

CONVENTION ON INTERNATIONAL TRADE IN ENDANGERED SPECIES  
OF WILD FAUNA AND FLORA



Twenty-fifth meeting of the Plants Committee  
Online, 2-4, 21 and 23 June 2021

Species specific matters

Maintenance of the Appendices

ADDENDUM TO THE REPORT OF THE NOMENCLATURE SPECIALIST

1. This document has been submitted by the Nomenclature Specialist (Ms Ronell Renett Klopper).\*

Progress since May 2020 (PC25 Doc. 31)

2. Following the postponement of the 25th meeting of the Plants Committee (PC25), scheduled to take place from 17 to 23 July 2020, due to the COVID-19 pandemic, the Committee took several intersessional decisions (see Notification no. 2020/056 of 21 September 2020), including the approval of its workplan for 2020-2022 as outlined in document PC25 Doc. 7.2. Through its workplan, the Plants Committee agreed on the leads for the implementation of the following provisions related to nomenclature:

Resolution or Decision	PC lead
Resolution Conf. 12.11 (Rev. CoP18) on <i>Standard nomenclature</i>	Ronell R. Klopper, Nomenclature Specialist
Decision 18.306 on <i>Nomenclature (Cactaceae Checklist and its Supplement)</i>	Ronell R. Klopper, Nomenclature Specialist; Yan Zeng, alternate representative of Asia
Decision 18.308 on <i>Production of a CITES Checklist for Dalbergia spp.</i>	Ronell R. Klopper, Nomenclature Specialist; Yan Zeng, alternate representative of Asia
Decision 18.313 on <i>Nomenclature of Appendix-III listings</i>	Ronell R. Klopper, Nomenclature Specialist

3. Following an online briefing of the Plants Committee held on 23 November 2020, it was agreed for the Secretariat to collaborate with the Nomenclature Specialist (Ms Ronell Renett Klopper) to further consider with the Plants Committee the implementation of the nomenclature provisions listed above, as well as the proposed workplan outlined in paragraphs 10 to 11 of document PC25 Doc. 31. This included reaching out to the Plants Committee and relevant nomenclature experts for the taxa concerned.
4. Progress achieved on Decision 18.308 on *Production of a CITES Checklist for Dalbergia spp.* is reported separately in the Addendum to document PC25 Doc. 34. Likewise, progress achieved on Decision 18.313 on *Appendix-III listings* is reported separately in the Addendum to document AC31 Doc. 39/PC25 Doc. 35.

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5. *Aloe* checklist (PC25 Doc. 31, paragraph 10 a)

The genus *Aloe* has been split into several segregate genera based on molecular research. A document requesting nomenclatural changes for aloes in the Appendices and for updating the CITES Checklist was submitted for consideration by the Plants Committee at its 21st meeting (PC21 Doc. 20.2) for discussion by the Nomenclature Working Group at PC21, who recommended that: “*South Africa will work with the specialist on botanical nomenclature of the Plants Committee to update as appropriate the standard reference for this group*” (PC21 WG6 Doc. 1). A number of further changes have been made to the nomenclature and classification of aloes since 2014, and a number of new species were described from various regions. There is thus a great need to update the checklist for *Aloe*.

*Aloe* experts in South Africa are currently setting up a Taxonomic Expert Network for the World Flora Online project. This WFO TEN will consist of a core group of *aloe* experts from across the world, and will compile a global consensus checklist for the aloes to be used as the taxonomic backbone for the WFO project. From informal consultations, there seems to be value in exploring updating the CITES standard references as per the work of the WFO TEN.

It is likely that further discussion is required regarding the plan for preparing an update of the *Aloe* checklist. This should include the proposed author, format and timeline; a preview of the draft document for consideration of the Plants Committee (preferably in advance of its next meeting); as well as cost estimates and prospective funding. Through the diligent efforts of the outgoing and incoming Nomenclature Specialists, revised *Aloe* names and their scientific synonyms were compiled and then added to Species+. There could be value in including those synonyms in the CITES Checklist of Species following formal adoption of names by the CoP. It was further noted that these genera are included in Appendix II as genus-level listings, along with several taxa included in Appendix I at the species level. Therefore, the development of an updated *Aloe* checklist will require careful attention to discern which newly described or synonymized taxa were included as part of the original intent of the listing.

It is recommended that document PC24 Doc. 27, Annex 2 be used as a basis for a document to submit for consideration to CoP19.

Relevant synonyms of the berried aloes (now included in *Aloe*) in the genus *Lomatophyllum* be included in any updates of the CITES Checklist and the document to be based on PC24 Doc. 27, Annex 2. This is important as phytosanitary certificates are issued by some countries in lieu of CITES permits for plants of *Lomatophyllum* spp. that state “not CITES-listed”. *Lomatophyllum* is a name often used in trade for the berried aloes. However, the CITES Checklist does not presently refer to scientific synonyms in that genus. It is estimated that this may pertain to at least 23 names referring to around 20 taxon entries.

