

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



Thirty-second meeting of the Animals Committee
Geneva (Switzerland), 19-23 June 2023

Compliance

Captive-bred and ranched specimens

REVIEW OF TRADE IN ANIMAL SPECIMENS REPORTED AS PRODUCED IN CAPTIVITY

1. This document has been prepared by the Secretariat.

Background

2. Resolution Conf. 17.7 (Rev. CoP19) on *Review of trade in animal specimens reported as produced in captivity* concerns trade in specimens traded under source codes C, D, F or R, as defined in paragraph 3 r) of Resolution Conf. 12.3 (Rev. CoP19) on *Permits and certificates*. The Animals Committee, together with the Standing Committee and in cooperation with the Secretariat, is directed to play a key role in the implementation of Resolution Conf. 17.7 (Rev. CoP19).
3. At its 19th meeting (CoP19; Panama City, 2022), the Conference of the Parties also adopted Decisions 19.63 and 19.65 on *Review of Resolution Conf. 17.7 (Rev. CoP19) on Review of trade in animal specimens reported as produced in captivity* as follows:

Directed to the Secretariat, in consultation with the United Nations Environment Programme - World Conservation Monitoring Centre

19.63 *The Secretariat shall, in consultation with the United Nations Environment Programme – World Conservation Monitoring Centre (UNEP-WCMC), produce a comparative analysis of the objectives and processes outlined in Resolution Conf. 17.7 (Rev. CoP19) on Review of trade in specimens reported as produced in captivity and Resolution Conf 12.8 (Rev. CoP18) on Review of Significant Trade in specimens of Appendix-II species, and draft recommendations on how these two Resolutions could become more streamlined and better aligned with each other, including possible amendments to one or both Resolutions, for consideration by the Animals and Standing Committees.*

Directed to the Animals Committee

19.64 *The Animals Committee shall review the report and draft recommendations from the Secretariat under Decision 19.63; and make its own recommendations for consideration by the Standing Committee.*

Directed to the Standing Committee

19.65 *The Standing Committee shall consider the report and draft recommendations of the Secretariat, the recommendations from the Animals Committee, and make its own recommendations, for consideration at the 20th meeting of the Conference of the Parties.*

Identification of new species-country combinations for review

4. Paragraph 2 a) of Resolution Conf. 17.7 (Rev. CoP19) states that: *The Secretariat shall produce a summary from the CITES Trade Database of annual report statistics of species traded, derived from the five most recent years, under source codes C, D, F or R and will undertake, or appoint consultants to undertake, an analysis of such data to identify species-country combinations for review, taking into account any recent nomenclatural changes and the breeding biology of the species, where feasible, using the following criteria:*
 - i) *significant increases in trade in specimens declared as captive-produced (source codes C, D, F and R);*
 - ii) *trade in significant numbers of specimens declared as produced in captivity;*
 - iii) *shifts from wild to captive-produced source codes;*
 - iv) *inconsistencies between source codes reported by exporting and importing Parties for specimens declared as produced in captivity;*
 - v) *apparent incorrect application of captive production codes such as: 'D' for Appendix-I species that have not been registered in compliance with the provisions of Resolution Conf. 12.10 (Rev. CoP15) on Registration of operations that breed Appendix-I animal species in captivity for commercial purposes;*
 - vi) *trade from non-range States of specimens declared as produced in captivity with no evidence of lawful acquisition of parental breeding stock (i.e. no recorded imports); and*
 - vii) *specimens produced as captive produced (source codes C, D and F), where the species are known to be difficult to breed in captivity.*
5. Thanks to funding from Switzerland, the Secretariat commissioned the World Conservation Monitoring Centre of the United Nations Environment Programme (UNEP-WCMC) to produce such a summary and analysis. The analysis can be found within the Annex to the present document, while the full summary of trade data upon which it is based is presented in an information document.
6. Criterion vii) above was included at CoP19, where document [CoP19 Doc. 54](#) highlighted that there is no definitive or comprehensive list of “hard to breed” taxa, and new breeding techniques and technologies under development may mean that the ease of captive-breeding of a particular taxon can change, so such lists could become out of date over time. Nevertheless, it was recognized that there is scope to explore further how aspects of breeding biology or prevalence in captivity could be incorporated within the selection criteria, or at least as supporting contextual information in the outputs produced from the CITES Trade Database.
7. The following data sources or approaches were proposed in document CoP19 Doc. 54 as possible data sources to help incorporate breeding biology into the criteria for selection in Resolution Conf. 17.7 (Rev. CoP19):
 - a) the use of existing digitized life history traits and demographic data, e.g. the Demographic [Species Knowledge Index](#). Whilst no dataset is comprehensive, this dataset includes information on litter/clutch sizes, maximum lifespan and age at maturity, and covers some 32,000 taxa (mammals, birds, reptiles and amphibians).
 - b) the use of Species360 data on number of individuals held in zoological institutions globally (includes information on 10 million individuals of 22,000 species). These data could be used to identify species that are very easy to breed in captivity (using prevalence as a proxy).
 - c) the use of other online datasets such as AnAge: The Animal Ageing and Longevity Database (includes information on longevity, age at sexual maturity, and adult weight).
 - d) workshops to focus on specific CITES taxonomic groups for which multiple species are bred in captivity with key taxonomic experts (e.g., IUCN Specialist Groups), as well as the Secretariat, the AC Chair, etc., to assist with incorporation of biological aspects within a revised methodology where key data gaps have been identified.
8. The development of a methodology used to implement criterion vii) for this iteration of the species selection analysis was subject to significant time constraints to allow for sufficient data collection to develop the

methodology. It was therefore agreed with the Chair of the Animals Committee that, for this meeting, the selection process under criterion vii) would be applied only to reptiles and amphibians. A summary of the data used to inform whether these taxa met the new criterion is outlined in Appendix 1 of the Annex to this document: *Development and considerations relating to criterion vii)*. In consultation with the AC Chair and UNEP-WCMC, the Secretariat will continue to investigate potential data sets and thresholds to apply this criterion to the broader dataset in future analyses.

Other relevant information with respect to concerns about captive production

9. Paragraph 2 b) of Resolution Conf. 17.7 (Rev. CoP19) states that *“the Secretariat shall also compile any other relevant information made available to it with respect to concerns about captive production, including any cases referred to it by Parties justified with supporting documented evidence or identified from the Review of Significant Trade under Resolution Conf. 12.8 (Rev. CoP18) on Review of Significant Trade in specimens of Appendix-II species, or available in relevant reports, including the global conservation status by species published in the IUCN Red List of threatened species or noted as not evaluated.”*
10. In the context of paragraph 2 b) of Resolution Conf. 17.7 (Rev. CoP19), no additional species-country combinations of possible concern have come to the attention of the Secretariat since AC29 when the first list of species/country combinations was selected, either through Resolution Conf. 12.8 (Rev. CoP18) or referred by Parties.
11. The Secretariat has not had the financial or human resources available to undertake a literature review of possible cases in published reports or the IUCN Red List of Threatened Species. However, the global conservation status of species published in the IUCN Red List of Threatened Species has been taken into account in the trade analysis conducted by UNEP-WCMC.

Selection process at the present meeting

12. In accordance with paragraph 2 c) of Resolution Conf. 17.7 (Rev. CoP19), *“the Animals Committee may select a limited number of species-country combinations for review, taking into account the biology of the species, for which it should draft general or specific questions and a brief explanation of the selection, to be addressed by the Secretariat to the Parties concerned in accordance with Stage 2, subparagraph 2 g).”* In drafting these questions, the Committee may wish to consider the outputs from [AC29 Com. 11 \(Rev. by Sec.\)](#). It may also be useful to ask more generally for a description of the production systems in use by particular countries, and how countries ensure there is no detriment to the species in the wild resulting from trade in captive-bred specimens.
13. Paragraph 2 f) of Resolution Conf. 17.7 (Rev. CoP19) states that *“when selecting species-country combinations for review under paragraph 1 c) of the Resolution, the Animals Committee should not select species-country combinations where the Standing Committee has already entered a dialogue with the country concerned over the use of source codes C, D, F or R under another compliance process.”*
14. Paragraph 2 h) of the Resolution directs the Animals Committee to determine for which species it should request the Secretariat to commission short reviews of known information relating to the breeding biology and captive husbandry and any impacts, if relevant, of removal of founder stock from the wild. The number of such reviews that can be commissioned will depend on the external funding available and the Committee therefore may wish to list such requests in order of priority.
15. Any urgent enforcement matters identified in the course of the review at the present meeting should be referred to the Secretariat and the country concerned, in accordance with paragraph 2 e) of the Resolution, and subsequently reported to the Standing Committee.

Next steps following the present meeting

16. Following the activities to be undertaken at the present meeting and described in paragraphs 12 to 15, paragraph 2 g) of the Resolution directs the Secretariat, *“within 30 days to notify the country or countries concerned that species produced in captivity in their country have been selected for review, provide them with an overview of the review process and an explanation for the selection provided by the Animals Committee. The Secretariat shall ask the country or countries to provide information, within specified deadlines to be agreed in consultation with the Chair of the Animals Committee (at least 60 days for the initial consultation), in response to general or specific questions, developed by the Animals Committee, to*

determine if the correct source codes have been used, under the applicable Resolutions, for specimens claimed to be produced in captivity.”

Implementation of Decision 19.63

17. As reported in document [CoP19 Doc. 54](#), the Animals Committee recommended “to harmonise this process and the Review of Significant Trade (RST), especially the multiplication factors used for the IUCN Red List categories”. UNEP-WCMC had pointed out that to ensure that globally threatened (GT) species are weighted to account for the higher level of risk within the RST process, the current methodology multiplies trade volumes for GT species by a factor of 10. If the resulting trade level falls within the top third of species within an order, they meet the “high volume” criterion. Based on a recommendation by AC29, an alternative method of weighting species by their Red List category was trialled for the RST selection process for AC31 (see document [AC31 Doc. 13.4 Annex 2](#)). The adjusted methodology used a weighting factor depending on threat status (x10 for CR, 8x for EN, 6x for VU, 4x for NT and 2x for DD). UNEP-WCMC pointed out that when the results of the two methods were compared, the proposed method of stratifying the weighting for GT species selected more species at the extremes (i.e., LC or Not Evaluated, or CR and EN). Since CR and EN are automatically¹ selected under the “Endangered” criterion of the RST selection process anyway, weighting them more heavily compared to other GT species did not impact their inclusion. Overall, the alternative method selected more Least Concern species and fewer threatened species. Accordingly, UNEP-WCMC proposed to the Secretariat that it would be preferable to retain the 10x weighting method for the current RST analysis. The Secretariat agreed to this proposal, but the Animals Committee may wish to give this matter further consideration.

18. The IUCN threat status is relevant to both Resolution Conf. 12.8 (Rev. CoP18) and Resolution Conf. 17.7 (Rev. CoP19). Captive production can have impacts on wild populations, for example, the acquisition of wild-sourced individuals for ranching or for the acquisition of founder breeding stock and any subsequent augmentation of wild-sourced individuals to prevent deleterious inbreeding or laundering of wild caught specimens as captive-bred. On the other hand, some species are very easy to breed in captivity despite their conservation status in the wild being unfavourable. Weighting the species by IUCN threat status for this process may exaggerate a risk in some cases where the trade has little or no impact on the wild population. As noted above, more species were selected that were not globally threatened than were globally threatened in the first iteration of Resolution Conf. 17.7 (Rev. CoP18), which might imply that the Red List has less relevance than for the trade in wild specimens as scrutinized by the RST. UNEP-WCMC suggested that it would therefore be useful to consider whether the same approaches for RST (e.g., using a multiplier, or selecting any CR or EN species as belonging to an “Endangered” category) are appropriate for Resolution Conf. 17.7 (Rev. CoP18).

19. The selection criteria for the RST process and captive-breeding process have not been comprehensively mapped against each other, but there are clearly parallels with the two processes, at least for some criteria (see Tables A.1 and A.2 below). Both processes select cases where trade is considered to be “high volume” or where there has been a “sharp increase” in trade.

Table A.1. Criteria for the identification of species-country combinations for review under Resolution Conf. 17.7 (Rev. CoP19)

Criterion	
i)	Significant Increase: significant increases in trade in specimens declared as captive-produced (source codes C, D, F and R)
ii)	Significant Numbers: trade in significant numbers of specimens declared as produced in captivity
iii)	Shifts in source codes: shifts and fluctuations between different captive-production source codes
iv)	Reporting inconsistencies: inconsistencies between source codes reported by exporting and importing Parties for specimens declared as produced in captivity
v)	incorrect application of source codes: apparent incorrect application of captive production codes such as: ‘A’ for animal species or ‘D’ for Appendix-I species that have not been registered in compliance with the provisions of Resolution Conf. 12.10 (Rev. CoP15) on <i>Registration of operations that breed Appendix-I animal species in captivity for commercial purposes</i>

vi)	legal acquisition: trade from non-range States of specimens declared as produced in captivity with no evidence of lawful acquisition of parental breeding stock (i.e. no recorded imports)
vii)	Breeding biology: specimens produced as captive produced (source codes C, D and F), where the species are known to be difficult to breed in captivity

Table A.2. Criteria for the selection of taxa within the Review of Significant Trade Process (Extended Analysis)

Criterion	
i)	Endangered Species: Species categorized as Critically Endangered (CR) or Endangered (EN) according to The IUCN Red List of Threatened Species (any species-country combinations with trade meet the criteria)
ii)	Sharp Increase (Global): Taxa showing a sharp increase in global trade in a focal year, in comparison to the average over the preceding five-year period
iii)	Sharp Increase (Country): Taxa showing a sharp increase in trade in a focal year at the country level (for countries of export) in comparison to the average over the preceding five-year period
iv)	High Volume: Taxa traded at levels considered to be high compared to other taxa in their order over the most recent five year period
v)	High Volume (Globally Threatened): Globally threatened, Near-Threatened (NT) and Data Deficient (DD) taxa traded at relatively high volumes for their Order over the most recent five year period

20. Some initial observations of the Secretariat on the potential harmonisation of the RST and captive-breeding processes are outlined below:
- a) Resolution Conf. 12.8 (Rev. CoP18) and Resolution Conf. 17.7 (Rev. CoP19) both include an analysis of the CITES trade data over the same 5-year period. However, while the latter looks at both Appendix-I and Appendix-II listed species, the former is restricted to Appendix-II listed species.
 - b) Some consideration of the source codes used for both analyses may be required. The analysis of the trade data under Resolution Conf. 17.7 (Rev. CoP19) considers trade under source codes C, D, F and R; while under Resolution Conf. 12.8 (Rev. CoP18) the analysis covers direct trade in sources indicated as W, R, U, Y and blank. However, a suspension under RST covers trade in source codes W, F and R, all of which require an NDF. It would seem appropriate therefore that F should be reviewed under RST. Source code R is considered in both analyses resulting in some duplication between the RST and captive-breeding analyses.
 - c) Some of the criteria are better considered by the Standing Committee: specifically Criterion iv) (*reporting inconsistencies*) and Criterion v) (*incorrect application of source code*, such as 'D' for Appendix-I species that have not been registered in compliance with the provisions of Resolution Conf. 12.10 (Rev. CoP15) on *Registration of operations that breed Appendix-I animal species in captivity for commercial purposes*). Consideration could be made to a specific instruction requesting the Standing Committee to consider the tables produced as part of the analysis under these criteria.
21. Funding has been secured from Switzerland for the Secretariat to work with UNEP-WCMC to produce a comparative analysis of the objectives and processes outlined in Resolution Conf. 17.7 (Rev. CoP19) on *Review of trade in specimens reported as produced in captivity* and Resolution Conf 12.8 (Rev. CoP18) on *Review of Significant Trade in specimens of Appendix-II species*. Based on this analysis, the Secretariat will draft recommendations on how these two Resolutions could become more streamlined and better aligned with each other, including possible amendments to one or both Resolutions. The Secretariat will consult with the Chair of the Animals Committee and the leads assigned by the Animals Committee in its workplan for both Resolutions during the process. The report and recommendations are proposed to be submitted to the 33rd meeting of the Animals Committee for its consideration.

Recommendations

22. The Animals Committee is invited to:
- a) taking into account the analyses presented in the Annex to this document,

- i) select a limited number of species-country combinations for review,
 - ii) prepare a brief explanation of the criteria used to justify each selection; and
 - iii) draft general or specific questions for the countries selected for review;
- b) determine and prioritize for which species a request should be made for the commissioning of a short review of the breeding biology, captive husbandry and any impacts, if relevant, of removal of founder stock from the wild as described in paragraph 14 of the present document; and
- c) identify any urgent enforcement matters which need the attention of the Secretariat, the country concerned and/or the Standing Committee.

Selection of species for inclusion in the *Review of trade in animal specimens reported as produced in captivity*

Report following CoP19



Selection of species for inclusion in the Review of trade in animal specimens reported as produced in captivity: Report following CoP19

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Overview

To support the implementation of paragraph 2 a) i) to vii) of [Resolution Conf. 17.7 \(Rev. CoP19\)](#), the UN Environment Programme World Conservation Monitoring Centre (UNEP-WCMC) has produced two outputs to assist the Animals Committee with their work in selecting species/country combinations for inclusion in the *Review of trade in animal specimens reported as produced in captivity* following CoP19. These are:

1. A **species selection analysis** applying the seven selection criteria outlined in paragraph 2 a) i) to vii) of Resolution Conf. 17.7 (Rev. CoP19) to the trade in captive-bred and ranched specimens for 2017-2021 (sources C, D, F and R); and
2. A **full output from the CITES Trade Database** of relevant trade in captive-bred and ranched specimens for 2017-2021, sources C, D, F and R. This output provides an opportunity for Parties to examine trade levels for any species reported as captive produced in recent years, including taxa that did not meet the selection criteria in the analysis above.

The species selection analysis identified a total of **190 species** and **267 species/country combinations** that met at least one of the seven criteria in paragraph 2 a) of Resolution Conf. 17.7 (Rev. CoP19) based on the methodologies presented (see [Tables 1.1](#) and [1.2](#)).

Table 1.1: Number of species that met each of the seven selection criteria outlined in paragraph 2 a) of Resolution Conf. 17.7 (Rev. CoP19).

