context.
9	19	The phrase “several countries may have a claim of origin” is misleading on several counts. It confuses material genetic resources with the intangible concept of a species, and confuses the concepts of provider countries and countries of origin. Perhaps a more accurate formulation would be “several countries claim sovereign rights”. This also applies to the earlier point in the text where the same example was used (p. 4).

13	20	If the rosy periwinkle “originated” in Madagascar, it cannot be “endemic” in India; please replace with “ is also found in ”
14	6-7	<p>The focus in the text on Madagascar (and Jamaica) makes no mention of the distribution of this shrub (see GBIF occurrence map for “<i>Catharanthus roseus</i>” below) However, in any instance of use of a genetic resource from this plant there can still be a single provider country, especially as the link to aTK appears less relevant. https://www.gbif.org/species/3169830</p>  <p>ites ago © OpenStreetMap contributors, © OpenMapTiles, GBIF.</p>
14	Section 2.3.	Part of the argument on migratory species rests on the same flawed concept of species = GR discussed above, and thus suffers from the same problems.
14	Section 2.3	The issue of sharing conservation / management costs is important. However, the study does not refer to other means of addressing this, for example CBD Art. 5 or, more significantly, the Convention on Migratory Species itself (e.g. Art. 3). At least some of the examples are weak: in the case of the Monarch butterfly the paper points out that Mexico is the only Party to the Nagoya Protocol involved, even though this species migrates over huge distances on the North American Continent. (see also detailed comments below regarding this (pp 15-16). Presumably implementation of Art. 10 would have no impact on the situation – is it then a good example? In the case of the Mallard not all birds fly between all countries listed (indeed, only a small proportion of the birds migrate), so again the logical fallacies of the use of the species concept instead of addressing genetic resources distorts understanding.
14	17-18	“This places them in the category of genetic resources that occur in transboundary situations.” This statement appears at variance with the core element of the CBD and NP of place of access and sovereign rights.
15	7	“and regulate its transboundary movement”. Council Regulation (EC) No 1100/2007 calls EU Member States to establish Eel Management Plans to improve the situation for native eel populations in Europe. It calls for transboundary efforts where this is required (e.g. rivers with different bordering states), and has a strong focus to restore habitats and improve passability of rivers, but not to regulate “its transboundary movement” as such. This sentence should be adjusted accordingly.
15	8-9	Most EU Member States and the USA do not exert sovereign rights over GR accessed within their national borders; Bermuda (as a British Overseas Territory) does not exert sovereign rights over marine life. There is no evidence presented that the patents were based on GR that were not accessed according to applicable law. This example seems unhelpful and misleading.




15-16		Besides the understanding for the conservation needs to protect the Monarch butterfly, we doubt that this is a suitable example. Firstly, the migration involves different generations (usually 1-3, or even 4 or 5 generations), secondly, different populations hibernate in different regions (e.g. California, Florida, Mexico, Bermuda or Cuba, some even are diverted to the Azores, Canary Islands and Madeira), lastly the species is also widely distributed in Europe, Australia, New Zealand, Papua New Guinea, the Cook Islands or the Solomons – e.g. as referenced in footnote 55). The threat of regional extinction for populations elsewhere is much higher as for the North American populations (cf. IUCN categories). So why should potential monetary benefits be diverted exclusively to Mexico, where the species “only” hibernates, while most breeding of North American populations happens in the US? Wouldn’t it be more important to protect the breeding sites in the US (e.g. against intensive application of pesticides or herbicides in this area, to maintain breeding for consecutively hatching generations so that the entire migration cycle of the species is maintained)? Even though we understand the reasoning why the authors draw the attention to support conservation efforts in Mexico, the reality is more complex. From a biological point of view – with all due respect – this black-and-white thinking is less helpful to address the real problems threatening specific species habitats and biodiversity as such. It would be helpful if the authors would reconsider and adjust this example; in the current form, the rather simplistic approach is unhelpful.
17	Section 2.4.	BBNJ is being discussed at UNCLOS / UNGA and seems inappropriate to engage at this time.
17	24-27	None of what is written in this sentence are “specific cases”. All are general statements. As noted elsewhere, the authors provide little evidence of any specific cases on untraceable origin, and only one of the large sample issue, which is incomplete and repeated in the paper.