6. *Pachypodium* checklist (PC25 Doc. 31, paragraph 10 a)

CITES documentation (checklists and identification guides) for *Pachypodium* have historically been done together with that of the aloes. Since the *aloe* checklist needs to be updated, it could also be pertinent to consider whether an update to the *Pachypodium* checklist is needed, and whether these two groups should continue to be treated together in the same document.

Should the proposed way forward for aloes be acceptable, then *Pachypodium* needs to be treated separately, especially since it is in a different plant family. It was further recommended that the update of the *aloe* and *Pachypodium* checklists be done concurrently and that the two documents should be offered for adoption at the same time.

It is proposed that the World Checklist for Vascular Plant Families be used to update the standard names for *Pachypodium*, since there are not many species in the genus *Pachypodium*. Furthermore, there has not been a lot of taxonomic activity around *Pachypodium*. Additional sources are:

- Burge, D.O., Mugford, K., Hastings, A.P. & Agrawal, A.A. 2013. Phylogeny of the plant genus *Pachypodium* (Apocynaceae). PeerJ 1: e70 <https://doi.org/10.7717/peerj.70>
- Pavelka, P., Prokeš, B., Vlk, V., Lavranos, J.J., Židek, I. & Ramavovololona, P. 2014. *Pachypodium enigmaticum* — a new species in the Densiflorum complex. Cactus & Succulent Journal 86(5): 248–252 <https://doi.org/10.2985/015.086.0601>.

Additionally, UNEP-WCMC has flagged that the listing of *Pachypodium windsorii* needs to be resolved in the Appendices. It is not listed in its own right in Appendix I, but was split out from *Pachypodium baronii*, which is Appendix I, in 2007 based on the standard reference amendment. Should the Plants Committee agree to move forward in updating *Pachypodium* spp. standard nomenclature references, this should also be prioritized.

7. Cactaceae checklist (PC25 Doc. 31, paragraph 10 b)

Regarding the pertinence of the possible publication of a fourth edition of the Cactus Checklist, two options were identified by the Nomenclature Specialist through informal consultations with the Plants Committee and experts.

The first entails the production of a complete, updated CITES Cactus Checklist (CCC4). As a first step, items deferred in CoP18 Doc. 99 need to be investigated to assess the need and feasibility for their implementation. All feedback from Parties or UNEP-WCMC on the use of the CCC3/amendment since CoP18 needs to be evaluated (Decisions 18.304 to 18.306). Following this, a small team could be formed to act as compiler of the checklist. This team should outline the necessary work steps and set up a schedule, look at the data that is available, coordinate the compilation of taxonomic and nomenclatural revisions, and manage the working database. This team could consist of cacti experts (taxonomists), as well as representatives from UNEP-WCMC or WISIA/BfN. This will ensure that the new CCC4 can easily be transferred to the CITES databases. The most time-consuming part will be the actual revision of the CCC. This will be coordinated by the small team and will also involve other experts in cactus taxonomy. Finally, the updated checklist will be compiled from the database and submitted to the Plants Committee.

The second suggested way forward is that a fourth edition of the Cactus Checklist following implementation of Decisions 18.304 to 18.306 should be viewed as a low priority. Firstly, it should be confirmed with UNEP-WCMC that the Checklist of CITES Species has been or will be updated to incorporate all cactus nomenclature changes adopted at CoP17 and the supplement at CoP18. Since the CITES Checklist and Species+ directly incorporate revisions adopted by the CoP to Resolution Conf. 12.11 (Rev. CoP18), the CITES Checklist itself fully reflects the adopted nomenclature in an accessible, searchable format. Secondly, a Notification to the Parties could be issued, requesting information pursuant to Decision 18.304 regarding any difficulties related to the use of the revised Cactus Checklists, similar to the one issued previously to inform this topic (Notification 2018/039 following Decision 17.314). Such a Notification would also provide a timely opportunity to invite comments on the suggestion to consider a fourth edition of the Checklist as requested in document PC25 Doc. 31. Pending feedback from the Parties, should it be determined that further updates are necessary, it may be most expeditious and cost-effective to draft another supplement for adoption by the Parties, from which any changes or corrections could then be incorporated into and easily accessed from the CITES Species Checklist. It is thought that this would obviate any utility that may be derived from compiling a fully revised (all-in-one) Cactus Checklist. UNEP-WCMC and the USA reiterated that they are happy to contribute to a small team to take the cacti issues forward as suggested.