Criteria	Number selected
i) Significant increase	113 species and 148 species/country combinations met a least one of these criteria (Table 6, p. 14)
ii) Significant numbers	
ii) Shifts in source codes	
iv) Reporting inconsistencies	15 species and 17 species/country combinations met criteria iv) and v) (Table 7, p. 44)
v) Incorrect application of source codes	
vi) Legal acquisition	71 species and 97 species/country combinations met criterion vi) (Tables 6 and 8, p. 14 and 48)
vii) Difficult to breed (<i>reptiles and amphibians only</i>)	27 species and 34 species/country combinations met criterion vii) (Tables 6 and 9, p. 14 and 57)
Total (all criteria combined)	190 species and 267 species/country combinations

Table 1.2: Number of species that met each of the seven selection criteria outlined in paragraph 2 a) of Resolution Conf. 17.7 (Rev. CoP19) by taxonomic order. * = criterion applied to reptile and amphibian taxa only.

	i)	ii)	iii)	iv)	v)	vi)	vii)*	No. unique species ¹
Mammals	1	15	0	1	1	4		18
Birds	10	22	0	0	10	43		67
Reptiles	8	10	10	2	1	11	24	56
Amphibians	2	8	0	0	0	1	3	11
Cartilaginous and bony fish	6	9	1	0	1	7		14
Non-coral invertebrates	9	10	2	0	0	4		18
Coral	2	4	0	0	0	1		6
Total	38	78	13	3	13	71	27	190

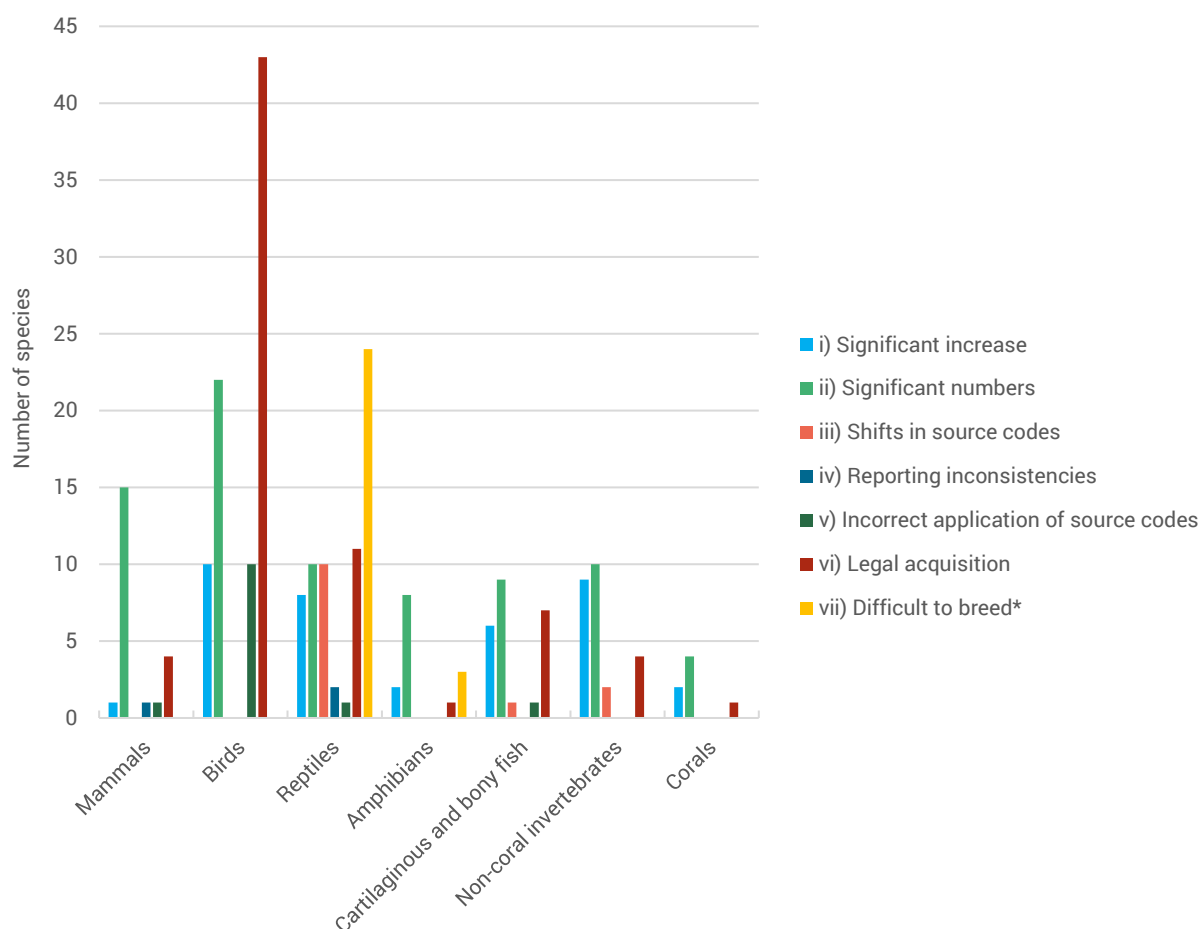


Figure 1: Number of species that met each of the seven selection criteria outlined in paragraph 2 a) of Resolution Conf. 17.7 (Rev. CoP19) by taxonomic order. * = criterion applied to reptile and amphibian taxa only.

¹ Since a single species can meet more than one criterion, the total no. species may be lower than the sum of species for each group across the seven criteria.

Species selection analysis

Introduction

Paragraph 2 a) of Resolution Conf. 17.7 (Rev. CoP19) specifies seven criteria to be used to inform the selection process for species/country combinations to be included in the *Review of trade in animal specimens reported as produced in captivity*. These are described below:

Table 2: Criteria used to inform the selection process for the *Review of trade in animal specimens reported as produced in captivity*.

Criterion	Description	Abbreviated term
i)	Significant increases in trade in specimens declared as captive-produced (source codes C, D, F and R)	Significant increase
ii)	Trade in significant numbers of specimens declared as produced in captivity	Significant numbers
iii)	Shifts from wild to captive produced source codes	Shifts in source codes
iv)	Inconsistencies between source codes reported by exporting and importing Parties for specimens declared as produced in captivity	Reporting inconsistencies
v)	Apparent incorrect application of captive production codes such as 'D' for Appendix-I species that have not been registered in compliance with the provisions of Resolution Conf. 12.10 (Rev. CoP15) on <i>Registration of operations that breed Appendix-I animal species in captivity for commercial purposes</i>	Incorrect application of source codes
vi)	Trade from non-range States of specimens declared as produced in captivity with no evidence of lawful acquisition of parental breeding stock (i.e. no recorded imports)	Legal acquisition
vii)	Specimens reported as captive produced (source codes C, D and F), where the species is known to be difficult to breed in captivity	Difficult to breed

These criteria reflect a number of changes that were agreed at CoP19 (see [CoP19 Com. I. Rec. 2 \(Rev. 1\)](#)), which *inter alia* included the addition of criterion vii). The addition of this criterion addresses the concern, raised at a workshop to review and update Resolution Conf. 17.7 (Rev. CoP19) held in June 2022, that none of the existing criteria accounted for how easy a species is to breed in captivity or breed to second generation (see [CoP19 Doc. 54](#)). As this information can be pertinent to the identification of unrealistic captive breeding claims or potential laundering, it was considered important to have a criterion addressing this when identifying species/country combinations showing noteworthy trends.

As document CoP19 Doc. 54 noted, there is no definitive or comprehensive list of “hard to breed” taxa, and new breeding techniques and technologies under development may mean that the ease of captive breeding for a particular taxon can change. The development of a methodology used to implement criterion vii) for this iteration of the species selection analysis was also subject to

significant time constraints, with the data collection and methodology development window comprising only around eight weeks. As a result, **the current selection process applies criterion vii) only to reptiles and amphibians**. A summary of the data used to inform whether these taxa met the new criterion is outlined in Appendix 1: *Development and considerations relating to criterion vii)*.

Participants at the June 2022 workshop also flagged that the existing criteria did not take into account the breeding biology of species, which is another key indicator of productivity (see [CoP19 Doc. 54](#)). In light of the growing number of online datasets and other sources of information on species' biological traits, paragraph a) of Resolution Conf. 17.7 was amended at CoP19 to indicate that the output produced to assist the Animals Committee in identifying species/country combinations for review should take this into account, *where feasible*. Accordingly, four life history parameters relating to breeding biology (adult body size, female age at maturity, number of offspring produced at each reproductive event and, where available, number of offspring per year) are shown as meta data in [Tables 6 and 9](#)) and in the full output from the CITES Trade Database. While there are numerous other parameters that could impact the productivity of a species (for example longevity and offspring survival rates), these four parameters were selected based on data availability and on the basis of evidence showing that these traits tend to correlate closely with 'fast' or 'slow' life histories, and therefore lifetime productivity (see Appendix 2: *Life history data*).

Finally, paragraph a) of Resolution Conf. 17.7 was further amended at CoP19 to indicate that the analysis should take into account recent nomenclatural changes. Accordingly, all results tables ([Tables 6, 7, 8 and 9](#)) show whether each species has been subject to a nomenclature change from CoP17 onwards.

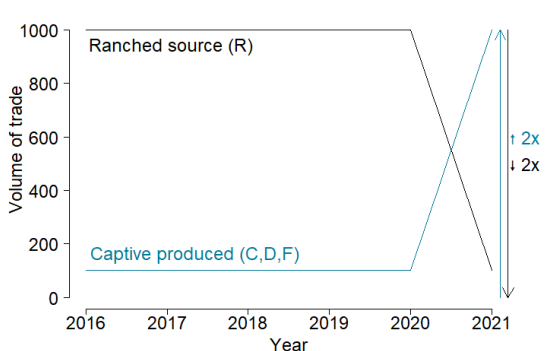
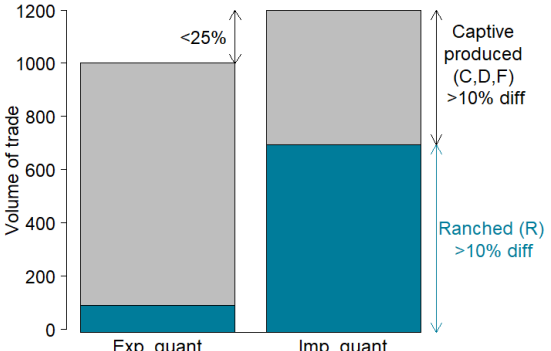
Definitions of the criteria

Details of the methodology applied to identify species/country combinations that meet each of the seven selection criteria are described in [Table 3](#).

Table 3: Overview of methods to identify species/country combinations that meet the seven criteria defined in paragraph 2 a) of Res. Conf. 17.7 (Rev. CoP19).

Criteria	Aim	Methods	Illustration / Remarks
Criterion i) Significant increase	To detect significant increases in trade in species/country combinations in the most recent year with near-complete data.	<p>Species/country combinations met this criterion if:</p> <ul style="list-style-type: none"> The volume of direct gross exports for the most recent year of data (2021) was >4 times the mean of the preceding five years (2016-2020); and Average annual trade over the most recent five years (2017-2021) was >200 units (or >50 if the species is considered CR, EN by IUCN, or endemic according to Species+). Including a minimum threshold is necessary to produce a manageable output. <p><i>This methodology aligns with the “sharp increase” criterion of the Review of Significant Trade process, although here the selection is at the level of species/country combination.</i></p>	<p>Volume of trade</p> <p>Year</p> <p>4 times 5-year mean</p> <p>5-year mean</p>
Criterion ii) Significant numbers	To detect captive-produced species/country combinations that have been exported in significant volumes compared to other combinations within that taxonomic order.	<p>In order to apply a more precautionary approach for species considered Data Deficient, Near Threatened, globally threatened² or endemic, the average trade volume for these species was first multiplied by 10. Species/country combinations then met this criterion if:</p> <ul style="list-style-type: none"> Average annual gross exports for the species/country combination over the most recent five years (2017-2021) was >50 (or >12.5 if the species is considered DD, NT, globally threatened or endemic); and This trade volume was within the top 5% of species/country combinations traded within the order over the five most recent years (2017-2021), or within the top 1% if the number of species/country combinations within the order was >200. Inclusion of only the top 5% of trade by order and a minimum threshold for trade was necessary to produce a manageable output. <p><i>This methodology aligns with the “high volume” criterion of the Review of Significant Trade process, although here the selection is at the level of species/country combination.</i></p>	<p>Volume of trade (adjusted for threat)</p> <p>Species</p> <p>Selection threshold</p> <p><i>Illustration: Species c (already adjusted for threat status) exceeds the threshold and is the only species selected from within this order.</i></p>

² Defined as species classified in the IUCN Red List of Threatened Species as Critically Endangered, Endangered, and Vulnerable.

Criteria	Aim	Methods	Illustration / Remarks
<p>Criterion iii) Shifts in source codes</p>	<p>To identify notable shifts in source codes over time from wild to captive-produced sources as reported by countries of export.</p>	<p>The methodology used to implement this criterion focuses specifically on shifts from wild sources to captive-produced sources, as follows:</p> <ul style="list-style-type: none"> • Wild (W, U, source unreported) → captive-produced/ranched (C, D, F, R combined) • Ranched (R) → captive-produced (C, D, F combined). <p>Species/country combinations met this criterion if:</p> <ul style="list-style-type: none"> • Exporter-reported trade in one source code or a set of source codes in a focal year (2019-2021) increased to more than double the mean of the previous 5 years; • There was a corresponding decrease in trade in another set of sources for the same focal year; and • Average annual trade over the most recent five years for each set of source codes was >50 (or >12.5 if the species is considered CR, EN or endemic). Including a minimum threshold was necessary to produce a manageable output. 	
<p>Criterion iv) Reporting inconsistencies</p>	<p>To identify notable discrepancies in reported source codes between countries of export and import.</p>	<p>Only Appendix I species were considered for this criterion, since importing Parties are not obligated to report their imports of Appendix II taxa. Inconsistencies in reporting are checked between the following source code pairings:</p> <ul style="list-style-type: none"> • Wild (W, U, source unreported) and captive-produced/ranched (C, D, F, R combined) • Ranched (R) and captive-produced (C, D, F combined). <p>Species/country combinations met this criterion if:</p> <ul style="list-style-type: none"> • The sums of total exporter- and importer-reported trade in the most recent three years (2019-2021) differed by <25% (for wild and captive source codes combined); • Trade in one set of source codes differed by >10% between exporter and importer in the most recent three years; • There was a corresponding difference of >10% in another set of source codes between importer and exporter; and • The sum of trade over the most recent three years for both sets of source codes >20 units. <p>Instances where importers and/or exporters had not submitted annual reports in some years were removed to avoid false positives.</p>	 <p>In this illustration, total volumes are similar, but importers primarily reported the trade as ranched, whereas exporters reported as captive-produced.</p> <p>Note: Some discrepancies may be accounted for by differences in reporting (e.g. actual trade or permits issued); or “year-end trade” (trade that is reported on by an exporter in one year, and an importer in the following year).</p>

Criteria	Aim	Methods	Illustration / Remarks
Criterion v) Incorrect application of source codes	To detect the potential for incorrect application of source codes by countries of export (e.g. 'D' without a registered facility).	Species/country combinations met this criterion if direct trade was reported as source code 'D' in the most recent three years (2019-2021) for an Appendix I species with no current CITES registered facility in the country of export, according to the list of CITES Registered breeding operations downloaded from the CITES website www.cites.org/eng/common/reg/cb/summary.html ³ . There was no trade threshold applied for this criterion.	
Criterion vi) Legal acquisition	To detect cases where there may be concerns about whether the founder stock was legally acquired.	Species/country combinations met this criterion if gross exports reported from non-range States during the most recent three years (2019-2021) exceeded a threshold of 1000 units, and either: (a) There was no evidence of any live imports (trade in terms 'egg (live)', 'fingerling', 'live' and 'pupae' from any source) into the country from any range State since the inclusion of the species in the CITES Appendices, and no evidence of any indirect imports from a non-range State since inclusion of the species in the CITES Appendices (this accounts for imports into the EU ⁴ as a regional economic integration organisation); or (b) The first live imports from a range State were reported <i>after</i> the first reported export from the non-range State.	It is important to note that this criterion is based only on CITES trade data, and there are many reasons why there may be no evidence of the original import in the CITES Trade Database. For example: <ul style="list-style-type: none"> • Founder stock may have been acquired prior to CITES coming into force, prior to the species being listed in the Appendices to the Convention, or prior to the accession of the relevant Parties; • Annual reports may be missing; and • Whilst nomenclature changes have been accounted for where possible, some species may be selected if they were previously listed under a different taxonomic name
Criterion vii) Difficult to breed	To identify taxa that may be difficult to breed in captivity.	This criterion has only been applied to reptiles and amphibians as a proof of concept. Species/country combinations met this criterion if direct gross exports reported as captive-produced (source codes 'C', 'D' and 'F') during the most recent three years (2019-2021) exceeded a total threshold of 10 units, and either a) the taxon was categorised as hard to breed in captivity by taxonomic experts, or b) no animal specimens were known to be kept in captivity	See Appendix 1 for further details of the development of this criterion and for the definitions used to classify a species as difficult to breed.

³ Only the current record of CITES Registered breeders is available on the CITES website. The methods did not account for historical records for facilities that were previously included on the CITES register but have subsequently been removed from the list.

⁴ For the purpose of Criterion vi), the United Kingdom of Great Britain and Northern Ireland (hereafter referred to as the UK) and the EU27 are considered together to account for founder stock legally acquired and moved between countries while the UK was an EU Member State. The UK left the European Union on 31 January 2020 and the EU Wildlife Trade Regulations remained applicable through the transition period (which ended on 31/12/2020).

Data included

Data for inclusion in the species selection analysis were extracted from the CITES Trade Database (trade.cites.org) on 16th March 2023, and include all CITES Annual Reports received by UNEP-WCMC by 23rd February 2023. Details of the data used (e.g. year range, Appendix, trade data output type, etc.) in the selection process for each criterion are provided in [Table 4](#).

Table 4: Data included for each of the seven selection criteria outlined in paragraph 2 a) of Res. Conf. 17.7 (Rev. CoP19).

	Criteria i), ii), iii) & vii)	Criteria iv) and v)	Criterion vi)
CITES Trade Database report type	Direct trade only (re-exports are excluded) Report type is dependent on the criterion: <ul style="list-style-type: none"> Criteria i), ii) & vii): Gross exports⁵ Criterion iii): Exporter-reported data only 	Direct trade only (re-exports are excluded) Report type is dependent on the criterion: <ul style="list-style-type: none"> Criterion iv): Exporter- and importer-reported data; Criterion v): Exporter-reported data only 	Direct and indirect trade <u>into</u> the focal country, but species/country combinations were selected on the basis of direct trade <u>from</u> the focal country. Gross exports were analysed for Criterion vi)
Appendix	Appendix I & II	Appendix I only ⁶	Appendix I & II
Year range	Criterion i): 2016-2021; Criterion ii): 2017-2021; Criterion iii): 2014-2021 [<i>years 2017-2021 displayed in Table 6</i>] Criterion iv - vii): 2019-2021		
Source codes⁷	Criteria i) – iv) & vi): C, D, F, R Criterion v): D only Criterion vii): C, D, F <i>[Trade in wild specimens was also used for Criterion iii) (W= wild, U = unknown, X = introduction from the sea, and no source reported and no source reported) in order to assess shifts or differences in reporting between wild to captive-produced sources and for Criterion vi) (W only) to identify the year live specimens were first exported by range States]</i>		
Purpose codes⁷	All purpose codes		
Terms⁸	baleen, body, bone, carapace, carving (including carvings from bone, horn and ivory, as well as jewellery), caviar, coral (raw), egg, egg (live), fin, fingerling, gall bladder, horn, live, meat, musk, plate, pupae, scale, shell, skin and skin piece, skeleton, skull, teeth, trophy, and tusk.		Live terms only <u>into</u> the focal country (terms: egg (live), fingerling, live and pupae), but selected on the basis of trade exported for any of the selected terms listed for i) – v) & vii)
Units of measure	Number (unit = number of specimens (reported as 'blank' and 'NAR')) <i>[Trade in other units of measure (e.g. kilograms, metres, etc.) was excluded]</i>		

⁵ Gross exports: the quantities reported by the exporter and importer are compared and the larger quantity is used in the analysis.

⁶ On the basis that Parties do not report consistently on imports of Appendix II species (in relation to importer-exporter discrepancies for criteria iv), and on the basis that criteria v) relates to the use of source code D (which is applicable only to specimens of Appendix I species).

⁷ A full list and description of source and purpose codes is specified in [Resolution Conf. 12.3 \(Rev. CoP19\)](#).

⁸ Note that when applying the individual criteria, the analysis is conducted on the combined values for all the terms outlined above, but quantities for each individual trade term have been included in the outputs in order to provide a more complete picture of the trade. A full list of "terms" (i.e. descriptions of specimens in trade) traded is available in the CITES Trade Database interpretation guide, see: https://trade.cites.org/cites_trade_guidelines/en-CITES_Trade_Database_Guide.pdf.

Results

In total, **190 species** and **267 species/country combinations** met at least one of the seven selection criteria outlined in paragraph 2 a) of Resolution Conf. 17.7 (Rev. CoP19) based on the methodologies applied. **Tables 6-9** show the species/country combinations that meet each of the criteria; where possible, criteria sharing similar data requirements (e.g. i, ii and iii) have been combined in order to minimise the number of tables and to show instances where multiple criteria were met.

Table 5.1: Overview of results of the species selection analysis.

Table No.	Criteria	Number selected
Table 6 (p. 15)	i) Significant increase	113 species and 147 species/country combinations met at least one of these criteria
	ii) Significant numbers	
	ii) Shifts in source codes <i>(including an indication of whether the species also met criterion vi) and/or criterion vii)</i>	
Table 7 (p.44)	iv) Reporting inconsistencies	15 species and 17 species/country combinations met at least one of these criteria
	v) Incorrect application of source codes	
Table 8 (p. 48)	vi) Legal acquisition	59 species and 73 species/country combinations met criterion vi) only
Table 9 (p. 56)	vii) Difficult to breed (amphibians and reptiles only)	25 species and 31 species/country combinations met criterion vii) only
Total (all criteria combined)		190 species and 267 species/country combinations

The following contextual information is provided in each table, where applicable:

Table 5.2: Overview of contextual information included in the results tables

Contextual information	Table 6	Table 7	Table 8	Table 9
Current Appendix for each taxon and the year of first listing in the CITES Appendices.	✓	✓	✓	✓
Global conservation status and population trend of the species, if assessed, as published in the IUCN Red List of Threatened Species, as well as the year the species was last assessed ⁹	✓	✓	✓	✓
Whether the species is endemic , according to the distribution records within Species+ ¹⁰	✓	✓	✓	✓
Whether the country of export is considered a range State for the species according to the distribution records within Species+	✓	✓		✓
If not a range State, whether the country shares a border with a range State ¹¹ , according to the distribution records within Species+	✓	✓	✓	✓

⁹ Red List version 2022-2. Accessed via www.iucnredlist.org. Data downloaded on 17th January 2023.