18	1	The subsection <i>Temporal scope and retroactivity for ex situ collections</i> should be considered as separate from a section on cases where it is not possible to grant or obtain PIC. The situation is that PIC was not required at the time of access. The topic is repeatedly confused in the document with genetic resources for which no origin information is available (see discussion above) and merits separate consideration. Temporal scope is not one of the categories listed in Article 10. No rationale is given as to why this should be included in the study, although on p. 5 the authors state specimens collected pre-CBD “raise[s] questions of temporal scope”. The existence of such specimens does not raise questions of temporal scope – the writers are doing that. If pre-CBD specimens are considered to belong to group 2 on p. 5, the rationale should be discussed, and the implications for all of the NP detailed.
18	13-16.	The text on <i>Temporal scope</i> (para 4) commenting on the Vienna convention is selective. “...provisions do not bind a party in relation to any act or fact which took place or any situation which ceased to exist before the date of the entry into force...” It focusses on situations which have ceased to exist but ignores the key word ‘or’ which differentiates this from “any act or fact which took place before the date of the entry into force”. In this case access took place before the treaty came into force. A further set of examples of genetic resources which might come into scope if the temporal scope were to be relaxed is ignored. These are plants which have been taken for commercial reasons from their country of origin and are grown elsewhere. If the argument is to be applied to progeny (e.g. in botanic gardens) it might arguably also apply to plants such as rubber, tea and maize. The study might helpfully address this.
18	21	Minor typo – the first word should read The

19	20-21	The presence of genetic resources collected prior to the CBD is not an ‘issue’ for <i>ex situ</i> collections, but a value made use of by non-commercial biodiversity researchers globally. The language might be simplified and made neutral by simply stating “Many <i>ex situ</i> collections hold specimens acquired before the entry of the CBD.” Again, only public collections are listed, but there may be further (commercial sector) specific uses and interests in collections. The text is of course misplaced and should be under the subheading on p. 18.
19	22	Delete “country of origin” and replace with Providing Country (which is meant here).
20	2-5	Colombian? [“Colum bi a seems to be a typo?”]
20	17-19	IPEN is exclusively for the exchange of living plants and seeds between Botanic Gardens, and not designed to accommodate exchange of “plant genetic resources” as such (i.e. plant tissues, herbarium material or other types of preserved plant material, such as fungi or algae). The term ‘living’ should be inserted before ‘plant’ on line 19.
20	26-27	This should be rephrased as “The Royal Botanic Gardens, Kew (Kew) curates diverse collections including 50,000 living plants, an arboretum, and several additional collections including a herbarium, and fungi, seed, gene, and other banks totalling 8.5 ...”
22	19-20	Replace “country of origin” with provider country
22	23	Although mention is made of ‘even commercial purposes’ the reference cited does not refer to such use.
22	23-25	When noting the increasing ability of basic research to extract DNA from ancient specimens, this is presumably only of interest here if there is a commercial application; are there any indications of such value that can be cited?
22	27-28	Please replace “non-commercial scientific institutions in Europe formed to promote training, research and understanding of systematic biology and palaeobiology” with “ publicly funded Natural Science Museums, Natural History Museums, Botanic Gardens and Biodiversity Research Centres engaged in taxonomic research and promoting training, research and understanding of systematic biology, palaeobiology and Earth Sciences ”.
22	29	Please add: “CETAF institutions hold significant zoological , botanical, palaeobiological (e.g. anthropological, archaeozoological) , palaeontological and geological collections. [all these are relevant with regard to the CBD/NP; the exclusive mentioning of botanical collections is misleading].
22	30	“In response to the EU Regulation implementing user compliance measures for the Nagoya Protocol”. Although the document has been recognised under the EU ABS Regulation and more than fulfils its requirements, its development commenced prior to any requirement under the EU regulation. A more accurate formulation of the text would be: “ CETAF developed a Code of Conduct and Best Practice for Access and Benefit Sharing to assist Taxonomists and Biodiversity researchers in their obligations resulting from the CBD and the NP. The CETAF Code of Conduct is the first acknowledged Best Practice under Art. 8 EU Regulation (EU) No 511/2014 by the European Commission ”.
23	3-4	“Participating institutions are encouraged”, this is incorrect, all CETAF Members <u>approved</u> the Code of Conduct in May 2014 . Please change in: “ CETAF Member institutions approved the Code of Conduct for application as far as reasonably possible to all biological material in their collections.”