It is important to note that feedback on the CITES Cactaceae Checklist adopted at CoP17 was compiled and submitted by the UNEP-WCMC as document PC24 Inf. 15. A summary of some of the main issues related to implementing CCC3/CCC3 supplement in Species+/CITES Checklist was also provided (see Annex). It was commented that the CCC3 Supplement went a long way to correct and learn from the issues experienced with CCC3 in correcting a number of formatting and spelling mistakes in CCC3, as well as adding back in number of species that were in CCC2, but had been erroneously excluded from CCC3 [see the lists in points 3 and 4 in Annex]. Discussions within the CCC3 supplement expert group on interpreting non-standard nomenclature classifications (e.g. "alternative name") were really positive in steering the translation of a myriad of nomenclature classifications into Accepted names or Synonyms, and agreeing on a key [see point 2 in Annex]. Since the format of the supplement was Excel compatible, it meant that transcribing and understanding the changes were easy.

The following outstanding tasks based on CCC3 supplement were pointed out:

- a) There are a number of "rejected" names with trade associated with them and no guidance on how to manage these names. Whilst the recommendation was that Parties stop reporting these rejected names, there was no way forward on how to reconcile rejected names that had historic data or continue to be reported in trade. These have been added as synonyms of the genus name [see list in point 1 in Annex].
- b) There are still some outstanding species that seemed to have changed gender/slight spelling changes between CCC2 and CCC3 – a number of assumptions were made about how these mapped in

Species+ [see point 5 table in Annex 1], but these were likely not confirmed or included in the CCC3 Supplement because they were considered lower priority [see point 5 in Annex].

The adoption of CITES Cactaceae Checklist (3<sup>rd</sup> ed) resulted in *Aztekium valdezii*, an Appendix II taxon (included under the family listing Cactaceae), being included as a synonym of the Appendix I taxon *A. ritteri*, as reflected in the Checklist and Species+. As noted in document CoP18 Doc. 99, this change should have been accompanied by a formal amendment proposal as the legal scope of Appendix I was expanded by this change. An Appendix I listing proposal may therefore be needed (transfer *Aztekium valdezii* from Appendix II to I). It was explained that, should the range State (Mexico) submit a species proposal to the next CoP, the Checklist will be correct<sup>1</sup>. Should a listing proposal not be submitted or not adopted by the Parties, the Checklist would need to be amended back to the former naming.

As part of feedback pertaining to experiences or concerns in implementing the current Cactus Checklist, the following two observations are offered for further discussion:

- a) at present, the main problem encountered pertains to the lack of scientific synonyms for genera. Many of these synonyms were included in the previous checklist, and while a few synonymous genera are reflected the current checklist, many are not mentioned at all. In many cases, those synonyms are still used in trade. For instance, *Notocactus* as a predecessor and largely synonymous genus to *Parodia*, which name is still used in trade; and
- b) it should be confirmed, and discussed as needed, whether the trinomials adopted in the 3<sup>rd</sup> edition are incorporated into the Checklist (as well as the trade database) as separate, stand-alone entities. This is particularly relevant because the current Checklist tended toward lumping to subspecies, so that previously recognized species are now referred to as a trinomial. Thus, we lose fidelity in CITES trade data if the taxon entries only recognize the species level.

8. *Diospyros* spp. and *Dalbergia* spp. (populations of Madagascar) (PC25 Doc. 31 paragraph 10 c)

At CoP17, the Conference of the Parties adopted a standard reference for *Diospyros* populations of Madagascar and tasked the Plants Committee to continue supporting the preparation and updating of these adopted checklists, which were seen as ‘works in progress’. Although it was decided that focus should first fall on *Dalbergia*, there is a need to also look at *Diospyros*, as well as provide feedback on that checklist and how an update of it will be endeavoured.

Only one species listed on Appendix II that is no longer recognised in other sources could be found, namely *Diospyros laevis*, which is synonymised under *D. squamosa* (Appendix II). However, according to China, this is still an accepted name. Therefore, nomenclature-related aspects for this genus should perhaps be revisited in future. However, it was reiterated that this remains a high priority in keeping with the recommendation emanating from PC24 (2018) to prepare annotated checklists prioritizing Malagasy species for adoption by a meeting of the Conference of the Parties (preferably CoP19).

A way forward was suggested based on previous decisions and discussions of the Plants Committee. It is estimated that approximately 20 additional *Diospyros* species have been added to the CITES database since the preliminary taxon list was adopted at CoP17. Prior to adopting the *Diospyros* checklist at CoP17, consultation with species experts indicated that the then “Catalogue of the Vascular Plants of Madagascar” (<http://www.tropicos.org/project/mada> — now “Vascular Plant of Madagascar”) was (at least at that time) considered to be the most appropriate source upon which to base the interim checklists. As such, it is suggested that, as a stopgap measure, we consider using an updated download from this database to replace the 2016 download that is currently used [Catalogue of the Vascular Plants of Madagascar (CVPM) 2016. The genus *Diospyros* in Madagascar: a preliminary checklist for CITES Parties. Compiled by Missouri Botanical Garden, St. Louis, U.S.A. & Antananarivo, Madagascar.]. Additionally, it is suggested to also consult World Flora Online (<http://www.worldfloraonline.org>), and the relevant literature adopted therein. It is further suggested that all *Diospyros* species listed on Appendix II be rechecked.