¹⁰ speciesplus.net. Data downloaded on 6th March 2023.

¹¹ Defined by mledoze (2017). World countries in JSON, CSV and XML and Yaml. <https://mledoze.github.io/countries/> [accessed on: 21/03/2017] and updated according to the United Nations geospatial database (March 2023).

Contextual information	Table 6	Table 7	Table 8	Table 9
Percentage of trade that was reported for each captive-produced source (C, D, F, R), based on gross exports for the most recent five years (Table 6) or most recent three years (Tables 8 and 9), or the most recent three years of exporter-reported trade (Table 7)	✓	✓	✓	✓
Information on life history parameters , where available	✓			✓
An indication of species where there is no evidence of any exports from any range State 2012-2021 , based on CITES trade data ¹² (only applicable to exports from non-range States)	✓		✓	
Any year a quota has been in place during 2017-2023 ¹³	✓		✓	
Whether a current Standing Committee recommendation to suspend trade is in place	✓		✓	
An indication of whether the species is known to be held by zoos and/or aquaria that are part of the Species360 Zoological Information Management System (ZIMS) ¹⁴ and whether there has been any evidence of births within these facilities				✓
Additional notes on breeding provided by experts . Notes are compiled from three sources: expert input provided by the Deutsche Gesellschaft für Herpetologie und Terrarienkunde, Langer <i>et al.</i> 2021 ¹⁵ and 2022 ¹⁶				✓
Information on whether a species can be bred to F2 and beyond based on information provided by the Deutsche Gesellschaft für Herpetologie und Terrarienkunde, Langer <i>et al.</i> 2021 and 2022				✓
Current number of CITES registered breeding facilities for the species/country combination				✓

Criteria i), ii) and iii)

In total, 113 species and 148 species/country combinations met at least one of these three criteria and are included in [Table 6](#). [Table 6](#) also includes one species/country combination that meets criteria vi) and vii) only.

Key to Table 6

Species: current CITES Appendix and year of first listing are shown in parentheses.

Exporter: see Appendix 3 for ISO codes and country and territory names. Species should be considered to be native to the range State unless otherwise indicated as follows: (In) = introduced; (X) = no evidence of wild populations in country of export (from either native or introduced populations), (?) = distribution uncertain. † = exporter shares a border with a range State.

Term: see Appendix 4 for term codes and descriptions.

¹² Across all sources and all accepted units/terms (see Table 4). Data downloaded on 16th March 2023.

¹³ Data downloaded on 31st March 2023.

¹⁴ zims.Species360.org. Species holdings data are current up to March 2023.

¹⁵ Langner, C., Pfau, B., Bakowskie, R., Arranz, C. and Kwet, A. (2021). Evaluation of captive breeding potential of selected reptile taxa included in Appendices I and II at CITES CoP17. Bundesamt für Naturschutz, Bonn, Germany. [Available at: <https://www.bfn.de/publikationen/bfn-schriften/bfn-schriften-609-evaluation-captive-breeding-potential-selected>].

¹⁶ Langner, C., Pfau, B., Bernardes, M., Gerlach, U., Hulbert, F., van Schingen-Khan, M., Schepp, U., Arranz, C., Riedling, M. and Kwet, A. (2022). Evaluation of the captive breeding potential of selected amphibian and reptile taxa included in Appendices I and II at CITES CoP18. Bundesamt für Naturschutz, Bonn, Germany. [Available at: <https://www.bfn.de/publikationen/bfn-schriften/bfn-schriften-627-evaluation-captive-breeding-potential-selected>].

Trade summaries: Indicate gross exports in specimens of source C, D, F and R across all accepted terms (see [Table 4](#)). '0' indicates no trade, '-' indicates that the species had not yet been listed in the Appendices. Quantities are rounded to the nearest whole number, where applicable. Data extracted from the CITES Trade Database on 16th March 2023. Trade data for 2021 may appear lower than other years due to missing annual reports; annual reports for 2021 had been received from 58% of Parties at the time of analysis.

Criteria met: species/country combinations meeting multiple criteria are in bold. * = no evidence of exports from any range State(s).

- i) **Significant increase:** significant increases in trade in specimens declared as produced in captivity.
- ii) **Significant numbers:** trade in significant numbers of specimens declared as produced in captivity.
- iii) **Shifts in source codes:** shifts and fluctuations between different captive-production source codes.
- vi) **Legal acquisition^(a):** no evidence of any live imports (trade in terms 'egg (live)', 'fingerling', 'live' and 'pupae' from any source) into the country from any range State for the species since the inclusion of the species in the CITES Appendices, and no evidence of any indirect imports from a non-range State since the inclusion of the species in the CITES Appendices. **Legal acquisition^(b):** first year of import reported after first year of export from the focal exporting country.
- vii) Taxa identified as being **difficult to breed in captivity**.

% trade by source: C = captive-bred, D = Appendix I species captive-bred in a registered breeding facility, F = captive-born, R = ranched.

Endemic: species is native¹⁷ to only one range State according to Species+.

IUCN Red List: NE = Not Evaluated, LC = Least Concern, NT = Near Threatened, VU = Vulnerable, EN = Endangered, CR = Critically Endangered, EW = Extinct in the Wild, DD = Data Deficient.

Population trend: ↓ = declining, → = stable, ↑ = increasing, ? = unknown.

IUCN year of assessment: in brackets, where applicable e.g. (2011).

Life history traits:

ABW = mean adult body weight (mammals, birds, invertebrates except butterflies and spiders)

ABL = mean adult body length (cartilaginous and non-cartilaginous fish and spiders)

SVL = mean snout-to-vent length (reptiles and amphibians)

FWL = mean forewing length (butterflies)

NO = mean number of offspring

NOY = mean number of offspring per year

FAM = mean female age at maturity (years).

¹⁷ 'Native' includes instances where there is a reintroduced population or where occurrence within the range State is uncertain.

Table 6: Species/country combinations that met criteria i), ii) or iii) based on direct trade in captive-produced (C, D, F, and R) specimens, with an indication if criteria vi) and vii) were also met. See Key on p. 14.

Species (current Appendix) (year first listed in the CITES Appendices)	Exporter	Term	2017	2018	2019	2020	2021	Criteria met	Quotas	Suspensions	% trade by source 2017-2021	Endemic	IUCN Red List	Life history traits
Mammals														
Artiodactyla: Bovidae														
<i>Kobus leche</i> (II) (1975)	ZA (In)	BOD	3	18	1	2	1	2 met: ii) significant volume; vi) legal acquisition (a)		F(94.24%); R(4.98%); C(0.78%)		NT ↓ (2016)	ABW: 63kg; NO: 1; FAM: 2.22	
		HOR	18	1	0	2	16							
		LIV	518	365	0	0	0							
		SKI	12	4	9	5	13							
		SKP	0	1	4	0	0							
		SKU	8	3	6	6	15							
		TRO	594	234	770	299	425							
<i>Oryx dammah</i> (I) (1975)	ZA (In)	BOD	0	0	1	0	0	1 met: ii) significant volume		F(97.93%); C(1.5%); R(0.56%)		EW ? (2008)	ABW: 118.9kg; NO: 1; NOY: 1.9; FAM: 2.08	
		LIV	3	0	0	0	0							
		SKI	2	1	2	0	1							
		SKP	0	1	0	0	0							
		SKU	1	1	1	0	0							
		TRO	79	63	98	42	236							
Artiodactyla: Giraffidae														
<i>Giraffa camelopardalis</i> (II) (2019)	ZA	BON	-	-	0	0	1560	2 met: i) significant increase; ii) significant volume		C(99.81%); D(0.06%); F(0.06%); R(0.06%)		VU ↓ (2016)	ABW: 534.8kg; NO: 1.1; NOY: 0.8; FAM: 4.09	
		LIV	-	-	0	6	0							
		SKI	-	-	0	0	1							
		SKU	-	-	0	0	1							
		TRO	-	-	0	2	5							
Carnivora: Felidae														
<i>Acinonyx jubatus</i> (I) (1975)	ZA	BOD	3	2	0	0	2	1 met: ii) significant volume		C(71.55%); D(28.45%)		VU ↓ (2008)	ABW: 35.2kg; NO: 3.1; NOY: 2.2; FAM: 2.08	
		LIV	50	50	42	40	40							
		TRO	0	0	0	0	3							

Species (current Appendix) (year first listed in the CITES Appendices)	Exporter	Term	2017	2018	2019	2020	2021	Criteria met	Quotas	Suspensions	% trade by source 2017-2021	Endemic	IUCN Red List	Life history traits					
<i>Panthera leo</i> ¹⁸ (I/II) (1975)	ZA	BOD	109	110	318	13	15	1 met: ii) significant volume	See ¹⁹		C(99.62%); F(0.35%); D(0.02%); R(0.02%)		VU ↓ (2008)	ABW: 108.7kg; NO: 2.9; NOY: 3.8; FAM: 2.96					
		BON	160	0	2	0	4												
		JWL	0	0	2	0	0												
		LIV	386	176	276	43	129												
		SKE	646	635	156	0	0												
		SKI	25	22	18	30	12												
		SKU	6	8	7	5	4												
		TEE	0	0	8	12	0												
		TRO	569	291	563	349	660												
<i>Panthera tigris</i> ²⁰ (I) (1975)	RU	LIV	4	8	42	12	12	1 met: ii) significant volume			C(89.74%); F(6.41%); D(3.85%)		EN ↓ (2008)	ABW: 83.6kg; NO: 2.6; NOY: 1.5; FAM: 3.43					
		ZA (X)	BOD	1	5	1	1								0	1 met: ii) significant volume*		C(98.14%); F(1.12%); R(0.74%)	
			BON	0	0	2	2								0				
			LIV	48	95	40	3								16				
			SKI	1	2	2	0								0				
			SKU	0	0	1	1								0				
			TRO	17	11	2	1								17				
			Carnivora: Mustelidae																
<i>Aonyx cinereus</i> ²¹ (I) (1977)	ID	LIV	23	42	23	0	0	1 met: ii) significant volume			F(95.45%); C(4.55%)		VU ↓ (2020)	ABW: 3kg; NO: 1.4; NOY: 2.9					

¹⁸ *Panthera leo* was lumped from *Panthera leo persica*, *Panthera leo* in 2019, following taxonomic changes adopted at CoP18.

¹⁹ 2017 (800 Full skeletons (with or without the skull) derived from captive breeding operations); 2018 (800 Full skeletons (with or without the skull) derived from captive breeding operations); 2020 (in prep. Bones, bone pieces, bone products, claws, skeletons, skulls and teeth for commercial purposes, derived from captive breeding (Note: established by the Conference of the Parties)); 2021 (in prep. Bones, bone pieces, bone products, claws, skeletons, skulls and teeth for commercial purposes, derived from captive breeding operations (Note: established by the Conference of the Parties)); 2022 (in prep. Bones, bone pieces, bone products, claws, skeletons, skulls and teeth for commercial purposes, derived from captive breeding operations (Note: established by the Conference of the Parties)); 2023 (0 Bones, bone pieces, bone products, claws, skeletons, skulls and teeth removed from the wild and traded for commercial purposes (Note: established by the Conference of the Parties)).

²⁰ *Panthera tigris altaica* was lumped into *Panthera tigris* in 2019, following taxonomic changes adopted at CoP18.

²¹ *Aonyx cinereus* was originally listed as *Aonyx cinerea*, which was subject to a nomenclature change in 2023, following taxonomic changes adopted at CoP19.

Species (current Appendix) (year first listed in the CITES Appendices)	Exporter	Term	2017	2018	2019	2020	2021	Criteria met	Quotas	Suspensions	% trade by source 2017-2021	Endemic	IUCN Red List	Life history traits
Cetacea: Delphinidae														
<i>Orcaella brevirostris</i> (I) (1979)	TW (X)†	LIV	0	0	168	0	0	1 met: ii) significant volume*			C(100%)		EN ↓ (2017)	ABW: 127.5kg; NO: 1; FAM: 5
Chiroptera: Pteropodidae														
<i>Pteropus rodricensis</i> (II) (1990)	JE (X+)	BOD	0	21	21	0	0	1 met: ii) significant volume*			C(100%)		EN ↑ (2016)	ABW: 0.3kg; NO: 1; NOY: 1; FAM: 2.07
Diprotodontia: Potoroidae														
<i>Bettongia penicillata</i> (I) (1979)	CZ (X)	LIV	6	2	0	0	0	1 met: ii) significant volume*			C(100%)	✓	CR ↓ (2012)	ABW: 1.3kg; NO: 1; NOY: 3; FAM: 0.6
Lagomorpha: Leporidae														
<i>Romerolagus diazi</i> (I) (1975)	MX	LIV	0	10	0	0	0	1 met: ii) significant volume			C(100%)		EN ↓ (2018)	ABW: 0.4kg; NO: 2.1; FAM: 0.51
Perissodactyla: Rhinocerotidae														
<i>Diceros bicornis</i> (I) (1977)	ZA	LIV	18	16	26	1	0	1 met: ii) significant volume	See ²²		C(52.46%); R(47.54%)		CR ↑ (2020)	ABW: 699.7kg; NO: 1; NOY: 0.4; FAM: 5.21

²² 2017 (5 hunting trophies from adult males [Note: see Resolution Conf. 13.5(Rev.CoP14)]); 2020 (in prep. Hunting trophies of adult males (Note: Resulting from a recommendation in a Resolution of the Conference of the Parties)); 2021 (in prep. Hunting trophies of adult males (Note: Resulting from a recommendation in a Resolution of the Conference of the Parties)); 2022 (in prep. Hunting trophies of adult males (Note: Resulting from a recommendation in a Resolution of the Conference of the Parties)); 2023 (in prep. Hunting trophies of adult males (Note: Resulting from a recommendation in a Resolution of the Conference of the Parties)).

Species (current Appendix) (year first listed in the CITES Appendices)	Exporter	Term	2017	2018	2019	2020	2021	Criteria met	Quotas	Suspensions	% trade by source 2017-2021	Endemic	IUCN Red List	Life history traits
Pilosa: Myrmecophagidae														
<i>Myrmecophaga tridactyla</i> (II) (1975)	VE	LIV	0	0	0	0	10	1 met: ii) significant volume			C(100%)		VU ↓ (2013)	ABW: 19.8kg; NO: 1; NOY: 1.1; FAM: 3.25
Primates: Cercopithecidae														
<i>Macaca fascicularis</i> (II) (1977)	CN (X)	LIV	21940	30450	16199	0	560	2 met: ii) significant volume; vi) legal acquisition (b)*			C(100%)		EN ↓ (2022)	ABW: 3.8kg; NO: 1; NOY: 0.9; FAM: 3.59
	ID	LIV	0	0	1569	2913	1240	1 met: ii) significant volume	2021 (2070 live); 2022 (1680)		F(100%)			
	KH	LIV	7025	9460	16082	29466	29845	1 met: ii) significant volume			C(82.57%); F(17.04%); D(0.39%)			
	MU (In)	LIV	10500	11259	7575	9269	10614	2 met: ii) significant volume; vi) legal acquisition (a)			F(51.03%); C(48.97%)			
	PH	LIV	0	140	1053	350	705	1 met: ii) significant volume		✓	C(100%)			
	VN	BOD LIV	1063 5313	0 7968	0 11911	0 5378	0 5169	1 met: ii) significant volume				C(100%)		

Species (current Appendix) (year first listed in the CITES Appendices)	Exporter	Term	2017	2018	2019	2020	2021	Criteria met	Quotas	Suspensions	% trade by source 2017-2021	Endemic	IUCN Red List	Life history traits
Proboscidea: Elephantidae														
<i>Loxodonta africana</i> (I/II) (1976)	ZW	IVC	0	0	259	0	0	1 met: ii) significant volume	See ²³	✓	C(67.16%); R(32.84%)		EN ↓ (2020)	ABW: 2403.8kg; NO: 0.9; NOY: 0.2; FAM: 10.72
		LIV	0	0	0	0	5							
		SKP	0	0	133	0	0							
		TRO	0	0	8	0	0							
Birds														
Anseriformes: Anatidae														
<i>Branta ruficollis</i> (II) (1975)	NL	LIV	14	24	24	89	65	1 met: ii) significant volume			C(100%)		VU ↓ (2016)	ABW: 1.1kg; NO: 6; NOY: 6
Ciconiiformes: Phoenicopteridae														
<i>Phoenicopterus chilensis</i> (II) (1983)	NL (X)	LIV	16	40	74	0	0	1 met: ii) significant volume*			C(100%)		NT ↓ (2018)	ABW: 2.4kg; NO: 1; NOY: 1.5; FAM: 4
Columbiformes: Columbidae														
<i>Goura victoria</i> (II) (1975)	ID	LIV	22	65	71	31	38	1 met: ii) significant volume			C(100%)		NT ↓ (2020)	ABW: 2.3kg
Coraciiformes: Bucerotidae														
<i>Rhyticeros undulatus</i> (II) (1992)	ZA (X)	LIV	0	0	0	0	50	1 met: ii) significant volume*			C(100%)		VU ↓ (2018)	ABW: 2.2kg; NO: 1.8

²³ 2017 (1000 tusks as trophies from 500 animals); 2018 (1000 tusks as trophies from 500 animals); 2019 (1000 tusks as trophies from 500 animals); 2020 (1000 tusks as part of hunting trophies from 500 elephants (Note: Resulting from a recommendation in a Resolution of the Conference of the Parties)); 2021 (1000 tusks as part of hunting trophies from 500 elephants (Note: Resulting from a recommendation in a Resolution of the Conference of the Parties)); 2022 (1000 tusks as part of hunting trophies from 500 elephants (Note: Resulting from a recommendation in a Resolution of the Conference of the Parties)); 2023 (1000 Tusks as part of elephant hunting trophies (Note: Resulting from a recommendation in a Resolution of the Conference of the Parties)).

Species (current Appendix) (year first listed in the CITES Appendices)	Exporter	Term	2017	2018	2019	2020	2021	Criteria met	Quotas	Suspensions	% trade by source 2017-2021	Endemic	IUCN Red List	Life history traits
Falconiformes: Falconidae														
<i>Falco cherrug</i> (II) (1979)	DE	BOD	1	1	0	1	0	1 met: ii) significant volume			C(99.11%); D(0.89%)		EN ↓ (2020)	ABW: 0.9kg; NO: 4; NOY: 4; FAM: 2
		LIV	258	361	332	325	302							
	ES (X)	LIV	99	186	313	220	445	1 met: ii) significant volume*			C(94.85%); D(5.15%)			
	RU	LIV	183	212	500	463	505	1 met: ii) significant volume	See ²⁴		C(100%)			
Galliformes: Cracidae														
<i>Oreophasis derbianus</i> (I) (1975)	ID (X)	BOD	0	0	2500	0	0	2 met: ii) significant volume; vi) legal acquisition (a)*			C(100%)		EN ↓ (2020)	ABW: 1.6kg; NO: 2
Galliformes: Phasianidae														
<i>Lophura swinhoii</i> (I) (1975)	NL (X)	LIV	64	4	30	83	12	1 met: ii) significant volume*			C(100%)	✓	NT ↓ (2019)	ABW: 0.9kg; NO: 5.8

²⁴ 2017 (0); 2018 (0); 2020 (0 Live. Wild specimens (Note: Animals Committee or Standing Committee recommendation)); 2021 (0 Live. Wild specimens (Note: Animals Committee or Standing Committee recommendation)); 2022 (0 Live. Wild specimens (Note: Animals Committee or Standing Committee recommendation)); 2023 (0 Live (Note: Animals Committee or Standing Committee recommendation)).