23	Footnotes 102-105	The citation is incorrect; the authors are referring to the Code of Conduct and Best Practices, not the Commission decision (‘ibid’) which contains none of this text. They should refer to The Consortium of European Taxonomic Facilities (CETAF) Code of Conduct and Best Practice for Access and Benefit-Sharing. https://cetaf.org/services/natural-science-collections-and-access-and-benefit-sharing The reference to ‘Annex, 4’ in 102 should be-replaced with “ p 4 ”
23	14-25	The authors apparently just read and used the short description provided by MNHN for BGCI website without contacting or interviewing the notice authors at the MNHN to analyse the actual situation.

23	26	The text apparently misunderstands to scope of this legislation. The concept discussed relates to Genetic Resources accessed from France and its overseas territories, not for its compliance mechanisms implementing the EU Regulation. The text might therefore read: “The French law implementing the Nagoya Protocol includes access provisions; these are unrelated to the EU ABS Regulation and, for genetic resources accessed in France and some of its Overseas Territories, establishes the concept of ...”
24	1	The text “This is leading to a rethinking of access...century” is inaccurate. The consideration of collection management in the light of the implementation of the Nagoya Protocol undertaken in Paris (and the subject of the first citation) is in line with that being undertaken by museums in very many countries. The second citation given merely refers to the age and complexity of the collection, not to the (much later) French legislation, and contains no mention of ABS at all.
24	6	Is there any specific reason for the logical combination of “botanical gardens” and “culture collections”, especially since the second half continues with “herbaria”, which are held by neither of the former? This sentence should be rephrased to improve clarity.
24	12	For clarity the title of this section might usefully be rephrased 3.2. Utilization and Screening of Geographically Diverse Samples sourced from different regions and countries.
24	14	The text should be slightly rephrased for clarity “... agreement regarding one or more specimens of a single species...” As noted, a species is a concept and not in itself a genetic resource.
24	14-15	Please change the sentence into “However, in commercial research and R&D it is notuncommon for researchers to use large numbers of physical samples in screening and development projects”; this specific type of “screening” activity described in this sentenced is rarely carried out in other research sectors – this should be clarified.
25	2	“might be possible, but possible but is likely impractical from the standpoint”; delete the “but possible”; it seems to be a leftover of an earlier formulation of this sentence.
25	Section 3.3.	The study fails to note that a very high proportion of the INSDC contents are either human DNA or come from countries that do not exert sovereign rights over their genetic resources. Although a multilateral benefit-sharing mechanism may well be appropriate for intended commercial uses of ‘DSI’ (given the unknown outcome of negotiations) further analysis is necessary, and probably beyond the scope of this study.
26	20-22	Please replace country of origin accordingly.
26	22-23	As the scoping study clearly indicates, the majority of datasets are out of scope of the CBD (human ‘DSI’); the study also showed that since the country tag field was introduced, datasets with corresponding passport data increased massively; moreover, only 44% of CBD-relevant entries did not report a providing country but should have. This means, in return, for 56% of INSDC datasets with CBD-relevance, respective passport data is included. The referencing of only 16% of <u>all</u> INSDC is misleading and should be adjusted.
26	24-25	What exactly is meant with “each country from which a sequence originated”? The country in which the GR was sequenced, or the Providing Country, from which the sequenced GR was accessed? Please clarify to improve clarity.
26	29	Please replace “metadata” with passport data (which is meant here); ‘metadata’ has a much broader meaning and encompasses information which mostly has no relevance to “traceability”.
29	Footnote 119	“Country of origin” should be changed.
27	2	It seems “ possible ” is a left-over from an early formulation and should be deleted.
27	14-21	It seems that only monetary aspects are relevant to the authors’ analysis in the context of the REGN-EB3 example but mitigation of the Ebola outbreak less so– isn’t it worth for benefit sharing under the NP reflecting the non-monetary aspects and capacity building that took place under the umbrella of the WHO including joint efforts to combat Ebola as well?

29	22	Please replace <i>species</i> with organisms representing many different species (see general comments on species above).
30	7	Please clarify what is meant with “significant numbers of diverse species” (see general comments on “species”) – is the first sentence needed at all?