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<sup>1</sup> Or through the Depository Government.

9. Orchidaceae (PC25 Doc. 31 paragraph 10 d)

Following the update of the Appendix-I listed orchids at CoP18, the development of a new Standard Reference for Appendix-II listings of orchids has been recognized as a priority.

In line with the original documentation deadline for PC25, the Republic of Korea submitted document PC25 Doc. 32.1 on *Orchids checklist in the Republic of Korea*, which includes a list of species not currently included in the CITES Checklist or which require updated distribution information.

Following the postponement of PC25, the Secretariat and the Nomenclature Specialist were informed by the Scientific Authority for Flora of the United Kingdom of Great Britain and Northern Ireland (RBG Kew) of their intention of submitting a (global) Appendix-II orchid checklist for consideration of PC25.

RBG Kew circulated for comments a draft of its proposed checklist, and the outcomes of the consultation are reflected in document PC25 Doc. 32.2. Amongst other sources, said document incorporates in its Annex (spreadsheet) the Korean species checklist as per document PC25 Doc. 32.1.

The spreadsheet document (Annex to PC25 Doc. 32.2) summarizes the state of work on the Appendix-II Orchid Checklist. The Nomenclature Specialist notes however that there are several outstanding tasks, as reflected in the colour-coding of the aforementioned spreadsheet. These indicate issues where some RBG Kew input is still needed, where some input from the Plants Committee is required, and where some are for information purposes only. Progress is contained in document PC25 Doc. 32.2.

10. *Taxus* spp. (PC25 Doc. 31, paragraph 10 e)

The current standard reference for this genus is the 'World Checklist and Bibliography of Conifers' (Farjon 2001)<sup>2</sup>. There is a need to determine whether this list remains valid or if a replacement is required. Of the 11 species, only 5 and their infraspecific taxa are included in the Appendices. Furthermore, of the five species listed on Appendix II, two seem to no longer be accepted: *Taxus sumatrana* is synonymised under *T. wallichiana* (China indicated that this is still accepted); and *T. fauna* under *T. contorta* in other sources, including in 'A handbook of the world's conifers' (Farjon 2010)<sup>3</sup>. It was also suggested that *Taxus chinensis* (Pilg.) Rehder (Appendix II) is a synonym of *Taxus wallichiana* var. *chinensis* (Pilger) Florin (Appendix II) and that this should be changed.

The genus has always been considered difficult among taxonomists based on morphological characteristics, particularly for Asian species where ranges overlap. While there may not be complete agreement on the species delimitation and classification of *Taxus*, it was agreed that the current CITES standard reference is not valid and needs to be replaced, and that there might also be a need to update/amend the listings on Appendix II.

It was mentioned that Aljos Farjon could be consulted for advice, and that China and the USA had tentatively and briefly discussed coordinating on this issue. Farjon's 2001 work informed this issue when these taxa were first included in the Appendices. Farjon has subsequently published two updated books that include: Farjon, A. 2010. A handbook of the world's conifers, 2 vols. Brill Academic Publishers, Leiden; and Farjon, A. & Filer, D. 2013. An atlas of the World's conifers: an analysis of their distribution, biogeography, diversity and conservation status. Brill Academic Publishers, Leiden.

In addition, Farjon maintains a website, "Conifers of the World" (<https://herbaria.plants.ox.ac.uk/bol/conifers>). The Plants Committee could further explore and review these or additional options in detail. Additional references and data sources include:

- World Flora Online (<http://www.worldfloraonline.org>), and the relevant literature adopted therein.
- Fu, L., Li, N. & Mill, R.R. Taxaceae: *Taxus*. Flora of China, Vol. 4. Available online at [http://www.efloras.org/florataxon.aspx?flora\\_id=2&taxon\\_id=132355](http://www.efloras.org/florataxon.aspx?flora_id=2&taxon_id=132355) and <http://www.iplant.cn/info/Taxus?t=foc->

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<sup>2</sup> Farjon, A. 2001. *World checklist and bibliography of conifers*. Royal Botanic Gardens Kew, Surrey.

<sup>3</sup> Farjon, A. 2010. *A handbook of the world's conifers*, 2 vols. Brill Academic Publishers, Leiden.