Species (current Appendix) (year first listed in the CITES Appendices)	Exporter	Term	2017	2018	2019	2020	2021	Criteria met	Quotas	Suspensions	% trade by source 2017-2021	Endemic	IUCN Red List	Life history traits				
Gruiformes: Otididae																		
<i>Chlamydotis macqueenii</i> (I) (1975)	AE	BOD	7	12	6	0	0	1 met: ii) significant volume			C(90.39%); R(9.61%)		VU ↓ (2020)	ABW: 1.5kg; NO: 2.5; NOY: 2.5; FAM: 1.49				
		EGG	0	2	0	0	0											
		LIV	10970	34640	18818	27227	4855											
	KZ	LIV	0	88	0	0	1150	1 met: i) significant increase	C(100%)									
XX (X)	LIV	0	0	0	0	3678	2 met: i) significant increase; vi) legal acquisition (a)*		C(100%)									
<i>Chlamydotis undulata</i> (I) (1975)	MA	EGL	50	0	0	0	0	1 met: ii) significant volume			C(100%)		VU ↓ (2016)	ABW: 1.5kg; NO: 2.5; NOY: 2.5; FAM: 1.75				
		LIV	2453	4046	4003	1810	3998											
Passeriformes: Estrildidae																		
<i>Lonchura oryzivora</i> (II) (1997)	CU (X)†	LIV	17950	23500	19800	12300	1300	2 met: ii) significant volume; vi) legal acquisition (a)*			C(100%)		✓	EN ↓ (2020)	ABW: 24.8g; NO: 4.9; NOY: 12.3			
		CY(X)†	LIV	300	0	0	0									650	1 met: i) significant increase*	C(100%)
		CZ (X)	LIV	222	303	751	1508									330	1 met: ii) significant volume*	C(100%)
Piciformes: Ramphastidae																		
<i>Ramphastos toco</i> (II) (1992)	ZA (X)	BOD	4	1	0	4	0	1 met: ii) significant volume*			C(100%)			LC ↓ (2016)	ABW: 0.6kg; NO: 2.9			
		LIV	0	2000	660	230	10											
		TRO	0	0	0	4	1											

Species (current Appendix (year first listed in the CITES Appendices)	Exporter	Term	2017	2018	2019	2020	2021	Criteria met	Quotas	Suspensions	% trade by source 2017-2021	Endemic	IUCN Red List	Life history traits				
Psittaciformes: Loriidae																		
<i>Trichoglossus chlorolepidotus</i> (II) (1981)	TW (X)†	EGL	0	0	9	0	0	1 met: i) significant increase*			C(100%)	✓	LC	ABW: Stable (2018) NO: 2; FAM: 1				
		LIV	0	0	0	50	240											
Psittaciformes: Psittacidae																		
<i>Agapornis fischeri</i> (II) (1981)	CU (X)†	LIV	15650	18970	20700	13300	860	2 met: ii) significant volume; vi) legal acquisition (a)*			C(100%)		NT ↓ (2020)	ABW: 68.2g; NO: 5.3				
		PH (X)†	LIV	27198	9267	13434	9090								28979	2 met: ii) significant volume; vi) legal acquisition (a)*	✓	C(100%)
		ZA (X)	LIV	91185	142070	100920	102311								124232	2 met: ii) significant volume; vi) legal acquisition (a)*		C(100%)
TRO	0		0	1	0	0												
<i>Agapornis lilianae</i> (II) (1981)	ZA (X)	LIV	29140	17200	27300	20900	28500	2 met: ii) significant volume; vi) legal acquisition (b)*			C(100%)		NT ↓ (2018)	ABW: 37.5g; NO: 5.7				
<i>Agapornis nigrigenis</i> (II) (1981)	ZA (X)	LIV	25790	23000	27250	24870	28500	2 met: ii) significant volume; vi) legal acquisition (b)*			C(100%)		VU ↓ (2016)	ABW: 40.5g; NO: 4.9				

Species (current Appendix) (year first listed in the CITES Appendices)	Exporter	Term	2017	2018	2019	2020	2021	Criteria met	Quotas	Suspensions	% trade by source 2017-2021	Endemic	IUCN Red List	Life history traits
<i>Agapornis personatus</i> (II) (1981)	LK (X)†	LIV	0	0	0	176	1124	2 met: i) significant increase; vi) legal acquisition (a)*			C(96.92%); F(3.08%)		LC Stable (2018)	ABW: 52.5g; NO: 5.3
<i>Amazona aestiva</i> (II) (1981)	ZA (X)	BOD	0	0	0	0	3	2 met: ii) significant volume; vi) legal acquisition (b)*			C(99.77%); D(0.12%); F(0.12%)		NT ↓ (2019)	ABW: 0.4kg; NO: 3
		LIV	7893	8075	9388	7760	12025							
		TRO	2	1	1	0	6							
<i>Aratinga solstitialis</i> (II) (1981)	ZA (X)	LIV	12607	21599	27863	29325	41607	2 met: ii) significant volume; vi) legal acquisition (a)*			C(99.78%); D(0.22%)		EN ↓ (2021)	ABW: 0.1kg; NO: 4
		TRO	0	3	1	1	1							
<i>Neophema elegans</i> (II) (1981)	ZA (X)	LIV	200	0	0	0	200	1 met: i) significant increase*			C(100%)	✓	LC ↑ (2016)	ABW: 89.5g; NO: 4.9; FAM: 1
<i>Neophema pulchella</i> (II) (1981)	ZA (X)	LIV	640	95	395	4070	9430	2 met: i) significant increase; vi) legal acquisition (a)*			C(100%)	✓	LC Stable (2016)	ABW: 73.1g; NO: 4.6; FAM: 1
		TRO	0	1	0	0	1							
<i>Neophema splendida</i> (II) (1981)	TW (X)†	EGL	0	0	0	150	120	1 met: i) significant increase*			C(100%)	✓	LC Stable (2016)	ABW: 72g; NO: 4; FAM: 1

Species (current Appendix) (year first listed in the CITES Appendices)	Exporter	Term	2017	2018	2019	2020	2021	Criteria met	Quotas	Suspensions	% trade by source 2017-2021	Endemic	IUCN Red List	Life history traits
<i>Neopsephotus bourkii</i> (II) (1981)	ZA (X)	LIV	462	14	0	950	2775	2 met: i) significant increase; vi) legal acquisition (a)*			C(100%)	✓	LC ↑ (2016)	ABW: 73.7g; NO: 4; FAM: 1
<i>Platycercus elegans</i> (II) (1981)	PT (X)	LIV	36	48023	3	0	0	1 met: ii) significant volume*			C(100%)	✓	LC ↓ (2018)	ABW: 0.2kg; NO: 5.2; FAM: 1.5
<i>Platycercus eximius</i> (II) (1981)	CY(X)†	LIV	20	80	0	0	400	1 met: i) significant increase*			C(100%)	✓	LC ↑ (2016)	ABW: 0.1kg; NO: 5.7; FAM: 1.25
<i>Psephotus haematonotus</i> (II) (1981)	CY(X)†	LIV	0	0	0	0	370	1 met: i) significant increase*			C(100%)	✓	LC ↑ (2016)	ABW: 0.1kg; NO: 5.2; FAM: 1
<i>Psittacus erithacus</i> (I) (1976)	ZA (X)	LIV	7538	6772	20791	14262	18134	2 met: ii) significant volume; vi) legal acquisition (b)*			D(94.41%); C(5.47%); F(0.11%)		EN ↓ (2020)	ABW: 0.3kg; NO: 2.8
Rheiformes: Rheidae														
<i>Rhea americana</i> (II) (1976)	NL (X)	LIV	202	80	107	13	0	1 met: ii) significant volume*			C(100%)		NT ↓ (2022)	ABW: 23kg; NO: 21.7; NOY: 21.7; FAM: 1.58

Species (current Appendix) (year first listed in the CITES Appendices)	Exporter	Term	2017	2018	2019	2020	2021	Criteria met	Quotas	Suspensions	% trade by source 2017-2021	Endemic	IUCN Red List	Life history traits
Sphenisciformes: Spheniscidae														
<i>Spheniscus demersus</i> (II) (1975)	ZA	BOD	0	0	1	0	0	1 met: ii) significant volume			C(61.11%); F(38.89%)		EN ↓ (2019)	ABW: 2.7kg; NO: 2; NOY: 3; FAM: 3
		LIV	39	39	14	6	6							
		TRO	2	0	1	0	0							
Strigiformes: Strigidae														
<i>Nyctea scandiaca</i> (II) (1979)	BE	LIV	58	24	50	18	10	1 met: ii) significant volume			C(100%)		VU ↓ (2020)	ABW: 2kg; NO: 6; FAM: 2
Trogoniformes: Trogonidae														
<i>Pharomachrus mocinno</i> (I) (1975)	MX	LIV	6	3	0	0	0	1 met: ii) significant volume			C(100%)		NT ↓ (2016)	ABW: 0.2kg; NO: 2; NOY: 4
Reptiles														
Crocodylia: Crocodylidae														
<i>Crocodylus niloticus</i> (I/II) (1975)	ZM	BAL	0	0	1845	0	0	1 met: iii) source shift (R- CDF 2019)	2017 (300 trophies and skins from 300 animals); 2021 (300); 2022 (300); 2023 (300)		R(89.22%); C(10.78%)		LC Stable (2017)	FAM: 19.01
		SKI	31853	34836	49872	22767	22867							
		SKP	45026	6000	0	9933	22086							
		SKU	0	0	0	0	10							
		TRO	0	1	0	1	0							
<i>Crocodylus porosus</i> (I/II) (1975)	PG	CAR	0	1	0	0	0	1 met: iii) source shift (W- CDFR 2019)			C(91.69%); R(7.23%); F(1.03%); D(0.05%)		LC Stable (2019)	FAM: 7
		SKI	16337	16631	10394	6322	6044							
		SKP	6697	1010	4342	739	0							
		SKU	0	0	10	0	0							
		TEE	34079	34126	47342	12371	0							

Species (current Appendix) (year first listed in the CITES Appendices)	Exporter	Term	2017	2018	2019	2020	2021	Criteria met	Quotas	Suspensions	% trade by source 2017-2021	Endemic	IUCN Red List	Life history traits
<i>Crocodylus siamensis</i> (I) (1975)	KH	LIV	48000	0	6250	0	0	1 met: ii) significant volume			D(100%)		CR ↓ (2012)	
		SKI	17062	3512	300	0	0							
	TH	BOD	146	89	29	51	0	1 met: ii) significant volume			D(99.99%); C(0.01%)		CR ↓ (2012)	
		BON	500	4	0	0	4							
		CAR	1	0	0	0	0							
		EGL	50	0	0	0	0							
		JWL	0	0	247	0	0							
		LIV	12	2043	2016	3	0							
		MEA	0	1	0	0	0							
		SKI	12324	12201	12382	13393	15974							
		SKP	0	1114	32	0	0							
		SKU	212	130	362	962	504							
	TEE	500	0	42	0	3								
	TRO	0	1	0	0	0								
	VN	BOD	5	62	0	0	100	1 met: ii) significant volume	2017 (91000 live, captive-bred); 2018 (100300 live, captive-bred)		D(99.72%); C(0.28%)		CR ↓ (2012)	
		BON	1542	2444	0	0	0							
		CAR	0	10	0	0	0							
		LIV	47902	52730	102077	0	0							
		SKI	29240	40112	10790	34972	16883							
		SKP	12694	8250	1	400	262							
SKU	0	20	0	0	0									
Sauria: Chamaeleonidae														
<i>Chamaeleo senegalensis</i> (II) (1977)	GH	LIV	0	300	200	0	0	1 met: iii) source shift (W- CDFR 2019)		✓	R(80%); C(20%)		LC ? (2012)	SVL: 13.9cm; NO: 41.4; NOY: 62.1
<i>Kinyongia boehmei</i> (II) (1977)	KE	LIV	626	975	1235	3045	3790	1 met: ii) significant volume			C(100%)		NT ? (2013)	SVL: 9.7cm; NO: 10.7

Species (current Appendix) (year first listed in the CITES Appendices)	Exporter	Term	2017	2018	2019	2020	2021	Criteria met	Quotas	Suspensions	% trade by source 2017-2021	Endemic	IUCN Red List	Life history traits
Sauria: Gekkonidae														
<i>Gekko gecko</i> (II) (2019)	ID	BOD	-	-	110000	45000	0	1 met: ii) significant volume	2020 (1689813 consumption, 20180 live (pets)); 2021 (1879813 Consumption, 20188 Live (pets)); 2022 (8073000 Consumption, 36550 Live (pets))		F(100%)		LC ? (2017)	SVL: 18.6cm; NO: 2; NOY: 5.7
<i>Phelsuma klemmeri</i> (II) (1977)	CZ (X)	LIV	0	0	67	82	180	1 met: i) significant increase*			C(100%)		EN ? (2011)	SVL: 4.3cm; NO: 1.5
<i>Ctenosaura pectinata</i> (II) (2019)	TH (X)	LIV	-	-	0	153	306	1 met: i) significant increase*			C(100%)	✓	LC ↓ (2020)	SVL: 34.7cm; NO: 40.9; NOY: 40.9
<i>Ctenosaura quinquecarinata</i> (II) (2019)	NI	LIV	-	-	300	2846	2704	1 met: i) significant increase	2020 (6000 live, captive-bred); 2021 (6000 Skins. Wild-taken.); 2022 (6000 captive- bred)		C(100%)		DD ↓ (2020)	SVL: 20cm; NO: 8
<i>Ctenosaura similis</i> (II) (2019)	NI	LIV	-	-	0	2912	3133	1 met: i) significant increase	2020 (10000 live, captive-bred, 50 skins, captive- bred); 2021 (10000 live, captive-bred, 50 skins, captive- bred); 2022 (6000 captive-bred, 50 captive-bred skins (parts and products))		C(100%)		LC Stable (2010)	SVL: 41.7cm; NO: 33.2; NOY: 33.2; FAM: 1

Species (current Appendix) (year first listed in the CITES Appendices)	Exporter	Term	2017	2018	2019	2020	2021	Criteria met	Quotas	Suspensions	% trade by source 2017-2021	Endemic	IUCN Red List	Life history traits
<i>Iguana iguana</i> (II) (1977)	SV	LIV	106693	78732	259425	247040	246561	1 met: ii) significant volume			C(99.89%); F(0.11%)		LC ? (2018)	SVL: 46.7cm; NO: 34.7; NOY: 34.7; FAM: 4.49
	TH (X)	LIV	0	0	165	442	776	1 met: i) significant increase*			C(100%)		LC ? (2018)	SVL: 46.7cm; NO: 34.7; NOY: 34.7; FAM: 4.49
Sauria: Teiidae														
<i>Salvator merianae</i> ²⁵ (II) (1977)	AR	LIV	1911	1068	2450	2200	1220	1 met: iii) source shift (R- CDF 2019)			C(100%)		LC Stable (2014)	SVL: 42cm; NO: 21.9; NOY: 21.9
	TH (X)	LIV	0	0	30	650	985	1 met: i) significant increase*			C(100%)		LC Stable (2014)	SVL: 42cm; NO: 21.9; NOY: 21.9
Serpentes: Colubridae														
<i>Ptyas mucosus</i> (II) (1984)	ID	LIV	76100	49900	68500	0	0	1 met: ii) significant volume	See ²⁶		F(59.13%); C(40.87%)		NE	
Serpentes: Pythonidae														
<i>Python bivittatus</i> (II) (1977)	VN	EGL	1000	0	0	0	0	1 met: ii) significant volume			C(100%)		VU ↓ (2011)	FAM: 3
		GAB	10	0	0	0	0							
		LIV	598	2165	2110	0	0							
		SKI	158210	133227	109971	62491	51000							

²⁵ *Salvator* was split from *Tupinambis* in 2017, following taxonomic changes adopted at CoP17.

²⁶ 2017 (405 live, 89550 skins and skin products); 2018 (407 live, 20250 skins, 69300 skins and skin products); 2019 (71550 live, 18000 skins and skin products); 2020 (13871 live (consumption), 334 live, wild-taken (pets), 15570 skins and skin products); 2021 (in prep., 430 Live (pets), 15750 Skin (Including meat and body organs)); 2022 (77473 Consumption, 427 Live (pets), 16626 Skin (Including meat and body organs)).

Species (current Appendix) (year first listed in the CITES Appendices)	Exporter	Term	2017	2018	2019	2020	2021	Criteria met	Quotas	Suspensions	% trade by source 2017-2021	Endemic	IUCN Red List	Life history traits
<i>Python breitensteini</i> (II) (1977)	ID	LIV	42	0	1619	111	60	1 met: iii) source shift (W- CDFR 2019)	See ²⁷		F(97.38%); C(2.62%)		LC ? (2011)	

²⁷ 2017 (1170 live, 11250 skins and skin products); 2018 (585 live, 11250 skins and skin products); 2019 (585 live, 11250 skins and skin products); 2020 (618 Live, wild-taken, 11250 skins and skin products); 2021 (618 Live (pets), 11875 Skin (Including meat and body organs)); 2022 (617 Live (pets), 11875 Skin (Including meat and body organs)).

Species (current Appendix) (year first listed in the CITES Appendices)	Exporter	Term	2017	2018	2019	2020	2021	Criteria met	Quotas	Suspensions	% trade by source 2017-2021	Endemic	IUCN Red List	Life history traits
<i>Python regius</i> (II) (1977)	BJ	LIV	22130	2470	5570	13530	20885	1 met: ii) significant volume	See ²⁸		R(96.9%); C(3.1%)		NT ↓ (2020)	FAM: 5
	DE (X)	LIV	879	1105	3087	4326	4631	1 met: ii) significant volume*			C(100%)		NT ↓ (2020)	FAM: 5
	GH	LIV	11225	11835	10340	1150	35210	1 met: ii) significant volume	See ²⁹		R(97.13%); C(2.87%)		NT ↓ (2020)	FAM: 5
	TG	LIV	58787	60502	56278	12704	4587	1 met: ii) significant volume	See ³⁰		R(94.03%); F(5.97%)		NT ↓ (2020)	FAM: 5
	US (X)	LIV	7816	6252	6627	5823	9711	2 met: ii) significant volume; vi) legal acquisition (b)*			C(99.35%); R(0.55%); F(0.1%)		NT ↓ (2020)	FAM: 5

²⁸ 2017 (45000 ranched, 1000 wild-taken); 2018 (22000 ranched, 500 wild-taken); 2019 (22000 ranched, 200 wild-taken); 2020 (22000 Ranched, 200 Wild-taken); 2021 (500 captive bred specimens, 32000 ranched, 200 wild-taken); 2022 (500 Captive bred specimens, 32000 ranched, 200 wild taken); 2023 (32000 Ranched, 200 Wild).

²⁹ 2017 (200 captive-bred, 60000 ranched, 7000 wild-taken); 2018 (200 captive-bred, 60000 ranched); 2020 (60000 All. Ranched specimens (Note: Animals Committee or Standing Committee recommendation), 200 All. Specimens bred in captivity (Note: Animals Committee or Standing Committee recommendation)); 2021 (60000 All. Ranched specimens (Note: Animals Committee or Standing Committee recommendation), 200 All. Specimens bred in captivity (Note: Animals Committee or Standing Committee recommendation)); 2022 (60000 All. Ranched specimens (Note: Animals Committee or Standing Committee recommendation), 200 All. Specimens bred in captivity (Note: Animals Committee or Standing Committee recommendation)); 2023 (200 All, captive-bred (Note: Animals Committee or Standing Committee recommendation), 60000 All, ranched (Note: Animals Committee or Standing Committee recommendation), 7000 Wild).

³⁰ 2017 (62500 ranched, 1500 wild-taken); 2018 (62500 ranched, 1500 wild-taken); 2019 (62500 ranched, 1500 wild-taken); 2020 (62500 All. Ranched specimens (Note: Animals Committee or Standing Committee recommendation), 1500 All. Wild specimens (Note: Animals Committee or Standing Committee recommendation)); 2021 (62500 All. Ranched specimens (Note: Animals Committee or Standing Committee recommendation), 1500 All. Wild specimens (Note: Animals Committee or Standing Committee recommendation)); 2022 (62500 All. Ranched specimens (Note: Animals Committee or Standing Committee recommendation), 1500 All. Wild specimens (Note: Animals Committee or Standing Committee recommendation)); 2023 (62500 All, ranched (Note: Animals Committee or Standing Committee recommendation), 1500 All. Wild specimens (Note: Animals Committee or Standing Committee recommendation)).

Species (current Appendix) (year first listed in the CITES Appendices)	Exporter	Term	2017	2018	2019	2020	2021	Criteria met	Quotas	Suspensions	% trade by source 2017-2021	Endemic	IUCN Red List	Life history traits
<i>Python sebae</i> (II) (1977)	GH	LIV	60	200	40	34	3025	1 met: i) significant increase	2017 (1000 ranchd, 360 wild-taken); 2018 (1000 ranchd, 360 wild-taken); 2021 (0 captive- bred, 1000 ranchd, 360 wild taken); 2023 (1000 ranchd, 360 wild-taken)		R(100%)		NT ↓ (2019)	FAM: 3.25
Testudines: Carettochelyidae														
<i>Carettochelys insculpta</i> ³¹ (II) (2005)	ID	LIV	125	77	2237	254	410	2 met: iii) source shift (W- CDFR 2021;W- CDFR 2020); vii) difficult to captive breed			R(69.8%); F(22.04%); C(8.15%)		EN ↓ (2017)	
Testudines: Geoemydidae														
<i>Mauremys mutica</i> (II) (2003)	CN	LIV	0	100	236	0	1220	1 met: i) significant increase			C(100%)		CR ↓ (2018)	
Testudines: Podocnemididae														
<i>Podocnemis unifilis</i> (II) (1975)	PE	LIV	799766	616602	266550	216500	473603	1 met: ii) significant volume			R(66.95%); F(19.8%); C(13.25%)		VU ? (1996)	

³¹ *Centrochelys* was split from *Geochelone* in 2017, following taxonomic changes adopted at CoP17.