31	Line 2	Minor typo in “ <i>dishwashing detergents, and</i> [add space] <i>detergents and is sold</i> ”
33	6-7, footnote 156	The full dataset reveals not only the geographic region “Zambia near Morambella on the Shire River” (not just “Africa”), but also includes further information on the tribes (“Manganjas and other tribes near Morambella”) as source of the traditional knowledge, and thus apparently exemplifies excellently the opposite (see also below). https://ecbot.science.kew.org/read_ecbot.php?catno=49302&search_term=gomphocarpus&search_type=name
33	9-23	As the United States are not party to the NP, is this the best example?
33-34		See comment on the rosy periwinkle above.
34	Section 5	With regard to the existing tools and mechanisms provided by the Protocol, it would have been intuitive that the concluding remarks would evaluate and elaborate how the available instruments can be suited to handle GR and TKAGR occurring in transboundary situations, or in which instances this would not be possible and for which reasons. The conclusion however lacks such information, but deliberates a GMBSM instead. The statement that the examples chosen do not undermine the existing bilateral approach is not fully supported.

41	Example C7	Catalogue Number	Image	Taxon	Artefact Name	IsoCountry	Plant Part Held	Donor																																																						
		63355		BURSERACEAE Commiphora molmol	Stem, bark and resin		Stem, bark and resin	Drake-Brockman RE																																																						
		63436		BURSERACEAE Commiphora molmol	Portion of stem		Portion of stem	Drake-Brockman Dr RE																																																						
		63440		BURSERACEAE Commiphora molmol	Portion of branch		Portion of branch	Pharm Soc GB																																																						
		64327		BURSERACEAE Commiphora molmol	Resin - Genuine Myrrh		Resin - Genuine Myrrh	Pharm Soc GB																																																						
		64358		BURSERACEAE Commiphora molmol	Gum resin		Gum resin	Pharm Soc GB																																																						
		90361		BURSERACEAE Commiphora molmol	Myrrh		Myrrh	Bush Boake Allen																																																						
		96448		BURSERACEAE Commiphora myrrha	Commiphota molmol stem from near Aden	Yemen	Commiphota molmol stem from near Aden	Harrod Materia Medica Collection																																																						
<p>The database holds 7 entries for <i>Commiphora molmol</i> (as synonym of <i>Commiphora myrrha</i>), 5 of which contain provenance information, Cat.No. 64327 & 90361 lack such information, but apparently have been bequested to the museum from former private collections, entries thus support traceability. Moreover, the full entry of Cat.No. 64327 suggests that this is a historic specimen (likely 19th century that was bequested 1983) which has additional historic labels in a foreign writing that requires further research. The label 'no country of origin' for this dataset thus may be misleading, the general connotation as well (5 of 7 datasets do have provenance information).</p>																																																														
<p>Catalogue Number: 64327</p> <table border="1"> <tr> <td rowspan="13">No Image</td> <td>Plant Name</td> <td>42.00 BURSERACEAE Commiphora molmol</td> <td>Entry Book Number</td> <td></td> </tr> <tr> <td>Artefact Name</td> <td>Resin - Genuine Myrrh</td> <td>Vernacular Name</td> <td></td> </tr> <tr> <td>Iso Country</td> <td>Not defined</td> <td>TDWG Region</td> <td>Not defi</td> </tr> <tr> <td>Parts Held</td> <td>Resin - Genuine Myrrh</td> <td>Geography Description</td> <td></td> </tr> <tr> <td>Uses</td> <td>Resin - Genuine MyrrhUse: MEDICINES - Digestive System Disorders User: Man</td> <td>TDWG use</td> <td>MEDICIN Disorders</td> </tr> <tr> <td>Storage</td> <td>Bottles, boxes etc</td> <td>Related Items</td> <td></td> </tr> <tr> <td>Donor</td> <td>Pharm Soc GB</td> <td>Donor No</td> <td></td> </tr> <tr> <td>Donor Date</td> <td>00/00/1983</td> <td>Donor Notes</td> <td>Plough 00/02/1</td> </tr> <tr> <td>Collector</td> <td></td> <td>Collector No</td> <td></td> </tr> <tr> <td>Collection Notes</td> <td></td> <td>Collection Date</td> <td></td> </tr> <tr> <td>Exhibition</td> <td></td> <td>Expedition</td> <td></td> </tr> <tr> <td>Number Components</td> <td></td> <td>Publication</td> <td></td> </tr> <tr> <td>Notes:</td> <td colspan="3">Label source: Jar inside; Foreign writing. Mur - Myrrha.</td> </tr> </table>										No Image	Plant Name	42.00 BURSERACEAE Commiphora molmol	Entry Book Number		Artefact Name	Resin - Genuine Myrrh	Vernacular Name		Iso Country	Not defined	TDWG Region	Not defi	Parts Held	Resin - Genuine Myrrh	Geography Description		Uses	Resin - Genuine MyrrhUse: MEDICINES - Digestive System Disorders User: Man	TDWG use	MEDICIN Disorders	Storage	Bottles, boxes etc	Related Items		Donor	Pharm Soc GB	Donor No		Donor Date	00/00/1983	Donor Notes	Plough 00/02/1	Collector		Collector No		Collection Notes		Collection Date		Exhibition		Expedition		Number Components		Publication		Notes:	Label source: Jar inside; Foreign writing. Mur - Myrrha.		