- Spjut, R.W. 2007. Taxonomy and nomenclature of *Taxus* (Taxaceae). Journal of the Botanical Research Institute of Texas. 1: 203–289. (<https://www.jstor.org/stable/41971409>)

11. *Guibourtia* spp. (PC25 Doc. 31, paragraph 11)

*Guibourtia pellegriniana* and *G. coleosperma* are two closely related and morphologically similar taxa, but available molecular and morphological evidence support their recognition as separate taxa that are also geographically separated. Their separate status was confirmed by Dr Xander van der Burgt (RBG Kew, UK), Prof Rafael Barbosa (University of Campinas, Brazil), David Mitchell (ILDIS), and Dr Jan Wierenga (Naturalis, The Netherlands).

It was also noted that, even if the current taxonomic/nomenclature problem is solved, it does not solve the problematic issues between look-alike non-listed *G. coleosperma* and the three CITES-listed *Guibourtia* species. According to Gerald Koch, wood anatomist from the Thuenen Institute of Wood Research in Hamburg, Germany, timber of the species can only be distinguished by the application of a fluorescence test of Ethanol extracts. However, the application of such a test does not seem to be practical for customs and requires experienced and adequately equipped laboratories. This is outside the scope of nomenclature and will require an additional avenue to be resolved. Dr Jan Wierenga (Naturalis, The Netherlands) also mentioned that *Guibourtia pellegriniana* is a species restricted to a narrow strip of Atlantic coast. All inland records of *G. pellegriniana* are based on misidentifications. In Gabon, this species has been confused with several other *Guibourtia* species. He is of the opinion that *Guibourtia pellegriniana* is never or hardly logged for its wood. All specimens seen are kind of crooked trees in coastal vegetations, not possessing an important trunk, and of no interest to foresters.

It was reiterated that author names should be included with such homonyms to avoid confusion. According to information shared with the PC25 intersessional working group on Rosewood, *G. coleosperma* is reported in international trade (although, authorship is not specified in that information). Thus, CITES implementation may be impacted by this confusion.

There could be value in revising the CITES Checklist to reflect the true synonymy. *Copaifera coleosperma* Benth. is the basionym of the accepted and non-CITES listed *Guibourtia coleosperma* (Benth.) J.Léonard. The former should thus be removed from the synonymy of CITES-listed *Guibourtia pellegriniana* J.Léonard in the CITES Checklist. The misapplied names (*Copaifera coleosperma* sensu Pellegrin, non Benth. and *Guibourtia coleosperma* sensu Heitz, non J. Léonard) are synonyms of *Guibourtia pellegriniana* J.Léonard and should be included in taxon entry for *Guibourtia pellegriniana* J. Léonard as synonyms. Apart from the synonymy as initially suggested by the Nomenclature Specialist, two further synonyms [indicated in square brackets below] to be included in the amended listing were thus suggested. The entries in the CITES Checklist should be amended as follows:

*Guibourtia pellegriniana* J.Léonard

= *Copaifera coleosperma* sensu Pellegrin, non Benth.

= *Guibourtia coleosperma* sensu Heitz, non J. Léonard [additional synonym]

*Guibourtia coleosperma* (Benth.) J. Léonard

= *Copaifera coleosperma* Benth.

= *Copaiva coleosperma* (Benth.) Britton [additional synonym]

New priorities in matters related to nomenclature

12. Concerning new CITES checklists and nomenclature updates

Document PC24 Inf. 15 (specifically Item #3) contains recommendations for procedural norms for the adoption of new checklists and nomenclature updates between CoPs, especially regarding the need to be able to “map old to new”. When updating the CITES Checklist, it must be clear where species have gone, and that none have got lost along the way. Checklists should either follow CITES nomenclature standards (i.e. accepted names and synonyms) or provide a clear map for how the non-standard nomenclature classifications be interpreted in the context of CITES, and be compiled/curated in an easy to use format (e.g. Excel document) to avoid any errors in copy/pasting from Word or PDF documents.

13. Concerning succulent species of *Euphorbia* spp.

There could be value in exploring options to add synonyms to the current checklist or to consider updating the CITES Checklist of succulent *Euphorbia* taxa (*Euphorbiaceae*)<sup>4</sup>. This recommendation is made because taxonomic changes and missing species/synonyms may allow trade outside CITES controls (see examples below). An opportunity will be welcomed to explore options for adding synonyms, which would require an update to the standard reference.

Issue #1. *Euphorbia monadenium* is in trade as *Monadenium ritchiei*

Live plants of *Euphorbia monadenium* are in trade as *Monadenium ritchiei*, a succulent species from eastern Africa according to Mabberley (1997)<sup>5</sup>. The current succulent *Euphorbia* checklist dates from 2003 and the species in question was not described until 2006. In the CITES Checklist and in the CITES Species+ database, the name *Euphorbia ritchiei* has been omitted, and there is no reference to the synonymous *Monadenium ritchiei*. Mabberley (1997) served as the standard generic reference for CITES plants until CoP18 when it was retired as the standard reference for future listings, but requested to be archived by the CITES Secretariat for future reference.