Species (current Appendix) (year first listed in the CITES Appendices)	Exporter	Term	2017	2018	2019	2020	2021	Criteria met	Quotas	Suspensions	% trade by source 2017-2021	Endemic	IUCN Red List	Life history traits
Testudines: Testudinidae														
<i>Aldabrachelys gigantea</i> (II) (1977)	MU (In)	LIV	512	272	659	598	1119	2 met: vi) legal acquisition (b); vii) difficult to captive breed			C(99.02%); F(0.98%)		VU ? (1996)	FAM: 25.02
<i>Centrochelys sulcata</i> ³² (II) (1977)	BJ	LIV	30	30	50	450	100	1 met: iii) source shift (R- CDF 2021)	See ³³		R(62.12%); C(37.88%)		EN ↓ (2020)	SVL: 10m; NO: 17; NOY: 42.5; FAM: 9.5
	ML	LIV	3623	3220	2265	4550	6352	1 met: iii) source shift (W- CDFR 2020)	2017 (0 wild- taken (Note: see annotation to this species included in Appendix II). Originally submitted under the synonym <i>Geochelone sulcata</i> (Miller, 1779))		F(64.79%); C(35.21%)			

³² *Centrochelys* was split from *Geochelone* in 2017, following taxonomic changes adopted at CoP17.

³³ 2017 (50 captive-bred. Originally submitted under the synonym *Geochelone sulcata* (Miller, 1779), 10 ranched. Originally submitted under the synonym *Geochelone sulcata* (Miller, 1779)); 2020 (0 All. Specimens removed from the wild and traded for primarily commercial purposes (Note: established by the Conference of the Parties), 200 captive bred specimens); 2021 (0 All. Specimens removed from the wild and traded for primarily commercial purposes (Note: established by the Conference of the Parties), 200 captive bred specimens); 2022 (0 All. Specimens removed from the wild and traded for primarily commercial purposes (Note: established by the Conference of the Parties), 200 Captive bred specimens); 2023 (0 All for commercial purposes (Note: established by the Conference of the Parties))

Species (current Appendix) (year first listed in the CITES Appendices)	Exporter	Term	2017	2018	2019	2020	2021	Criteria met	Quotas	Suspensions	% trade by source 2017-2021	Endemic	IUCN Red List	Life history traits
<i>Kinixys erosa</i> (II) (1977)	TG	LIV	20	260	195	0	173	1 met: iii) source shift (W- CDFR 2019)			F(52.78%); R(47.22%)		DD ? (1996)	
<i>Testudo graeca</i> (II) (1977)	JO	LIV	4000	3733	2220	6050	3325	1 met: iii) source shift (W- CDFR 2020)	See ³⁴		C(100%)		VU ? (2004)	FAM: 10.13
<i>Testudo hermanni</i> (II) (1977)	MK	LIV	20850	17520	12990	20759	15522	1 met: ii) significant volume			C(100%)		NT ↓ (2004)	FAM: 12.62
<i>Testudo horsfieldii</i> (II) (1977)	UZ	LIV	59300	66016	49350	57967	79587	2 met: ii) significant volume; iii) source shift (R- CDF 2020;R- CDF 2019)	See ³⁵		F(50.83%); R(35.35%); C(13.82%)		VU ? (1996)	

³⁴ 2019 (0 live, wild-taken); 2020 (0 All. Wild specimens (Note: Animals Committee or Standing Committee recommendation)); 2021 (0 All. Wild specimens (Note: Animals Committee or Standing Committee recommendation)); 2022 (0 All. Wild specimens (Note: Animals Committee or Standing Committee recommendation)); 2023 (0 All for commercial purposes (Note: Animals Committee or Standing Committee recommendation)).

³⁵ 2017 (30600 live, captive-bred, 31300 live, ranched, 85000 live, wild-taken, 11900 parts and derivatives, born in captivity(F1 or subsequent generation)); 2018 (32270 born in captivity (For subsequent generation) as well as parts and derivatives, 11500 live, captive-bred, 41650 live, ranched, 30000 live, wild-taken); 2019 (55300 born in captivity (F or subsequent generation) as well as parts and derivatives, 11000 live, captive-bred, 10000 live, ranched, 27000 live, wild-taken); 2020 (6000 All. Specimens bred in captivity, 26446 Live. Born in captivity(F1), 17100 Live. Ranched specimens, 14458 Live. Wild specimens for commercial purposes); 2021 (47198 Live. Born in captivity (F1), 2500 Live. Captive bred, 7125 Live. Ranched specimens, 109 live specimens for commercial purposes, 960 Seized wild specimens traded for commercial purposes); 2022 (106081 Live. Born in captivity (F1), 10021 live captive-bred specimens, 300 Live. Ranched specimens., 6728 Live. Wild specimens for commercial purposes).

Species (current Appendix) (year first listed in the CITES Appendices)	Exporter	Term	2017	2018	2019	2020	2021	Criteria met	Quotas	Suspensions	% trade by source 2017-2021	Endemic	IUCN Red List	Life history traits
Amphibians														
Anura: Bufonidae														
<i>Nectophrynoides asperginis</i> (I) (1975)	US (X)	LIV	600	2800	1000	0	0	1 met: ii) significant volume*			F(77.27%); C(22.73%)		EW ? (2014)	SVL: 2.2cm; NO: 16.2; NOY: 16.2; FAM: 0.75
Anura: Dendrobatidae														
<i>Dendrobates auratus</i> (II) (1987)	DE (X)	LIV	23	27	55	218	841	1 met: i) significant increase*			C(100%)		LC ↓ (2019)	SVL: 4.2cm; NO: 7.6; NOY: 49.4; FAM: 1
	NI	LIV	1105	2146	4043	4879	4367	1 met: ii) significant volume	2019 (4000 live, captive-bred); 2020 (5000 live, captive-bred); 2021 (5000 live captive-bred); 2022 (5000 live captive-bred)		C(100%)		LC ↓ (2019)	SVL: 4.2cm; NO: 7.6; NOY: 49.4; FAM: 1
<i>Epipedobates anthonyi</i> (II) (1987)	DE (X)	LIV	41	0	0	0	670	1 met: ii) significant volume*			C(100%)		NT ↓ (2018)	SVL: 2.6cm; NO: 24; NOY: 252; FAM: 0.75
<i>Oophaga histrionica</i> (II) (1987)	CO	LIV	115	304	254	171	187	2 met: ii) significant volume; vii) difficult to captive breed			C(93.02%); F(6.98%)		CR ↓ (2019)	SVL: 3.8cm; NO: 105.5; NOY: 105.5; FAM: 1

Species (current Appendix) (year first listed in the CITES Appendices)	Exporter	Term	2017	2018	2019	2020	2021	Criteria met	Quotas	Suspensions	% trade by source 2017-2021	Endemic	IUCN Red List	Life history traits
<i>Oophaga pumilio</i> (II) (1987)	NI	LIV	4890	4270	10825	8704	8444	1 met: ii) significant volume	2017 (8000 live, captive-bred); 2019 (9000 live, captive-bred); 2020 (9000 Live, born in captivity); 2021 (9000 Live, born in captivity); 2022 (9000 live captive-bred)		F(64.41%); C(35.59%)		LC ? (2014)	SVL: 2.5cm; NO: 7.1; NOY: 74.8; FAM: 1
<i>Ranitomeya fantastica</i> (II) (1987)	CA (X)	LIV	234	381	219	82	30	1 met: ii) significant volume*			C(100%)	✓	VU ? (2017)	SVL: 2.3cm; NO: 5; NOY: 5; FAM: 0.75
Anura: Hylidae														
<i>Agalychnis callidryas</i> (II) (2010)	NI	LIV	22679	20344	25666	28730	35385	1 met: ii) significant volume	2017 (35000 live, captive-bred); 2019 (35000 live, captive-bred); 2020 (35000 live, captive-bred); 2021 (35000 live captive-bred); 2022 (40000 live captive-bred)		C(100%)		LC ↓ (2016)	SVL: 7.7cm; NO: 167.8; NOY: 167.8; FAM: 1
Caudata: Ambystomatidae														
<i>Ambystoma mexicanum</i> (II) (1975)	AT (X)	EGL	0	1180	0	2000	1200	1 met: ii) significant volume*			C(100%)		CR ↓ (2019)	SVL: 30cm; FAM: 1.5
		LIV	0	1180	0	1340	1080							
	DE (X)	EGL	0	0	0	400	2200	1 met: i) significant increase*			C(100%)			
		LIV	13	2	6	0	191							

Species (current Appendix) (year first listed in the CITES Appendices)	Exporter	Term	2017	2018	2019	2020	2021	Criteria met	Quotas	Suspensions	% trade by source 2017-2021	Endemic	IUCN Red List	Life history traits	
Cartilaginous and bony fish															
Acipenseriformes: Acipenseridae															
<i>Acipenser baerii</i> (II) (1998)	BE (X)	CAV	11	4749	0	0	7314	1 met: i) significant increase*			C(100%)		CR ↓ (2019)	ABL: 2m	
		FR (X)	CAV	100001	10	2.98	12344	19025	1 met: ii) significant volume*						
		EGL	685000	0	0	0	60000								
		FIG	252000	960	0	0	2090								
		SKI	0	0	0	25	4								
	HU (X)	CAV	130	0	0	0	0	1 met: ii) significant volume*							
		EGL	10000	17000	0	240120	0								
		FIG	10000	10000	0	0	4000								
		LIV	17000	4000	0	0	26000								
	PL (X)	BOD	0	0	0	0	300	2 met: ii) significant volume; iii) source shift (W- CDFR 2019)*							
		CAV	0	334	800051	0	2930								
		EGL	0	900000	900000	0	100000								
		MEA	0	0	0	0	300								
	<i>Acipenser gueldenstaedtii</i> (II) (1998)	BE (X)	CAV	11	3059	20	10562	20855	1 met: i) significant increase*			C(100%)		CR ↓ (2009)	ABL: 2.4m; FAM: 14
LIV			0	0	237	0	1081								
KR (X)		CAV	0	37067	15482106	8360060	3360000	2 met: ii) significant volume; vi) legal acquisition (a)*			C(99.9%); R(0.1%)				
PL (X)		CAV	0	334	500958	4	0	1 met: ii) significant volume*			C(100%)				
		EGL	200000	200000	300000	0	0								
<i>Acipenser stellatus</i> (II) (1998)		IT (X)	CAV	0	0	0	0	0.5	1 met: i) significant increase*			C(100%)		CR ↓ (2009)	ABL: 2.5m; FAM: 9
	EGL		0	0	60000	0	100000								

Species (current Appendix) (year first listed in the CITES Appendices)	Exporter	Term	2017	2018	2019	2020	2021	Criteria met	Quotas	Suspensions	% trade by source 2017-2021	Endemic	IUCN Red List	Life history traits
<i>Acipenser transmontanus</i> (II) (1998)	IT (X)	CAV	0	0	12	11992	15421	1 met: i) significant increase*			C(100%)		VU Stable (2020)	ABL: 6.1m; FAM: 22.5
		SKI	0	0	0	0	6							
Anguilliformes: Anguillidae														
<i>Anguilla anguilla</i> (II) (2009)	MA	BAL	0	0	1910	0	0	2 met: i) significant increase; ii) significant volume	See ³⁶		R(100%)		CR ↓ (2007)	ABL: 1.2m; FAM: 12.5
		LIV	0	0	0	0	4960							
	PE (X)	LIV	0	0	0	0	850	1 met: i) significant increase*			C(100%)			
Ceratodontiformes: Neoceratodontidae														
<i>Neoceratodus forsteri</i> (II) (1975)	AU	LIV	192	215	295	297	246	1 met: ii) significant volume			C(97.19%); F(2.81%)		EN Stable (2019)	ABW: 1.7kg; NO: 75; FAM: 20
Osteoglossiformes: Arapaimidae														
<i>Arapaima gigas</i> (II) (1975)	TH (X)	LIV	200	0	22	563	968	2 met: i) significant increase; vi) legal acquisition (a)*			C(94.3%); D(5.7%)		DD ? (1996)	ABL: 4.5m
Osteoglossiformes: Osteoglossidae														
<i>Scleropages formosus</i> ³⁷ (I) (1975)	MU	FIG	0	10000	0	0	0	1 met: ii) significant volume			D(99.96%); C(0.02%); R(0.02%)		EN ↓ (2019)	ABL: 90cm
		LIV	218012	222727	213960	250559	83932							

³⁶ 2019 (in prep. kg adult [Aquaculture], 5e+05 kg adult [raised in aquaculture based on a harvest of 2t on glass eels], 0 glass eels, 5500 kg wild-taken adult eels); 2020 (5e+05 kg Adult [raised in aquaculture based on a harvest of 2t on glass eels], 0 glass eels, 5500 kg wild-taken adult eels); 2021 (5e+05 kg Adult [raised in aquaculture based on a harvest of 2t on glass eels], 0 glass eels, 5500 kg Wild-taken adult eels); 2022 (5e+05 kg Adult [raised in aquaculture based on a harvest of 2t on glass eels], 0 glass eels, 5500 kg Wild-taken adult eels); 2023 (5500 kg Adult, 5e+05 kg Adult [raised in aquaculture based on a harvest of 2t on glass eels], 0 Glass eels).

³⁷ *Scleropages formosus* was split into *Scleropages formosus*, *Scleropages inscriptus* in 2017, following taxonomic changes adopted at CoP17.

Species (current Appendix) (year first listed in the CITES Appendices)	Exporter	Term	2017	2018	2019	2020	2021	Criteria met	Quotas	Suspensions	% trade by source 2017-2021	Endemic	IUCN Red List	Life history traits
Perciformes: Labridae														
<i>Cheilinus undulatus</i> (II) (2005)	ID	LIV	8000	10000	6900	4000	0	1 met: ii) significant volume	See ³⁸		R(100%)		EN ↓ (2004)	ABL: 1.4m
Siluriformes: Pangasiidae														
<i>Pangasianodon gigas</i> (I) (1975)	TH	LIV	30	60	0	30	0	1 met: ii) significant volume			D(100%)		CR ↓ (2011)	ABL: 3m
Syngnathiformes: Syngnathidae														
<i>Hippocampus kuda</i> ³⁹ (II) (2004)	TW	LIV	4400	5428	835	50	1700	1 met: ii) significant volume			C(100%)		VU ↓ (2012)	ABL: 30cm
<i>Hippocampus reidi</i> (II) (2004)	LK (X)†	LIV	12010	8820	6200	3610	1460	2 met: ii) significant volume; vi) legal acquisition (b)*			C(100%)		NT ↓ (2016)	
Non-coral invertebrates														
Araneae: Theraphosidae														
<i>Brachypelma albiceps</i> ⁴⁰ (II) (1995)	DE (X)	LIV	4	0	403	249	888	1 met: i) significant increase*			C(100%)		LC ↓ (2018)	
<i>Brachypelma boehmei</i> (II) (1995)	MX	LIV	1500	497	2188	400	1000	1 met: ii) significant volume			C(100%)		EN ↓ (2018)	ABL: 5.5cm
<i>Brachypelma hamorii</i> (II) (1995)	DE (X)	LIV	100	950	3037	3027	3190	1 met: ii) significant volume*			C(100%)		VU ↓ (2018)	ABL: 5.1cm

³⁸ 2017 (in prep. live); 2018 (1800 wild (Note: reference is made to Notification to the Parties 2018/022 of 27 February 2018)); 2019 (15000 live, ranched, 1800 live, wild-taken); 2020 (6500 live, ranched); 2021 (2000 Rancing at Kabupaten Anambas, 3000 Rancing at Kabupaten Natuna).

³⁹ *Hippocampus kuda* was lumped from *Hippocampus borboniensis*, *Hippocampus kuda*, *Hippocampus fuscus* in 2019, following taxonomic changes adopted at CoP18.

⁴⁰ *Brachypelma albiceps* was originally listed as *Aphonopelma albiceps*, which was subject to a nomenclature change in 2023, following taxonomic changes adopted at CoP19.

Species (current Appendix) (year first listed in the CITES Appendices)	Exporter	Term	2017	2018	2019	2020	2021	Criteria met	Quotas	Suspensions	% trade by source 2017-2021	Endemic	IUCN Red List	Life history traits
<i>Brachypelma smithi</i> ⁴¹ (II) (1995)	MX	LIV	291	1679	2354	600	1154	1 met: ii) significant volume			C(100%)		NT ↓ (2018)	ABL: 6.5cm; NO: 600
<i>Poecilotheria formosa</i> (II) (2019)	DE (X)	LIV	-	-	0	100	347	1 met: i) significant increase*			C(100%)	✓	EN ↓ (2008)	
<i>Poecilotheria metallica</i> (II) (2019)	DE (X)	LIV	-	-	0	2745	4088	2 met: i) significant increase; ii) significant volume*			C(100%)	✓	CR ↓ (2008)	ABL: 5.2cm
<i>Poecilotheria regalis</i> (II) (2019)	DE (X)	LIV	-	-	0	700	1470	1 met: i) significant increase*			C(100%)	✓	LC ↓ (2008)	
<i>Poecilotheria rufilata</i> (II) (2019)	DE (X)	LIV	-	-	0	586	930	1 met: i) significant increase*			C(100%)	✓	EN ↓ (2008)	
<i>Poecilotheria striata</i> (II) (2019)	DE (X)	LIV	-	-	0	115	209	1 met: i) significant increase*			C(100%)	✓	VU ↓ (2008)	

⁴¹ *Brachypelma smithi* was lumped from *Brachypelma annitha*, *Brachypelma smithi* in 2023, following taxonomic changes adopted at CoP19.

Species (current Appendix) (year first listed in the CITES Appendices)	Exporter	Term	2017	2018	2019	2020	2021	Criteria met	Quotas	Suspensions	% trade by source 2017-2021	Endemic	IUCN Red List	Life history traits
Arhynchobdellida: Hirudinidae														
<i>Hirudo medicinalis</i> (II) (1987)	AZ (X)	LIV	0	0	55000	300000	1498500	3 met: i) significant increase; ii) significant volume; vi) legal acquisition (a)*			C(100%)		NT ? (2013)	
	FR	LIV	83600	97700	107206	0	0	1 met: ii) significant volume			C(100%)		NT ? (2013)	
<i>Hirudo verbana</i> (II) (1987)	UZ	LIV	0	0	0	0	5000	1 met: i) significant increase			C(100%)		NE NE (NE)	ABW: 0.2kg
Lepidoptera: Papilionidae														
<i>Ornithoptera priamus</i> (II) (1979)	ID	BOD	6589	13140	15546	3514	5286	1 met: ii) significant volume			R(73%); F(21.02%); C(5.99%)		LC ? (2018)	FWL: 10.3cm; NO: 50
		LIV	0	0	80	0	0							
		PUP	150	300	300	0	0							
		TRO	0	100	0	0	0							
<i>Troides rhadamantus</i> (II) (1979)	PH	BOD	106	143	1460	120	770	1 met: ii) significant volume		✓	C(99.25%); F(0.75%)	✓	LC ? (2018)	FWL: 8cm; FAM: 7
		LIV	8090	9374	2549	375	41280							
		PUP	65677	75877	57745	22045	0							
Mesogastropoda: Strombidae														
<i>Strombus gigas</i> (II) (1992)	US	LIV	300	0	0	0	0	1 met: ii) significant volume			C(100%)		NE NE (NE)	ABW: 0.3kg; NO: 4e+05

Species (current Appendix) (year first listed in the CITES Appendices)	Exporter	Term	2017	2018	2019	2020	2021	Criteria met	Quotas	Suspensions	% trade by source 2017-2021	Endemic	IUCN Red List	Life history traits
Veneroida: Tridacnidae														
<i>Tridacna derasa</i> (II) (1985)	FM (In)	LIV	6110	7806	5681	615	1464	2 met: ii) significant volume; vi) legal acquisition (a)			F(81.44%); C(18.56%)		VU ? (1996)	ABW: 0.6kg
<i>Tridacna maxima</i> ⁴² (II) (1985)	EG	LIV	0	0	0	1000	4960	1 met: i) significant increase			C(100%)		NT ? (1996)	ABW: 0.2kg
	FR (X)	LIV	0	420	190	3185	3980	2 met: i) significant increase; iii) source shift (R-CDF 2021;R-CDF 2020;R-CDF 2019)*			C(100%)			
	ID	LIV	1697	474	655	250	5595	2 met: i) significant increase; iii) source shift (W-CDFR 2021)			F(99.18%); C(0.82%)			
	PF	LIV	549	75	190	2100	2700	1 met: i) significant increase			C(94.83%); F(5.17%)			

⁴² *Tridacna maxima* was split into *Tridacna maxima*, *Tridacna noae* in 2017, following taxonomic changes adopted at CoP17. *Tridacna maxima* was split into *Tridacna maxima*, *Tridacna squamosina* in 2023, following taxonomic changes adopted at CoP19.