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42	Example C8	<p>The example shown apparently is a historic specimen originating from the Livingston Expedition to Africa, collected by Dr. John Kirk. The full dataset reveals not only the geographic region “Zambia near Morambella on the Shire River”, but also includes further information on the tribes (“Manganjas and other tribes near Morambella”) as source of the traditional knowledge, and thus apparently is an excellent example of the opposite.</p> <p>https://ecbot.science.kew.org/read_ecbot.php?catno=49302&search_term=gomphocarpus&search_type=name</p> <table border="1"> <thead> <tr> <th colspan="4">Catalogue Number: 49302</th> </tr> </thead> <tbody> <tr> <td rowspan="14"></td> <td>Plant Name</td> <td>107.00 ASCLEPIADACEAE Gomphocarpus sp</td> <td>Entry Book Number</td> <td>147.1883</td> </tr> <tr> <td>Artefact Name</td> <td>Root</td> <td>Vernacular Name</td> <td></td> </tr> <tr> <td>Iso Country</td> <td>Zambia</td> <td>TDWG Region</td> <td>Zambia</td> </tr> <tr> <td>Parts Held</td> <td>Root</td> <td>Geography Description</td> <td>Zambia, Africa, South Tropical Africa, Zambesi</td> </tr> <tr> <td>Uses</td> <td>RootUse: MEDICINES - Digestive System Disorders User: Man</td> <td>TDWG use</td> <td>MEDICINES - Digestive System Disorders</td> </tr> <tr> <td>Storage</td> <td>Bottles, boxes etc</td> <td>Related Items</td> <td></td> </tr> <tr> <td>Donor</td> <td>Kirk Sir J</td> <td>Donor No</td> <td></td> </tr> <tr> <td>Donor Date</td> <td>08/10/1883</td> <td>Donor Notes</td> <td></td> </tr> <tr> <td>Collector</td> <td></td> <td>Collector No</td> <td>102</td> </tr> <tr> <td>Collection Notes</td> <td></td> <td>Collection Date</td> <td>00/04/1859</td> </tr> <tr> <td>Exhibition</td> <td></td> <td>Expedition</td> <td></td> </tr> <tr> <td>Number Components</td> <td></td> <td>Publication</td> <td></td> </tr> <tr> <td>Notes:</td> <td colspan="3">Label source: Root of Asclepias used as medicine for pain in the stomach by the Manganjas and other tribes near Morambella. April 1859 River Shire JK</td> </tr> </tbody> </table>	Catalogue Number: 49302					Plant Name	107.00 ASCLEPIADACEAE Gomphocarpus sp	Entry Book Number	147.1883	Artefact Name	Root	Vernacular Name		Iso Country	Zambia	TDWG Region	Zambia	Parts Held	Root	Geography Description	Zambia, Africa, South Tropical Africa, Zambesi	Uses	RootUse: MEDICINES - Digestive System Disorders User: Man	TDWG use	MEDICINES - Digestive System Disorders	Storage	Bottles, boxes etc	Related Items		Donor	Kirk Sir J	Donor No		Donor Date	08/10/1883	Donor Notes		Collector		Collector No	102	Collection Notes		Collection Date	00/04/1859	Exhibition		Expedition		Number Components		Publication		Notes:	Label source: Root of Asclepias used as medicine for pain in the stomach by the Manganjas and other tribes near Morambella. April 1859 River Shire JK		
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Please note that the Secretariat prefers to receive the peer-review comments in Word format.