Issue #2. The genus *Pedilanthus*

The genus *Euphorbia* was included in CITES Appendix II, and about 10 species were included in Appendix I in 1975. In 1985, the Appendix II listing was annotated to exclude all non-succulent species. In 2003, *Pedilanthus* (Mexico-Caribbean distribution) was merged within *Euphorbia* (Steinmann 2003)<sup>6</sup>. *Pedilanthus* (Engelm.) is listed as a synonym of the genus *Euphorbia*. However, only one *Euphorbia* species in the Checklist of CITES Species currently includes a *Pedilanthus* synonym. Not all *Pedilanthus* are succulent, but at least some are (e.g. *Pedilanthus macrocarpus*; [www.succulentguide.com/cactus/?genus=Pedilanthus](http://www.succulentguide.com/cactus/?genus=Pedilanthus)). It would be informative to determine how many CITES-listed succulent *Euphorbia* have *Pedilanthus* equivalents.

14. Concerning the family Plantaginaceae (Plantains)

There are several family classification systems available where genera are placed in different families. The one most commonly used for flowering plants in global databases is that of the Angiosperm Phylogeny Group version IV (APGIV). *Picrorhiza kurroa* Royle ex Benth. (with the orthographic variant *P. kurrooa*) is currently listed in Appendix II under the family name *Scrophulariaceae* (Figworts). However, under APGIV it is included in the family *Plantaginaceae* (Plantains)

To avoid confusion by end-users, an update to the family placement of this species on the Appendices might be needed. There may also be a need to determine if a standard reference have to be adopted for this taxon. There could be other instances like this, and the Appendices should be checked. A discussion might be needed as to whether a specific recommended higher-level classification (e.g. APGIV) should be followed in the CITES Appendices, or if flexibility in this sense could be accommodated.

15. Concerning the 'Nomenclature Notes' in Species+

Although the Checklist of CITES Species is the official reference, Species+ is often used by the public and CITES authorities. It might be helpful to clarify several entries that have been added to a new field called "Nomenclature Note" under the NAMES tab. Some of the information seems to be worded incorrectly, see examples below. One solution might be to add a sentence that confirms/points out the CITES-accepted name as opposed to synonyms.

- a) *Rebutia pygmaea* was lumped from *Rebutia knizei*, *Rebutia leucanthera*, *Rebutia nigricans*, *Rebutia pygmaea* in 2017, following taxonomic changes adopted at CoP17.

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<sup>4</sup> Carter, S. & Eggl, U. 2003. *The CITES Checklist of succulent Euphorbia taxa (Euphorbiaceae)*. 2<sup>nd</sup> ed. Federal Agency for Nature Conservation, Bonn.

<sup>5</sup> Mabberley, D.J. 1997. *The Plant-Book*. 2<sup>nd</sup> ed. Cambridge University Press, Cambridge. See also: [www.liflfe.com/Encyclopedia/SUCCULENTS/Family/Euphorbiaceae/12114/Euphorbia\\_ritchiei\\_subs.\\_nyambensis](http://www.liflfe.com/Encyclopedia/SUCCULENTS/Family/Euphorbiaceae/12114/Euphorbia_ritchiei_subs._nyambensis).

<sup>6</sup> Steinmann, V.W. (2003). *The submersion of Pedilanthus into Euphorbia (Euphorbiaceae)*. *Acta Botanica Mexicana* 65: 45–50. <http://www.redalyc.org/articulo.oa?id=57406504>

- b) *Cylindropuntia echinocarpa* was lumped from *Cylindropuntia echinocarpa*, *Opuntia wigginsii* in 2017, following taxonomic changes adopted at CoP17.
- c) *Phragmipedium humboldtii* was lumped from *Phragmipedium exstaminodium*, *Phragmipedium humboldtii* in 2019, following taxonomic changes adopted at CoP18.
- d) *Phragmipedium warszewiczianum* was split from *Phragmipedium caudatum* in 2019, following taxonomic changes adopted at CoP18.
- e) *Phragmipedium warszewiczianum* was lumped from *Phragmipedium warszewiczianum*, *Phragmipedium wallisii* in 2019, following taxonomic changes adopted at CoP18.