Species (current Appendix) (year first listed in the CITES Appendices)	Exporter	Term	2017	2018	2019	2020	2021	Criteria met	Quotas	Suspensions	% trade by source 2017-2021	Endemic	IUCN Red List	Life history traits
<i>Tridacna squamosa</i> (II) (1985)	ID	LIV	6112	2996	3440	1630	7420	2 met: ii) significant volume; iii) source shift (W-CDFR 2021)			F(98.7%); C(1.3%)		NT ? (1996)	ABW: 0.4kg
Corals														
Scleractinia: Acroporidae														
<i>Acropora digitifera</i> (II) (1990)	JP	COR	0	0	0	10000	10000	1 met: i) significant increase			F(100%)		NT ↓ (2008)	
		LIV	0	0	0	0	5000							
<i>Acropora tenuis</i> (II) (1990)	JP	COR	0	0	0	30000	30000	1 met: i) significant increase			F(100%)		NT ↓ (2008)	
Scleractinia: Caryophylliidae														
<i>Euphyllia ancora</i> (II) (1990)	ID	COR	1125	404	0	445	707	1 met: ii) significant volume	2017 (19000 live); 2018 (18500 live); 2019 (16000 live); 2020 (16000 live); 2021 (12000 wild-taken (pieces)); 2022 (11500)		F(99.69%); C(0.31%)		VU ? (2008)	
		LIV	47454	14983	3280	13613	22894							
<i>Euphyllia glabrescens</i> (II) (1990)	ID	COR	1064	509	0	777	1388	1 met: ii) significant volume	2017 (12000 live); 2018 (12000 live); 2019 (11000 live); 2020 (11000 live); 2021 (9000 wild-taken (pieces)); 2022 (9000)		F(99.79%); C(0.21%)		NT ? (2008)	
		LIV	69677	25997	4828	31365	63442							

Species (current Appendix) (year first listed in the CITES Appendices)	Exporter	Term	2017	2018	2019	2020	2021	Criteria met	Quotas	Suspensions	% trade by source 2017-2021	Endemic	IUCN Red List	Life history traits
<i>Euphyllia paraancora</i> (II) (1990)	ID	COR	280	95	0	345	451	1 met: ii) significant volume	2017 (3000 live); 2018 (3000 live); 2019 (3000 live); 2020 (3000 live); 2021 (3000 wild- taken (pieces)); 2022 (3000)		F(99.79%); C(0.21%)		VU ? (2008)	
		LIV	22456	8507	3083	10987	19739							
Stolonifera: Tubiporidae														
<i>Tubipora musica</i> (II) (1985)	ID	COR	24	27	0	0	0	1 met: ii) significant volume	2017 (8500 live); 2018 (8500 live); 2019 (8500 live); 2020 (8500 live); 2021 (6500 wild- taken (pieces)); 2022 (6500)		F(100%)		NT ? (2008)	
		LIV	2026	1376	40	257	829							

Criteria iv) and v)

Table 7 provides an overview of species/country combinations that met criteria iv) and v). These criteria relate to:

- viii) **Reporting inconsistencies:** inconsistencies between source codes reported by exporting and importing Parties for specimens declared as produced in captivity;
- ix) **Incorrect application of source codes:** apparent incorrect application of captive production codes such as 'D' for Appendix-I species that have not been registered in compliance with the provisions of Resolution Conf. 12.10 (Rev. CoP15) *on Registration of operations that breed Appendix-I animal species in captivity for commercial purposes*.

In total, **15 species and 17 species/country combinations met criteria iv) and/or v)**. The Animals Committee may wish to consider whether any of these species/country combinations would merit referral to the Standing Committee.

Key to Table 7

Species: year of first listing is shown in parentheses (note that criteria iv) and v) apply only to Appendix I species).

Exporter: see Appendix 3 for ISO codes and country and territory names. Species should be considered to be native to the range State unless otherwise indicated as follows: (In) = introduced; (X) = no evidence of wild populations in country of export (from either native or introduced populations), (?) = distribution uncertain. † = exporter shares a border with a range State.

Term: see Appendix 4 for term codes and descriptions.

Exp. Quantity & Imp. Quantity: represents the exporter and importer reported quantities summed across the captive source codes (C, D, F and R) for the most recent three years of trade (2019-2021). Quantities rounded to the nearest whole number, when applicable. Data extracted from the CITES Trade Database 16th March 2023.

Criterion iv) Reporting inconsistency: inconsistencies in reported source between exporter-reported (E) and importer-reported (I), with the relevant source code pairings in parentheses after each: wild (W, which encompasses trade reported under source codes W, U, X and 'unspecified') and captive-sourced (C,D,F,R); and captive-sourced (C,D,F) and ranched (R) (see Table 3 for further details).

IUCN Red List: NE = Not Evaluated, LC = Least Concern, NT = Near Threatened, VU = Vulnerable, EN = Endangered, CR = Critically Endangered, EW = Extinct in the Wild, DD = Data Deficient.

Population trend: ↓ = declining, → = stable, ↑ = increasing, ? = unknown.

IUCN year of assessment: in brackets, where applicable e.g. (2011).

Endemic: species is native⁴³ to only one range State according to Species+.

% trade by source (2019-2021): C = captive-bred, D = Appendix I captive-bred in a registered breeding facility, F = captive-born, R = ranched.

⁴³ 'Native' includes instances where there is a reintroduced population or where occurrence within the range State is uncertain.

Table 7: Appendix I species/country combinations that met criteria iv) and v) based on direct trade in captive-produced (C, D, F, and R) specimens. See Key on p. 44.

Family	Species (year first listed in the CITES Appendices)	Exporter	Term	Exp. Quantity	Imp. Quantity	Criterion iv) Reporting inconsistency	Criterion v) Incorrect source code	IUCN Red List	Endemic	% trade by source 2019- 2021
Mammals										
Carnivora										
Felidae	<i>Panthera onca</i> (1975)	ZA (X)	LIV	22	6		✓	NT (↓) (2016)		C(95.7%); D(4.3%)
			TRO	1	2					
Proboscidea										
Elephantidae	<i>Loxodonta africana</i> (1976)	ZW	IVC	259	0	E(CDFR)-I(W)		EN (↓) (2020)		C(66.5%); R(33.5%)
			LIV	5	0					
			SKP	133	133					
			TRO	0	8					
Birds										
Falconiformes										
Falconidae	<i>Falco rusticolus</i> (1975)	QA (X)	LIV	13	0		✓	LC (→) (2020)		C(76.9%); D(23.1%)
Psittaciformes										
Cacatuidae	<i>Cacatua moluccensis</i> (1981)	ZA (X)	LIV	81	39		✓	VU (↓) (2016)	✓	C(93.8%); D(4.9%); F(1.2%)
	<i>Cacatua sulphurea</i> (1981)	ZA (In, ?)	LIV	68	24		✓	CR (↓) (2021)		C(97.1%); D(1.5%); F(1.5%)
Psittacidae	<i>Amazona auropalliata</i> (1981)	ZA (X)	LIV	835	394		✓	CR (↓) (2021)		C(93.5%); D(4.2%); F(2.3%)
	<i>Amazona oratrix</i> (1981)	ZA (X)	LIV	393	236		✓	EN (↓) (2020)		C(92.4%); D(2.5%); F(5.1%)
	<i>Anodorhynchus hyacinthinus</i> (1976)	ZA (X)	LIV	9	1		✓	VU (↓) (2016)		C(88.9%); D(11.1%)
	<i>Ara glaucogularis</i> (1981)	ZA (X)	LIV	63	9		✓	CR (→) (2021)		C(84.1%); D(15.9%)
	<i>Ara macao</i> (1976)	ZA (X)	LIV	289	578		✓	LC (↓) (2022)		C(95.5%); D(1.7%); F(2.8%)
	<i>Ara rubrogenys</i> (1981)	ZA (X)	LIV	26	9		✓	CR (↓) (2021)		C(96.2%); D(3.8%)

Family	Species (year first listed in the CITES Appendices)	Exporter	Term	Exp. Quantity	Imp. Quantity	Criterion iv) Reporting inconsistency	Criterion v) Incorrect source code	IUCN Red List	Endemic	% trade by source 2019- 2021					
	<i>Psittacus erithacus</i> (1976)	BH (X)†	LIV	2	0		✓	EN (↓) (2020)		D(100%)					
Reptiles															
Crocodylia															
Crocodylidae	<i>Crocodylus niloticus</i> (1975)	ZA	BAL	0	1190	E(CDFR)-I(W)	✓	LC (→) (2017)		C(99.4%); D(0.1%); R(0.4%)					
			BOD	1	3										
			EGG	401	357										
			EGL	260	0										
			LIV	582	4										
			MEA	83513.025	0										
			SKI	234289	270798										
			SKP	42581	827										
			SKU	410	342										
			TEE	2	21										
			TRO	3770	7										
			ZM	BAL	0						1845	E(CDF)-I(R); E(W)-I(CDFR)		LC (→) (2017)	C(42%); R(58%)
			SKI	27057	70845										
SKP	32019	54													
SKU	0	10													
TRO	1	0													
	<i>Crocodylus porosus</i> (1975)	ID	SKI	11200	8460	E(CDF)-I(R)		LC (→) (2019)	C(94.1%); R(5.9%)						
		PG	SKI	13281	22173	E(CDF)-I(R); E(CDFR)-I(W)		LC (→) (2019)	C(100%)						
			SKP	5081	0										
			SKU	10	0										
			TEE	51078	25803										

Family	Species (year first listed in the CITES Appendices)	Exporter	Term	Exp. Quantity	Imp. Quantity	Criterion iv) Reporting inconsistency	Criterion v) Incorrect source code	IUCN Red List	Endemic	% trade by source 2019- 2021
Cartilaginous and bony fish										
Osteoglossiformes										
Osteoglossidae	<i>Scleropages formosus</i> ⁴⁴ (1975)	SC (X)†	LIV	6	0		✓	EN (↓) (2019)		D(100%)

⁴⁴ *Scleropages formosus* was split into *Scleropages formosus*, *Scleropages inscriptus* in 2017, following taxonomic changes adopted at CoP17.

Criterion vi) only

Criterion vi) focuses on using the trade data to check whether there is any evidence of **legal acquisition** of the founder breeding stock for species that are traded as captive-produced by non-range States. In total, **59 species and 73 species/country combinations** met criterion vi) only and are included in [Table 8](#). An additional 12 species and 24 species/country combinations met this criterion in conjunction with criteria i), ii), iii) or vii), and are included in [Table 6](#).

It is important to note that legal acquisition can only be partially addressed by using the CITES trade data, and there are many reasons why there may be no evidence of the import of the founder breeding stock within the CITES Trade Database. A few examples of possible reasons for no evidence of legal acquisition within the CITES Trade Database include:

- Founder stocks could have been acquired prior to CITES coming into force, prior to the species being listed in the Appendices to the Convention, or prior to the accession of the relevant Parties;
- Missing annual reports may account for the lack of evidence of legal acquisition;
- Where possible, nomenclature changes have been accounted for, however some species may be selected if they were previously traded under a different taxonomic name.

In relation to concerns over legal acquisition, the Animals Committee may wish to consider whether any of these species/country combinations would merit referral to the Standing Committee.

Key to Table 8

Species: current CITES Appendix and year of first listing in the CITES Appendices are shown in parentheses.

Exporter: see Appendix 3 for ISO codes and country and territory names. (In) = introduced; (X) = no evidence of wild populations in country of export (from either native or introduced populations), (?) = distribution uncertain. † = exporter shares a border with a range State.

Term: see Appendix 4 for term codes and descriptions

Sum of trade 2019-2021: Quantities reflect gross exports across all accepted terms (see [Table 4](#)) in sources C, D, F and R. Quantities are rounded to the nearest whole number, where applicable. Data extracted from the CITES Trade Database 16th March 2023.

Criterion vi) legal acquisition: 'first import after first export' indicates that the first year of import was reported after the first year of export from the focal exporting country. 'no import' indicates that there is no evidence of any live imports (trade in terms 'egg (live)', 'fingerling', 'live' and 'pupae' from any source) into the country from any range State for the species since its inclusion in the CITES Appendices, and no evidence of any indirect imports from a non-range State since the species' inclusion in the CITES Appendices. * = no evidence of exports from any range State(s) 2012-2021, based on CITES trade data⁴⁵

IUCN Red List: NE = Not Evaluated, LC = Least Concern, NT = Near Threatened, VU = Vulnerable, EN = Endangered, CR = Critically Endangered, EW = Extinct in the Wild, DD = Data Deficient.

Population trend: ↓ = declining, → = stable, ↑ = increasing, ? = unknown

IUCN year of assessment: in brackets, where applicable e.g. (2011).

⁴⁵ Across all sources and all accepted units/terms (see Table 4). Data downloaded on 16th March 2023.

Endemic: species is native to only one range State according to Species+. 'Native' includes instances where there is a reintroduced population or where occurrence within the range State is uncertain.

Neighbouring range State: ✓ indicates that the species occurs in a neighbouring state (i.e. country shares a border with a range State, according to the distribution records within Species+). Species should be assumed to be native to the neighbouring range State unless otherwise indicated: (In) = species has been introduced to the neighbouring range State, (Ex) = species is extinct in the neighbouring range State.

% trade by source (2019-2021): C = captive-bred, D = Appendix I captive-bred in a registered breeding facility, F = captive-born, R = ranched.

Table 8: Species/country combinations that met criterion vi) (legal acquisition) only, based on direct trade in captive-produced (C, D, F, and R) specimens from non-native exporting range States. No species/country combinations in this table were subject to quotas or to current Standing Committee recommendations to suspend trade. See Key on p. 48.

Family	Species (current Appendix) (year first listed in the CITES Appendices)	Exporter	Term	Sum of trade 2019- 2021	Criterion vi) legal acquisition	IUCN Red List	Endemic	Neighbouring range State	% trade by source
Mammals									
Primates									
Cebidae	<i>Callithrix jacchus</i> (II) (1977)	ZA (X)	BOD	9	no import*	LC (↓) (2015)			C(100%)
			LIV	4816					
			SKE	3					
			SKU	27					
			TRO	35					
<i>Callithrix penicillata</i> (II) (1977)	ZA (X)	LIV	2174	no import*	LC (↓) (2015)	✓		C(100%)	
		SKU	3						
		TRO	4						
Birds									
Passeriformes									
Estrildidae	<i>Lonchura oryzivora</i> (II) (1997)	EG (X)	LIV	1970	no import*	EN (↓) (2020)	✓		C(100%)
Muscicapidae	<i>Garrulax canorus</i> (II) (2000)	MY (X)	LIV	1600	no import*	LC ? (2018)			C(100%)
Psittaciformes									
Cacatuidae	<i>Cacatua alba</i> (II) (1981)	ZA (X)	BOD	2	first import after first export*	EN (↓) (2021)	✓		C(99.96%); D(0.03%); F(0.01%)
			LIV	1					
			LIV	3					
			LIV	16459					
			SKU	1					
<i>Cacatua galerita</i> (II) (1981)	ZA (X)	BOD	2	first import after first export*	LC (↓) (2018)			C(99.9%); D(0.1%)	
		LIV	17532						
		LIV	10						
		SKU	1						
		TRO	5						
<i>Cacatua leadbeateri</i> (II) (1981)	ZA (X)	LIV	2248	first import after first export*	LC (→) (2018)	✓		C(100%)	
<i>Cacatua sanguinea</i> (II) (1981)	ZA (X)	LIV	3775	first import after first export*	LC (↑) (2018)			C(100%)	

Family	Species (current Appendix) (year first listed in the CITES Appendices)	Exporter	Term	Sum of trade 2019- 2021	Criterion vi) legal acquisition	IUCN Red List	Endemic	Neighbouring range State	% trade by source
	<i>Eolophus roseicapilla</i> (II) (1981)	ZA (X)	BOD	4	first import after first export*	LC (†) (2018)	✓		C(99.9%); D(0.09%)
			LIV	20					
			LIV	33706					
			LIV	1					
			TRO	4					
Loriidae	<i>Eos rubra</i> (II) (1981)	ZA (X)	BOD	1	first import after first export*	LC (↓) (2018)	✓		C(100%)
			LIV	2135					
	<i>Lorius garrulus</i> (II) (1981)	TW (X)†	EGL	45	first import after first export*	VU (↓) (2016)	✓	✓	C(100%)
			LIV	1521					
		ZA (X)	BOD	1	first import after first export*	VU (↓) (2016)	✓		C(100%)
			LIV	2050					
			TRO	1					
	<i>Trichoglossus haematodus</i> (II) (1981)	TW (X)†	EGG	10	first import after first export*	LC (↓) (2018)		✓	C(100%)
			EGL	370					
			LIV	2540					
		ZA (X)	BOD	1	first import after first export*	LC (↓) (2018)			C(100%)
			LIV	10725					
			SKU	2					
			TRO	3					
Psittacidae	<i>Agapornis fischeri</i> (II) (1981)	LB (X)	LIV	23000	first import after first export*	NT (↓) (2020)			C(100%)
		UZ (X)	LIV	9220	no import*	NT (↓) (2020)			C(82.98%); F(17.02%)
			LIV	645					
	<i>Agapornis personatus</i> (II) (1981)	CU (X)†	LIV	59720	no import*	LC (→) (2018)		✓ (In)	C(100%)
		UZ (X)	LIV	5550	no import*	LC (→) (2018)			C(63.64%); F(36.36%)
			LIV	500					
		ZA (X)	LIV	262767	no import*	LC (→) (2018)			C(100%)

Family	Species (current Appendix) (year first listed in the CITES Appendices)	Exporter	Term	Sum of trade 2019- 2021	Criterion vi) legal acquisition	IUCN Red List	Endemic	Neighbouring range State	% trade by source
	<i>Ara ararauna</i> (II) (1981)	ZA (X)	BOD	10	first import after first export*	LC (↓) (2018)			C(99.63%); D(0.36%)
			LIV	34100					
			LIV	1					
			LIV	79					
			SKU	9					
			TRO	19					
	<i>Ara chloropterus</i> (II) (1981)	ZA (X)	BOD	1	first import after first export*	LC (↓) (2020)			C(99.97%); D(0.03%)
			LIV	3					
			LIV	14575					
			SKU	1					
			TRO	1					
	<i>Ara severus</i> (II) (1981)	ZA (X)	BOD	1	first import after first export*	LC (↓) (2018)			C(100%)
			LIV	4510					
			TRO	2					
	<i>Aratinga jandaya</i> (II) (1981)	ZA (In,?)	LIV	15536	no import	LC (↔) (2016)			C(100%)
	<i>Aratinga solstitialis</i> (II) (1981)	PH (X)	LIV	3317	first import after first export*	EN (↓) (2021)		✓	C(100%)
			LIV	1					
		TW (In,?)	EGL	1297	no import*	EN (↓) (2021)		✓	C(100%)
			LIV	1738					
	<i>Bolborhynchus lineola</i> (II) (1981)	ZA (X)	LIV	4798	no import*	LC (↔) (2022)			C(100%)
	<i>Cyanoliseus patagonus</i> (II) (1981)	ZA (In,?)	LIV	4656	first import after first export	LC (↓) (2018)			C(100%)
	<i>Eclectus roratus</i> (II) (1981)	ZA (X)	LIV	1	first import after first export*	LC (↓) (2019)			C(99.99%); F(0.01%)
			LIV	20181					
			SKU	11					
			TRO	10					
	<i>Myiopsitta monachus</i> ⁴⁶ (II) (1981)	ZA (X)	LIV	59353	first import after first export*	LC (↑) (2018)			C(100%)

⁴⁶ *Myiopsitta monachus* was split into *Myiopsitta monachus*, *Myiopsitta luchsii* in 2023, following taxonomic changes adopted at CoP19.