#### Revised recommendations

16. The Plants Committee is invited to:

- a) take note of document PC25 Doc. 31 and its addendum;
- b) note that progress and recommendations relevant to Decision 18.308 on *Production of a CITES Checklist for Dalbergia spp.* and Decision 18.313 on *Appendix-III listings* are reported in the addendums of documents PC25 Doc. 34 and AC31 Doc. 39/PC25 Doc. 35;
- c) concerning *Aloe* and *Pachypodium*, consider the progress and recommendations reported in paragraphs 5 and 6 of the present addendum, and the pertinence of drafting nomenclature-related Decisions to further this work for consideration of the 19th meeting of the Conference of the Parties (CoP19);
- d) concerning Cactaceae, consider the progress and recommendations reported in paragraph 7 and the Annex of the present addendum, and the pertinence of revising and extending the mandate of Decisions 18.304 to 18.306 on *Nomenclature (Cactaceae Checklist and its Supplement)* for consideration at CoP19;
- e) concerning *Diospyros* spp. (populations of Madagascar), consider the progress and recommendations reported in paragraph 8 of the present addendum, and the pertinence of drafting nomenclature-related Decisions for consideration at CoP19;
- f) concerning Orchidaceae, consider the progress reported in paragraph 9 of the present addendum, together with the update and checklists contained in documents PC25 Doc. 32.1 and PC25 Doc. 32.2, and the pertinence of drafting nomenclature-related Decisions and recommendations for consideration of CoP19;
- g) concerning *Taxus* spp., consider the progress and recommendations reported in paragraph 10 of the present addendum, and develop recommendations to update the standard nomenclature references in Resolution Conf. 12.11 (Rev. CoP18) for consideration at CoP19;
- h) concerning *Guibourtia* spp., consider the progress and recommendations reported in paragraph 11 of the present addendum, and develop recommendations to update standard nomenclature references in Resolution Conf. 12.11 (Rev. CoP18) for consideration at CoP19;
- i) concerning new priorities in matters related to nomenclature, consider paragraphs 12 to 15 of the present addendum, and develop recommendations for consideration at CoP19, including drafting nomenclature-related Decisions where appropriate; and
- j) report the outcomes of this work to the Conference of the Parties at its 19th meeting.

## Feedback on the CITES Cactaceae Checklist adopted at CoP17

### 1. Species listed for rejection but reported in trade

All names listed in CCC3 as “rejected names” that had not been reported in trade by any CITES Party were deleted from Species+, however there are several species listed as rejected names that have been reported in trade (see list below). Currently these species are retained in Species+ to ensure the details of trade as reported by Parties are retained, but we would appreciate clarity and a standardised approach on how to deal with these.

- *Echinopsis macrogona*
- *Echinopsis spachiana*
- *Echinopsis spinibarbis*
- *Epiphyllum floribundum*
- *Eriosyce kunzei*
- *Gymnocalycium parvulum*
- *Gymnocalycium platense*
- *Mammillaria hamata*
- *Turbinicarpus roseiflorus*

### 2. Non-CITES status

We have shared the assumptions that we made when updating Species+ to align with CCC3 in PC24 Inf. 15 and include them below.

*Recommendation:* That the checklist revision provides a key for applying the non-CITES status terms (e.g. “alternative name”) in a CITES context.

Symbol/ classification of taxon (see page 17 of checklist)	Interpretation of UNEP-WCMC / nomenclature expert for plants	Interpretation confirmed by Checklist author (D. Hunt)
In the checklist		
“?”	Treated as correct, and added as an accepted name	Yes
“[indeterminate]”	Not detailed in key: treated as synonym of taxonomic parent	No
In the key		
“Alternative name”	Treated as synonym (although synonyms were indicated separately)	Yes
“Provisionally accepted name”	Treated as accepted name	Yes
“Inadmissible names”	Where already included in Species+, these names were removed from Species+ as an accepted name and added as a synonym, as appropriate. If not already in Species+, inadmissible names were not added	No

### 3. Species listed in the 2<sup>nd</sup> but not 3<sup>rd</sup> version of the checklist

In reconciling Species+ to CCC3, we identified a number of species listed in CCC2 that did not appear in CCC3 in any form (see list below).

*Recommendation:* That the species “lost” between CCC2 and CCC3 are also included in the revision to provide clarity on how they should be treated.

- *Cleistocactus grossei*
- *Echinopsis derenbergii*
- *Echinopsis mieckleyi*
- *Gymnocalycium deeszianum*
- *Haageocereus albispinus*
- *Haageocereus icosagonoides*
- *Haageocereus pluriflorus*
- *Haageocereus subtilispinus*
- *Opuntia acaulis*
- *Opuntia amyclaea*
- *Opuntia bonplandii*
- *Opuntia brachyarthra*
- *Opuntia brachyclada*
- *Opuntia nuda*
- *Opuntia picardoi*
- *Oreocereus celsianus*
- *Oreocereus doelzianus*
- *Oreocereus hempelianus*
- *Oreocereus leucotrichus*
- *Oreocereus pseudofossulatus*
- *Oreocereus ritteri*
- *Oreocereus tacnaensis*
- *Oreocereus trollii*
- *Oreocereus varicolor*
- *Oroya borchersii*
- *Oroya peruviana*
- *Ortegocactus macdougallii*
- *Stenocactus hastatus*

#### 4. Unclear status

Whilst updating Species +, we also noted a large number of inconsistencies in the formatting of the document (such as the use of italics and bold to signify different statuses of names). There are several specific cases where, owing to these inconsistencies, the status of species remains unclear. Specifically whether the names are accepted names or synonyms, and if they are synonyms, what they are synonyms of. We have detailed those cases, along with any assumptions or interpretations below.