Family	Species (current Appendix (year first listed in the CITES Appendices)	Exporter	Term	Sum of trade 2019- 2021	Criterion vi) legal acquisition	IUCN Red List	Endemic	Neighbouring range State	% trade by source				
	<i>Nandayus nenday</i> (II) (1981)	ZA (In,?)	LIV	2876	first import after first export	LC (†) (2018)			C(100%)				
	<i>Neopsephotus bourkii</i> (II) (1981)	CU (X)†	LIV	4320	no import*	LC (†) (2016)	✓	✓	C(100%)				
	<i>Pionites leucogaster</i> (II) (1981)	TW (X)†	EGL	729	no import*	VU (↓) (2021)		✓	C(100%)				
LIV			658										
		ZA (X)	LIV	11628	no import*	VU (↓) (2021)			C(100%)				
TRO			1										
	<i>Pionus chalcopterus</i> (II) (1981)	ZA (X)	LIV	3196	no import*	LC (↓) (2016)			C(100%)				
	<i>Platycercus adscitus</i> (II) (1981)	ZA (X)	LIV	1304	no import*	LC (†) (2016)	✓		C(100%)				
TRO			1										
	<i>Platycercus elegans</i> (II) (1981)	ZA (X)	LIV	1824	first import after first export*	LC (↓) (2018)	✓		C(100%)				
TRO			2										
	<i>Platycercus eximius</i> (II) (1981)	CU (X)†	LIV	4710	no import*	LC (†) (2016)	✓	✓	C(100%)				
ZA (X)			LIV	15185						no import*	LC (†) (2016)	✓	C(100%)
TRO			3										
	<i>Poicephalus gulielmi</i> (II) (1981)	ZA (X)	LIV	1	first import after first export*	LC (↓) (2016)			C(99.9%); F(0.1%)				
LIV			2627										
SKU			1										
TRO			6										
	<i>Primolius auricollis</i> (II) (1981)	ZA (X)	BOD	1	no import*	LC (†) (2016)			C(100%)				
LIV			6729										
TRO			1										
	<i>Psephotus haematonotus</i> (II) (1981)	CU (X)†	LIV	16556	no import*	LC (†) (2016)	✓	✓	C(100%)				
ZA (X)			LIV	44447						no import*	LC (†) (2016)	✓	C(99.93%); F(0.07%)
LIV	25												
	<i>Psittacula alexandri</i> (II) (1981)	ZA (X)	LIV	3907	first import after first export*	NT (↓) (2016)			C(100%)				
TRO			1										
	<i>Psittacula cyanocephala</i> (II) (1981)	ZA (X)	BOD	2	no import*	LC (↓) (2016)			C(100%)				
LIV			5775										
TRO			3										

Family	Species (current Appendix) (year first listed in the CITES Appendices)	Exporter	Term	Sum of trade 2019- 2021	Criterion vi) legal acquisition	IUCN Red List	Endemic	Neighbouring range State	% trade by source
	<i>Psittacula derbiana</i> (II) (1981)	ZA (X)	LIV	5692	no import*	NT (↓) (2016)			C(99.18%); D(0.82%)
			LIV	20					
			TRO	2					
	<i>Psittacula eupatria</i> (II) (1981)	ZA (X)	BOD	4	first import after first export*	NT (↓) (2016)			C(100%)
			LIV	13930					
			SKU	2					
			TRO	7					
	<i>Psittacus erithacus</i> (I) (1976)	PH (X)†	LIV	152	first import after first export*	EN (↓) (2020)		✓	D(98.86%); C(1.14%)
			LIV	1474					
			LIV	1					
	<i>Pyrrhura molinae</i> (II) (1981)	TW (X)†	EGG	84	no import*	LC (↓) (2018)		✓	C(100%)
			EGL	2806					
			LIV	4213					
		ZA (X)	LIV	123135	no import*	LC (↓) (2018)			C(100%)
Reptiles									
Crocodylia									
Crocodylidae	<i>Crocodylus niloticus</i> (I/II) (1975)	SG (X)†	SKI	4347	first import after first export*	LC (→) (2017)		✓ (Ex)	C(100%)
		TN (X)	BOD	112	first import after first export*	LC (→) (2017)			C(100%)
			EGG	206					
			EGL	273					
			LIV	540					
			SKE	4					
			SKU	1					
			TEE	1000					
Sauria									
Agamidae	<i>Uromastyx acanthinura</i> (II) (1977)	ML (X)	LIV	1200	no import*	NT (↓) (2019)			C(92.31%); F(7.69%)
			LIV	1518					
Chamaeleonidae	<i>Chamaeleo calyptratus</i> (II) (1977)	UA (X)	LIV	12373	no import*	LC (→) (2012)			C(100%)

Family	Species (current Appendix) (year first listed in the CITES Appendices)	Exporter	Term	Sum of trade 2019- 2021	Criterion vi) legal acquisition	IUCN Red List	Endemic	Neighbouring range State	% trade by source
Eublepharidae	<i>Goniurosaurus hainanensis</i> (II) (2019)	TH (X)	LIV	3235	no import*	NT (→) (2019)	✓		C(100%)
Gekkonidae	<i>Phelsuma grandis</i> (II) (1977)	TH (X)	LIV	24796	first import after first export*	LC ? (2010)			C(100%)
Serpentes									
Pythonidae	<i>Morelia spilota</i> (II) (1977)	CA (X)	LIV	2236	first import after first export*	LC (↓) (2017)			C(90.58%); F(9.42%)
	<i>Python regius</i> (II) (1977)	CA (X)	LIV	646	first import after first export*	NT (↓) (2020)			C(95.19%); F(4.81%)
Testudines									
Testudinidae	<i>Chelonoidis carbonarius</i> ⁴⁷ (II) (1977)	BB (In, Ex)	LIV	4084	no import	NE			C(100%)
		SV (X)	LIV	27329	no import*	NE			C(100%)
	<i>Geochelone elegans</i> (I) (1975)	JO (X)	LIV	9328	no import*	VU (↓) (2018)			C(100%)
	<i>Stigmochelys pardalis</i> (II) (1977)	SV (X)	LIV	26107	no import*	LC ? (2014)			C(99.59%); F(0.41%)
Amphibians									
Anura									
Dendrobatidae	<i>Dendrobates tinctorius</i> (II) (1987)	CA (X)	LIV	2522	first import after first export*	LC (→) (2008)			C(98.58%); F(1.42%)
Cartilaginous and bony fish									
Acipenseriformes									
Acipenseridae	<i>Acipenser baerii</i> (II) (1998)	CH (X)	LIV	4600	no import*	CR (↓) (2019)			C(100%)
		MG (X)†	CAV	18277	no import*	CR (↓) (2019)		✓	C(100%)
			LIV	20					
		UA (X)	FIG	20000	no import*	CR (↓) (2019)			C(100%)
		LIV	18906						
	<i>Acipenser sinensis</i> (II) (1998)	KR (X)	CAV	8290	no import*	CR (↓) (2019)			C(100%)
Osteoglossiformes									
Arapaimidae	<i>Arapaima gigas</i> (II) (1975)	MY (X)	LIV	1821	no import*	DD ? (1996)			C(100%)

⁴⁷ *Chelonoidis carbonarius* was originally listed as *Chelonoidis carbonaria*, which was subject to a nomenclature change in 2017, following taxonomic changes adopted at CoP17.

Family	Species (current Appendix) (year first listed in the CITES Appendices)	Exporter	Term	Sum of trade 2019- 2021	Criterion vi) legal acquisition	IUCN Red List	Endemic	Neighbouring range State	% trade by source
Osteoglossidae	<i>Scleropages formosus</i> ⁴⁸ (I) (1975)	SG (In)	LIV	550	first import after first export	EN (↓) (2019)			D(99.85%); C(0.15%)
			LIV	63376					
			LIV	500					
Syngnathiformes									
Syngnathidae	<i>Hippocampus comes</i> (II) (2004)	LK (X)†	LIV	10680	no import*	VU (↓) (2013)		✓	C(100%)
Non-coral invertebrates									
Araneae									
Theraphosidae	<i>Brachypelma smithi</i> ⁴⁹ (II) (1995)	UA (X)	LIV	1823	no import*	NT (↓) (2018)			C(100%)
Veneroida									
Tridacnidae	<i>Tridacna crocea</i> (II) (1985)	FM (X)†	LIV	4498	no import*	LC ? (1996)		✓	F(100%)
	<i>Tridacna derasa</i> (II) (1985)	MH (In)	LIV	11501	first import after first export	VU ? (1996)			C(100%)
Corals									
Scleractinia									
Caryophylliidae	<i>Euphyllia ancora</i> (II) (1990)	FM (X)†	LIV	132	no import*	VU ? (2008)		✓	F(100%)
			LIV	1444					

⁴⁸ *Scleropages formosus* was split into *Scleropages formosus* and *Scleropages inscriptus* in 2017, following taxonomic changes adopted at CoP17.

⁴⁹ *Brachypelma smithi* was lumped from *Brachypelma annitha*, *Brachypelma smithi* in 2023, following taxonomic changes adopted at CoP19.

Criterion vii) only

Criterion vii) focuses on identifying taxa that may be difficult to breed in captivity (see Appendix I: *Development and considerations relating to criterion vii)*). In total, **25 species and 31 species/country combinations** met criterion vii) only and are included in [Table 9](#). An additional 2 species and 3 species/country combinations met this criterion in conjunction with criteria i), ii), iii) or vi) and are included in [Table 6](#).

Key to Table 9

Species: current CITES Appendix and year of first listing are shown in parentheses.

Exporter: see Appendix 3 for ISO codes and country and territory names. Species should be considered to be native to the range State unless otherwise indicated as follows: (In) = introduced; (X) = no evidence of wild populations in country of export (from either native or introduced populations), (?) = distribution uncertain. † = exporter shares a border with a range State.

Term: see Appendix 4 for term codes and descriptions.

Sum of trade 2019-2021: Quantities reflect gross exports across all accepted terms (see [Table 4](#)) in sources C, D and F. Quantities are rounded to the nearest whole number, where applicable. Data extracted from the CITES Trade Database 16th March 2023.

IUCN Red List: NE = Not Evaluated, LC = Least Concern, NT = Near Threatened, VU = Vulnerable, EN = Endangered, CR = Critically Endangered, EW = Extinct in the Wild, DD = Data Deficient.

Population trend: ↓ = declining, → = stable, ↑ = increasing, ? = unknown.

IUCN year of assessment: in brackets, where applicable e.g. (2011).

Endemic: species is native⁵⁰ to only one range State according to Species+.

% trade by source (2019-2021): C = captive-bred, D = Appendix I captive-bred in a registered breeding facility, F = captive-born.

Species held by zoo/ aquarium: ✓ indicates that the species has been or is currently held by a zoo and/or aquarium that is a member of Species 360, based on records held within the Zoological Information Management System (ZIMS); ✓ * indicates that births of the species have been recorded in these facilities according to ZIMS records.

Life history traits:

ABW = mean adult body weight (mammals, birds, invertebrates except butterflies and spiders)

ABL = mean adult body length (cartilaginous and non-cartilaginous fish and spiders)

SVL = mean snout-to-vent length (reptiles and amphibians)

FWL = mean forewing length (butterflies)

NO = mean number of offspring

NOY = mean number of offspring per year

FAM = mean female age at maturity (years).

⁵⁰ 'Native' includes instances where there is a reintroduced population or where occurrence within the range State is uncertain.

Breeding notes: Additional notes on breeding provided by experts. Notes are compiled from three sources: expert input provided by the Deutsche Gessellschaft für Herpetologie und Terrarienkunde, Langer *et al.* 2021⁵¹ and 2022⁵².

Possible to breed to F2 and beyond: Information on whether a species can be bred to F2 and beyond based on information provided by the Deutsche Gessellschaft für Herpetologie und Terrarienkunde, Langer *et al.* 2021 and 2022.

⁵¹ Langner, C., Pfau, B., Bakowskie, R., Arranz, C. and Kwet, A. (2021). Evaluation of captive breeding potential of selected reptile taxa included in Appendices I and II at CITES CoP17. Bundesamt für Naturschutz, Bonn, Germany. [Available at: <https://www.bfn.de/publikationen/bfn-schriften/bfn-schriften-609-evaluation-captive-breeding-potential-selected>]

⁵² Langner, C., Pfau, B., Bernardes, M., Gerlach, U., Hulbert, F., van Schingen-Khan, M., Schepp, U., Arranz, C. Riedling, M. and Kwet, A. (2022). Evaluation of the captive breeding potential of selected amphibian and reptile taxa included in Appendices I and II at CITES CoP18. Bundesamt für Naturschutz, Bonn, Germany. [Available at: <https://www.bfn.de/publikationen/bfn-schriften/bfn-schriften-627-evaluation-captive-breeding-potential-selected>].

Table 9: Species/country combinations that met criterion vii) (difficult to breed) only. There are no current CITES-registered captive breeding facilities for any of the Appendix I taxa included in this table; this column has therefore been omitted. See Key on p. 57.

Species (current Appendix (year first listed in the CITES Appendices)	Exporter	Term	Sum of trade 2019- 2021	IUCN Red List	Endemic	% trade by source 2019-2021	Species held by zoo/ aquarium	Life history traits	Breeding notes	Possible to breed to F2 and beyond
Reptiles										
Sauria: Chamaeleonidae										
<i>Rhampholeon acuminatus</i> (II) (2017)	UG (X)	LIV	15	CR ? (2013)	✓	F(100%)	✓ *	SVL: 5.7cm; NO: 3	Infrequently bred in captivity	F2
<i>Rhampholeon spinosus</i> ⁵³ (II) (2017)	UG (X)	LIV	15	EN (↓) (2013)		F(100%)		SVL: 5.1cm; NO: 3.5	Infrequently bred in captivity	F2
Sauria: Gekkonidae										
<i>Paroedura masobe</i> (II) (2017)	CZ (X)	LIV	26	EN (↓) (2011)	✓	C(100%)	✓	SVL: 10.7cm; NO: 2	Continuously bred but only by very few keepers	F2
Sauria: Iguanidae										
<i>Ctenosaura bakeri</i> (II) (2019)	US (X)	LIV	20	CR (↓) (2018)		F(60%); C(40%)	✓	SVL: 27cm; NO: 12.5	Frequency of breeding in captivity rare, only kept by a few keepers	No data
<i>Ctenosaura conspicuosa</i> (II) (2019)	US (X)	LIV	20	VU ? (2018)	✓	F(100%)	✓	SVL: 30.4cm	Frequency of breeding in captivity rare, only kept by a few keepers	No data
<i>Ctenosaura hemilopha</i> (II) (2019)	TW (X)†	LIV	42	LC ? (2020)	✓	C(100%)	✓	SVL: 40cm; NO: 24; NOY: 24	Frequency of breeding in captivity rare, only kept by a few keepers	No data
<i>Ctenosaura oedirhina</i> (II) (2019)	US (X)	LIV	20	EN (↓) (2018)		F(60%); C(40%)	✓	SVL: 31.5cm; NO: 6.5	Frequency of breeding in captivity rare, only kept by a few keepers	No data
Testudines: Geoemydidae										
<i>Batagur borneoensis</i> (II) (1997)	US (X)	LIV	523	CR (↓) (2018)		C(100%)	✓ *	FAM: 7	"Farming" in suitable climate possible, frequency of breeding in captivity rare	No data
<i>Cuora aurocapitata</i> (II) (2000)	JP (X)†	LIV	23	CR ? (2000)		F(100%)	✓ *		Frequency of breeding in captivity rare	F2 (rarely)
<i>Cuora mccordi</i> (II) (2000)	DE (X) US (X)	LIV LIV	76 18	CR ? (2000)		C(100%)	✓ *		Not frequently bred in captivity	F2 (rarely)
<i>Geoemyda japonica</i> (II) (2013)	IT (X)	LIV	12	EN ? (2000)		C(100%)	✓		Not frequently bred in captivity	No data

⁵³ *Rhampholeon spinosus* was originally listed as *Bradypodion spinosum*, which was subject to a nomenclature change in 2017, following taxonomic changes adopted at CoP17.

Species (current Appendix) (year first listed in the CITES Appendices)	Exporter	Term	Sum of trade 2019- 2021	IUCN Red List	Endemic	% trade by source 2019-2021	Species held by zoo/ aquarium	Life history traits	Breeding notes	Possible to breed to F2 and beyond
<i>Heosemys spinosa</i> (II) (2003)	ID	LIV	110	EN (↓) (2018)		F(100%)	✓ *		Successfully bred in captivity, but only on a few occasions. It is difficult to successfully hatch eggs with any regularity.	No data
<i>Leucocephalon yuwonoi</i> (II) (2003)	ID	LIV	91	CR (↓) (2018)		F(100%)	✓ *		Frequency of breeding in captivity extremely rare	No data
<i>Melanochelys trijuga</i> (II) (2013)	US (X)	LIV	208	LC (↓) (2018)		F(61.54%); C(38.46%)	✓ *		Not frequently bred in captivity	No data
<i>Pangshura smithii</i> (II) (2003)	US (X)	LIV	25	NT (↓) (2018)		F(100%)	✓		Frequency of breeding in captivity rare	No data
<i>Pangshura tecta</i> (I) (1975)	DE (X)	LIV	25	VU (↓) (2018)		C(100%)	✓ *		Frequency of breeding in captivity rare	No data
Testudines: Podocnemididae										
<i>Erymnochelys madagascariensis</i> (II) (1975)	US (X)	LIV	47	CR (↓) (2008)		F(91.49%); C(8.51%)	✓ *		Frequency of breeding in captivity rare	No data
Testudines: Testudinidae										
<i>Aldabrachelys gigantea</i> (II) (1977)	HK (X)	LIV	301	VU ? (1996)		C(100%)	✓	FAM: 25.02	Frequently "farmed" in suitable climate, frequency of breeding in captivity rare	No data
	PH (X)†	LIV	50							
	SC	BOD	12							
		LIV	7435							
	TH (X)	LIV	45							
<i>Chelonoidis niger</i> ⁵⁴ (I) (1975)	CH (X)	LIV	12	EX ? (2017)		C(83.33%); F(16.67%)	✓		Not frequently bred in captivity	F2 (rarely)
<i>Chersina angulata</i> (II) (1977)	ZA	CAP	32	LC (→) (2017)		C(57.63%); F(42.37%)	✓		Not frequently bred in captivity	F2 (rarely)
		LIV	145							
<i>Homopus areolatus</i> (II) (1977)	IT (X)	LIV	11	LC (↓) (2017)		C(100%)	✓ *		Not frequently bred in captivity	No data
	ZA	CAP	2							
		LIV	129							
<i>Indotestudo forstenii</i> (II) (1977)	ID	LIV	172	CR (↓) (2018)		F(100%)	✓ *		Not frequently bred in captivity	No data

⁵⁴ *Chelonoidis niger* was originally listed as *Chelonoidis nigra*, which was subject to a nomenclature change in 2017, following taxonomic changes adopted at CoP17.

Species (current Appendix) (year first listed in the CITES Appendices)	Exporter	Term	Sum of trade 2019- 2021	IUCN Red List	Endemic	% trade by source 2019-2021	Species held by zoo/ aquarium	Life history traits	Breeding notes	Possible to breed to F2 and beyond
<i>Manouria impressa</i> (II) (1977)	CH (X)	LIV	73	EN (↓) (2018)		C(79.45%); F(20.55%)	✓ *		Not frequently bred in captivity	No data
Amphibians										
Anura: Dendrobatidae										
<i>Oophaga lehmanni</i> (II) (1987)	CH (X) CO	LIV LIV	13 215	CR (↓) (2019)		C(100%)	✓ *	SVL: 3.5cm; NO: 7.8; NOY: 7.8; FAM: 1		Beyond F2
<i>Oophaga sylvatica</i> (II) (1987)	EC	LIV	85	NT (↓) (2016)		C(61.15%); R(38.85%)	✓ *	SVL: 3.8cm; NO: 3.8; NOY: 3.8; FAM: 1		Beyond F2

Full trade data output

An output of all reported direct trade in captive-bred and ranched animal specimens (sources C, D, F and R) 2017-2021 was produced from trade data extracted from the CITES Trade Database on 16th March 2023, which include all CITES Annual Reports received by UNEP-WCMC by 23rd February 2023. This **full trade data output** is provided in Excel format as an information document, with filterable columns, to enable data exploration. Details of the data included in this full output are provided in [Table 10](#).

Table 10: Data included for the full trade data output of 'captive-produced' trade.