*Recommendation:* That the checklist revision provides clarity on the status of the species for which status remains unclear.

Species	Comments
<i>Disocactus flagelliformis</i>	
<i>Disocactus martianus</i>	
<i>Austrocactus longicarpus</i>	
<i>Morangaya pensilis</i>	
<i>Echinocereus pensilis</i>	Assumed to be accepted, but requires confirmation
<i>Opuntia gaumeri</i>	
<i>Opuntia chisosensis</i>	
<i>Opuntia azurea</i>	
<i>Opuntia rastrera</i>	Assumed to be accepted, but requires confirmation
<i>Parodia hegeri</i>	Assumed to be accepted, but requires confirmation
<i>Pilosocereus kanukuensis</i>	Assumed to be accepted, but requires confirmation
<i>Tacinga lilae</i>	Assumed to be accepted, but requires confirmation
<i>Austrocactus philippii</i>	
<i>Opuntia</i> sp. aff. <i>O. elata</i>	( <i>Opuntia grosseana</i> listed as its synonym)
<i>O.</i> aff. <i>Streptacantha</i>	( <i>Opuntia inaequilateralis</i> listed as its synonym)
<i>Opuntia</i> aff. <i>Phaeacantha</i>	( <i>Opuntia penicilligera</i> listed as its synonym)
<i>Austrocylindropuntia lauliacoana</i>	
<i>Opuntia schumannii</i>	

<i>Cephalocereus columna-trajani</i>	Assumed to be accepted name, but not listed as such
<i>Borzicactus peculiaris</i>	
<i>Echinopsis stilowianus</i>	
<i>Corynopuntia moelleri</i>	A synonym of <i>Grusonia moelleri</i> ?
<i>Espostoa baumannii</i>	

## 5. Probable spelling mistakes or name changes

Whilst updating Species+, we corrected and documented any obvious spelling mistakes, however there remain several species listed in CCC3 with probable spelling mistakes that would benefit from being clarified. There were also a number of instances where species names appear to have undergone slight name changes (largely gender changes) between the CCC2 and CCC3, however CCC3 did not include the old names for clarity. We have detailed the species with probable spelling mistakes or name changes, along with any comments, below.

*Recommendation:* That the checklist revision provides a list of spelling corrections, and clarifies instances of minor name changes between the CCC2 and CCC3 (e.g. by including the old accepted name as a synonym).

Species	Comments
<i>Cleistocactus smargadiflorus</i>	Assumed <i>Cleistocactus smargadiflorus</i> is a misspelling of <i>Cleistocactus smaragdiflorus</i> ?
<i>Echinopsis albipinosa</i>	Spelling mistake (of <i>Echinopsis albispinosa</i> )?
<i>Echinopsis clavata</i>	Name change from <i>Echinopsis clavatus</i> ? (CCC2)
<i>Echinopsis quadratiumbonata</i>	Name change from <i>Echinopsis quadratiumbonatus</i> ? (CCC2)
<i>Opuntia feroacantha</i>	Name change from <i>Opuntia feracantha</i> ? (CCC2)
<i>Opuntia superbispina</i>	Name change from <i>Opuntia superbospina</i> ? (CCC2)
<i>Opuntia wolfii</i>	Name change from <i>Opuntia wolfer</i> ? (CCC2)
<i>Rebutia albiplectinata</i>	Name change from <i>Rebutia albopectinata</i> ? (CCC2)
<i>Rebutia fidana</i>	Name change from <i>Rebutia fidaiana</i> ? (CCC2)

## 6. Format of checklist revision

Any changes made to CCC3 need to be detailed separately and clearly, ideally referring to the checklist page numbers or IDs for affected taxa. I would agree with the comments from the USA regarding tabulating both the updates suggested by David Hunt and corrections such as those detailed above, clearly detailing what the change is, and any listing implications. Providing this in a useable excel format would be of most benefit to us.

In terms of format, we found the nomenclature change documents provided at CoP17 [CoP17 Doc. 81.1 Annexes 8 (Rev.1) and 10 (Rev.2)] to be incredibly useful in making updates to Species+: taxon concerned; checklist update and type of change; impact on listings. It was particularly useful to have the type of nomenclature change detailed (e.g. a new species, a split from another species etc.) because it helped us to ensure that taxa retained the correct legislation and distribution information. I don't want to be too prescriptive, but I'm happy to suggest a template for discussion if that would be useful.

It would be useful to have the different name statuses ("alternative" etc) in a key directly mapped to the standard CITES name statuses (accepted, synonym) to ensure there is no ambiguity in how they are interpreted.