Category	Data included
CITES Trade Database report type	Gross exports; Direct trade only (re-exports are excluded)
Appendix	Appendix I and II
Source codes⁵⁵	Captive-bred ('C'), Appendix I captive-bred in a registered breeding facility ('D'), captive-born ('F') and ranched ('R')
Purpose codes⁵⁵	All
Terms⁵⁶	baleen, body, bone, carapace, carving (including carvings from bone, horn and ivory, as well as jewellery), caviar, coral (raw), egg, egg (live), fin, fingerling, gall bladder, horn, live, meat, musk, plate, pupae, scale, shell, skin and skin piece, skeleton, skull, teeth, trophy, and tusk.
Units of measure	Number (unit = number of specimens (reported as 'blank' and 'NAR')) <i>[Trade in other units of measure (e.g. kilograms, metres, etc.) was excluded]</i>
Year range	2017-2021 ⁵⁷
Contextual information	<ul style="list-style-type: none"> • The selection criteria met, if any. • Percentage of captive-produced trade by source code (C, D, F, R) • The global conservation status and population trend of the species, if assessed, as published in the IUCN Red List of Threatened Species, as well as the year the species was last assessed ⁵⁸ • If not a range State, whether the country shares a border with a range State⁵⁹, according to the distribution records within Species+ • An indication of whether the species is endemic to a single country, according to Species+⁶⁰ • Information on the following life history parameters, where available: <ul style="list-style-type: none"> ABW = mean adult body weight (mammals, birds, invertebrates except butterflies and spiders) ABL = mean adult body length (cartilaginous and non-cartilaginous fish and spiders) SVL = mean snout-to-vent length (reptiles and amphibians) FWL = mean forewing length (butterflies)

⁵⁵ A full list and description of source and purpose codes is specified in Res. Conf. 12.3 (Rev. CoP19).

⁵⁶ A full list of "terms" (i.e. descriptions of specimens in trade) traded is available in the CITES Trade Database interpretation guide, see: https://trade.cites.org/cites_trade_guidelines/en-CITES_Trade_Database_Guide.pdf.

⁵⁷ Trade data for 2021 may appear lower than other years due to missing annual reports; annual reports for 2021 had been received from 58% of Parties at the time of analysis.

⁵⁸ Red List version 2022-2. Accessed via www.iucnredlist.org. Data downloaded on 17th January 2023.

⁵⁹ Defined by mledoze (2017). World countries in JSON, CSV and XML and Yaml. <https://mledoze.github.io/countries/> [accessed on: 21/03/2017] and updated according to the United Nations geospatial database (March 2023).

⁶⁰ speciesplus.net. Data downloaded on 6th March 2023.

Category	Data included
	<p>NO = mean number of offspring NOY = mean number of offspring per year FAM = mean female age at maturity (years)</p> <ul style="list-style-type: none"> • Difficulty of breeding classification according to expert opinion provided by the Deutsche Gessellschaft für Herpetologie und Terrarienkunde (DGHT) and contained in Langer <i>et al.</i> 2021 and 2022. • Information on whether a species can be bred to F2 and beyond based on information provided by the Deutsche Gessellschaft für Herpetologie und Terrarienkunde, Langer <i>et al.</i> 2021 and 2022. • An indication of species where there is no evidence of any exports from any range State 2012-2021, based on CITES trade data⁶¹ (only applicable to exports from non-range States) • The year of first listing in the CITES Appendices • Whether species/country combinations have been subject to quotas between 2017 and 2023 • Whether species/country combinations are subject to current Standing Committee recommendations to suspend trade. • The current number of CITES registered breeding facilities for each species/country combination. • Whether the species has been or is currently held by a zoo and/or aquarium that is a member of Species 360, based on records held within the Zoological Information Management System (ZIMS) (Y = the species has been held by these facilities, Y* = births of the species have been recorded in these facilities according to ZIMS records). • Whether the species has been subject to a nomenclature change following CoP17

⁶¹ Across all sources and all accepted units/terms (see Table 4). Data downloaded on 16th March 2023.

Appendix 1: Development and considerations relating to criterion vii)

Criterion vii), added to the list of selection criteria at CoP19, aims to highlight species that are difficult to breed in captivity to assist the Animals Committee with identifying unrealistic captive breeding claims or potential laundering of wild specimens. Resolution Conf. 17.7 (Rev. CoP19) does not outline the precise metrics to be used to inform criterion vii), and thus the methodology for its application in this iteration of the species selection process was developed by UNEP-WCMC in consultation with the Secretariat and other experts and data holders.

Ease of breeding is known to be influenced by a wide number of species-related factors, including the physiological and social needs of the taxon (see^{62,63,64,65}). Successful breeding of a teleost fish species, for example, can be dependent on the size, water conditions, temperature and substrate provided in the tank, the collection or captive history of an individual, and the presence of a social hierarchy that is conducive to successful breeding. These factors must be independently considered for both the parental stock and the care of juveniles. In amphibians, reproductive behaviour is often triggered by specific environmental stimuli; asynchronous release of gametes in captivity is also reported to be common, and necessitates that the gametes are stored in the right conditions.

In addition, collating information on whether taxa are difficult to breed is complicated by the fact that new breeding techniques and technologies can cause the situation to change over time, details of successful captive breeding may not be published in the scientific literature, and the absence of breeding records (for example, from species holdings data in zoos and aquaria) may not necessarily be reflective of difficulty, but rather the absence of an attempt (not all species are suitable/desirable for public display). In addition, 'ease of breeding' can be specific to particular environments – a species that is considered easy to breed in one situation (for example, a state-of-the-art facility with temperature and humidity controls) may not be so easy to breed in others (a facility that lacks this technology).

While vulnerable to subjectivity, expert knowledge in the keeping and breeding of species is more likely to be responsive to new information than published literature and to be able to tap into unpublished data. For these reasons, and because preliminary attempts to find proxies for ease of breeding did not identify any suitable candidates (see below), expert knowledge was the focus of data collection for criterion vii). Expert knowledge is nevertheless time and resource intensive to gather; this is why, given the short window to gather data to inform criterion vii), UNEP-WCMC concentrated on gaining data for two classes: reptiles and amphibians. These groups accounted for more than half the taxa selected for review under Resolution Conf. 17.7 (Rev. CoP18) at AC29 (see [AC29 Com. 11](#)), and were therefore identified as a priority group for the application of the new criterion.

⁶² Farquhason, K.A., Hogg, C. J. & Grueber, C.E. (2018). A meta-analysis of birth-origin effects on reproduction in diverse captive environments. *Nature Communications*, 9:1055

⁶³ Kouba, A.J., Vance, C.K. & Willis, E.J. (2009). Artificial fertilization for amphibian conservation: Current knowledge and future considerations. *Theriogenology*, 71:214-227.

⁶⁴ Moorhead, J.A. and Zeng, C. (2010). Development of captive breeding techniques for marine ornamental fish: a review. *Reviews in Fisheries Science*, 18(4): 315-343.

⁶⁵ Sanger, T.J., Hime, P., Johnson, M.A., Diani, J. & Losos, J.B. (2008) Laboratory protocols for husbandry and embryo collection of *Anolis* lizards. *Herpetological Review*, 39(1), 58-63.

Ease of breeding assessments informed by expert opinion contained in Langer *et al.* 2021⁶⁶ and 2022⁶⁷ were supplemented with data from reliable breeders provided by the Deutsche Gesellschaft für Herpetologie und Terrarienkunde (DGHT). UNEP-WCMC provided DGHT with a list of all CITES-listed reptile and amphibian species traded under source codes C, D, F and R between 2012-2021 according to the CITES Trade Database (direct trade only, all purpose codes). Species in the output were classified by DGHT into the following five categories relating to how easy they are to breed in captivity:

- (1) Easy: it is probable that captive bred hatchlings of F2 or higher generations can be produced in large quantities;
- (2) Medium: profitable production of large numbers of F2 generation hatchlings is unlikely, either because of intraspecific aggressivity, because the species has a long generation time and a short captive breeding history, or similar;
- (3) Hard: it is considered unlikely that many captive bred animals could enter commercial international trade;
- (4) None: no animals known to be kept in captivity;
- (5) No data: expert opinion was unavailable.

Any species in the categories of 'hard' or 'none' were considered to be difficult to breed in captivity for the purposes of the species selection analysis. All data used were assessed by members of the DHGT working groups to ensure they reflected the best knowledge available at the time. These working groups unite numerous specialists who are intensively involved in the keeping and breeding of particular groups of reptiles and amphibians and have a broad network of further contacts in the private "breeder scene"; the German Chelonia Group within the DGHT, for example, has been continuously collecting breeding data for more than 40 years (DGHT *pers. com.*).

Testing life history traits as a proxy for ease of captive breeding

While expert knowledge provided an assessment of ease of breeding for c. 35% and 85% of reptile and amphibian species traded under source codes C,D,F and R over the last 10 years (2014-2021) respectively, no assessment of ease of breeding was available for 289 of these species. UNEP-WCMC therefore undertook a preliminary analysis on whether this data source could be supplemented using a proxy; in this case life history data. We used a composite of three life history measures and expert opinion on breedability for 298 species of reptile and amphibian provided by DHGT to test the hypothesis that species with a 'slow' life history are more likely to be difficult to breed in captivity.

The dataset outlined in Appendix 2 was used to compare three life history traits (snout to vent length size, number of offspring and age at female maturity) across all reptile and amphibian taxa for which data were available. For each trait, species were assigned a score of 1 if they were in the top third of values recorded within the order; a score of 0.5 if they were in the middle third of the values recorded within that order; and a score of 0 if they were within the bottom third of values

⁶⁶ Langner, C., Pfau, B., Bakowskie, R., Arranz, C. and Kwet, A. (2021). Evaluation of captive breeding potential of selected reptile taxa included in Appendices I and II at CITES CoP17. [Available at: <https://www.bfn.de/publikationen/bfn-schriften/bfn-schriften-609-evaluation-captive-breeding-potential-selected>].

⁶⁷ Langner, C., Pfau, B., Bernardes, M., Gerlach, U., Hulbert, F., van Schingen-Khan, M., Schepp, U., Arranz, C., Riedling, M. and Kwet, A. (2022). Evaluation of the captive breeding potential of selected amphibian and reptile taxa included in Appendices I and II at CITES CoP18. Bundesamt für Naturschutz, Bonn, Germany. [Available at: <https://www.bfn.de/publikationen/bfn-schriften/bfn-schriften-627-evaluation-captive-breeding-potential-selected>].

recorded within that order (see [Table A1](#)). A composite life history score was then calculated based on the mean score across all life history traits for which data were available; traits where data were not available were excluded from the mean to avoid skewing the results due to missing data. Any species with a composite life history score of over 0.66 was considered to have a 'slow' life history. Any species that had a score of 'hard' or 'none' in the dataset provided by DGHT was considered 'difficult' to breed (see [Table A2](#)).

A chi-squared test found **no statistically significant relationship** between reptile and amphibian species that were considered difficult to breed in captivity by experts, and those with 'slow' life histories ($n = 298$, $\chi^2 = 0.8498$, $df = 1$, $p = 0.3566$).

Table A1: Overview of scoring used to classify the life history of reptile and amphibian species.

Life history trait	Methodology	Score
Body size (snout-to-vent length in reptiles and amphibians)	Upper (top 33%) and lower (bottom 33%) thresholds were calculated for: (a) adult snout-to-vent length; (b) number of offspring; and (c) age at female maturity for each reptile and amphibian order based on measures gathered from the literature and experts (see Table A4) for all species with available data. The life history value for each taxon included in the analysis was then scored against these thresholds.	1: > upper threshold (large bodied) 0.5: between upper and lower threshold 0: < lower threshold (small bodied)
Reproductive output (number of offspring)		1: < lower threshold (few offspring) 0.5: between upper and lower threshold 0: > upper threshold (many offspring)
Age at female maturity		1: > upper threshold (slow to mature) 0.5: between upper and lower threshold 0: < lower threshold (fast to mature)

Table A2: Classification of ease of captive breeding and species life history categories, used to assess whether life history data could be used a proxy for ease of captive breeding.

Ease of captive breeding	
Difficult	Captive breeding classified as 'hard' or 'none' by experts (DHGT).
Not difficult	Captive breeding classified as 'moderate' or 'easy' by experts (DHGT). Species considered moderately easy to breed under some conditions, but hard under others, were classified as 'not difficult' since they could be bred with moderate ease under ideal conditions.
Life history	
Slow	Mean life history trait composite score >0.66
Not slow	Mean life history trait composite score ≤0.66

Considerations for method refinement

Refinement of the methodology used to apply criterion vii) as well as possible strategies for addressing data gaps could be carried out as part of Decision 19.63, which directs the Secretariat, in consultation with UNEP-WCMC, to produce an analysis of the objectives and processes outlined in Resolution Conf. 17.7 (Rev. CoP19) and Resolution Conf. 12.8 (Rev. CoP18). Key considerations, should the Animals Committee agree that expert opinion should be the measure on which to base criterion vii), could include the following:

- How should the process of gathering expert opinion be organised to ensure that it reflects the best available knowledge at the time (recalling that ease of breeding that can change rapidly over time) and is representative of a range of experiences (recalling that a species that might be easy to breed in captivity in one context may not be easy to breed in another)? Possible avenues could include convening expert workshops, the distribution of questionnaires, or liaising with specialist working groups such as those present in DGHT.
- Is the classification approach used in this iteration of the species selection process suitable for use across other taxa? Are refinements needed to the classification approach used for reptiles and amphibians?

Appendix 2: Life history data

Four life history parameters relating to breeding biology (adult body size, number of offspring produced at each reproductive event, number of reproductive events per year, and female age at maturity), where available, are shown as meta data in [Tables 6 and 9](#) and in the Excel document containing the full output of relevant trade in captive-bred and ranched specimens for 2017-2021, sources C, D, F and R. These are:

- **Adult body size:** considered a key proxy for life history strategy across multiple taxonomic classes^{68,69}, and the most commonly available measure for CITES-listed species reported in trade as produced in captivity. Large-bodied taxa tend to follow a 'slow' life history characterised by low productivity and slow rates of population growth. Different measures of body size are used for different taxa:

Adult Body Weight (ABW): Mammals, birds, invertebrates (except butterflies and spiders).

Adult Body Length (ABL): Cartilaginous and non-cartilaginous fish, spiders.

Mean Snout-to-Vent Length (SVL): Reptiles and amphibians.

Mean Forewing Length (FWL): Butterflies.

- **Number of offspring per reproductive event (NO), number of offspring per year, and female age at maturity:** these are key criteria determining a species' productivity in captivity, assuming that there is a high rate of offspring survival in captive situations (note however that this may not always be the case). Early recruitment (i.e. low age at first reproduction) is associated with a 'fast' life history and a short inter-generational period, increasing the number of lifetime reproductive attempts.

In cases where multiple measures were available for the same characteristic, as well as in cases where a minimum and maximum value was indicated and cases where a range was given in the literature/data sources, the mean value is quoted. Number of broods per year was used to calculate total offspring per year but is not provided in the metadata in [Tables 6 and 9](#). It should be noted that in some datasets it was unclear whether data related to wild or captive bred individuals.

⁶⁸ Bielby *et al.* 2007. The Fast-Slow Continuum in Mammalian Life History: An Empirical Reevaluation. *American Naturalist*, 169: 748-757.

⁶⁹ Hutchings *et al.* 2012. Life-history correlates of extinction risk and recovery potential. *Ecological Applications*, 22: 1061-1067.

Table A4: Summary of life history datasets included as metadata in Tables 6 and 9.

Dataset	Life history trait				Taxonomic scope
	Adult body size	No. offspring	No. broods/year	Female age at maturity	
Databases					
Amniote life history database from Myhrvold, N. <i>et al.</i> (2015). An amniote life-history database to perform comparative analyses with birds, mammals, and reptiles. <i>Ecology</i> , 96, 3109. Accessible via https://datarepository.wolframcloud.com/resources/Amniote-Life-History-Database .	✓	✓	✓	✓	Mammals, birds and reptiles
AmphibiaWeb (2023). University of California, Berkeley, CA, USA. Retrieved March 1, 2023 from https://amphibiaweb.org/ .	✓	✓			Amphibians
Froese, R. & Pauly, D. (Eds) (2022). FishBase version 08/2022. Retrieved March 14 2023, from https://fishbase.mnhn.fr/search.php .	✓				Fish (Actinopteri and Elasmobranchii)
Pekár, S. <i>et al.</i> (2021). The World Spider Trait database: a centralised global open repository for curated data on spider traits. [Database 2021: baab064]. Retrieved Theraphosidae subset from www.spidertraits.sci.muni.cz/ .	✓				Spiders
Tacutu, R. <i>et al.</i> (2018). Human Ageing Genomic Resources: new and updated databases. <i>Nucleic Acids Research</i> , 46(D1), D1083-D1090. Retrieved February 13, 2023 from https://www.genomics.senescence.info/species/index.html .	✓	✓	✓	✓	Animals
Scientific literature					
Andersen <i>et al.</i> (2021). Economics, life history and international trade data for seven turtle species in Indonesian and Malaysian farms. <i>Data in Brief</i> . 34, 106708. https://doi.org/10.1016/j.dib.2020.106708 .			✓	✓	Turtles
Bird <i>et al.</i> (2020). Generation lengths of the world's birds and their implications for extinction risk. <i>Conservation Biology</i> , 34, 1252-1261. https://doi.org/10.1111/cobi.13486 .				✓	Birds
British Trust for Ornithology data accessed via Conde <i>et al.</i> (2019). Data gaps and opportunities for comparative and conservation biology. <i>PNAS</i> , 16(19), 9658-9664. https://doi.org/10.1073/pnas.1816367116 .		✓	✓		Birds
Chan, E. & Chen, P. (2011). Nesting activity and clutch size of the southern river terrapin, <i>Batagur affinis</i> (Cantor, 1847) in the Setiu River, Terengganu, Malaysia. <i>Chelonian Conservation and Biology</i> , 10(1), 129–132. https://doi.org/10.2744/CCB-0829.1 .		✓			Reptiles
Cooper, E. <i>et al.</i> (2019). Identification of CITES-listed Tarantulas: Aphonopelma, Brachypelma and Sericopelma species. Montreal, Canada: Commission for Environmental Cooperation, p.93.	✓	✓		✓	Tarantulas

Dataset	Life history trait				Taxonomic scope
	Adult body size	No. offspring	No. broods/year	Female age at maturity	
de Lang, R. (2013). The snakes of the Moluccas (Maluku), Indonesia. A field guide to the land and nonmarine aquatic snakes of the Moluccas with identification key. Edition Chimaira, Frankfurt am Main, p.271-276.	✓			✓	<i>Morelia clastolepis</i> , <i>Morelia nauta</i> , <i>Morelia tracyae</i>
DATLife - The Demography of Aging Across the Tree of Life Database. Max Planck Institute for Demographic Research (Germany). Available at https://datlife.org/ . Accessed via Conde <i>et al.</i> (2019).				✓	Mammals, Birds, Reptiles, Amphibians
Roll, U. <i>et al.</i> (2017). The global distribution of tetrapods reveals a need for a targeted conservation. <i>Nature Ecology & Evolution</i> , 1, 1677-1682. 10.1038/s41559-017-0332-2. Accessed via Conde <i>et al.</i> (2019).		✓	✓		Reptiles
Gomez-Mestre, I. <i>et al.</i> (2012). Phylogenetic analyses reveal unexpected patterns in the evolution of reproductive modes in frogs. <i>Evolution</i> , 66(12), 3687-3700. 10.1111/j.1558-5646.2012.01715.x. Accessed via Conde <i>et al.</i> (2019).		✓			Frogs
Han, X. & Fu, J. (2013). Does life history shape sexual size dimorphism in anurans? A comparative analysis. <i>BMC Evolutionary Biology</i> , 13(27) https://doi.org/10.1186/1471-2148-13-27 . Accessed via Conde <i>et al.</i> (2019).		✓			Frogs
Harrington, S. <i>et al.</i> (2018). Habits and characteristics of arboreal snakes worldwide: arboreality constrains body size but does not affect lineage diversification. <i>Biological Journal of the Linnean Society</i> , 125(1), 61–71. https://doi.org/10.1093/biolinnean/bly097 .	✓				<i>Morelia clastolepis</i> , <i>Morelia nauta</i> , <i>Morelia tracyae</i>
Heslinga, G. <i>et al.</i> (1984). Mass culture of giant clams (f. Tridacnidae) in Palau. <i>Aquaculture</i> , 39, 197-215. https://doi.org/10.1016/0044-8486(84)90266-7 .	✓				<i>Tridacna maxima</i>
Jereb, P., Roper, C. & Vecchione, M. <i>et al.</i> (2005). FAO Species Catalogue for Fishery Purposes No. 4, Vol. 1. 2. Cephalopods of the World. FAO, Rome.	✓	✓		✓	Cephalopods
Jetz, W. Sekercioglu, C. & Böhning-Gaese, K. <i>et al.</i> (2008). The Worldwide Variation in Avian Clutch Size across Species and Space. <i>PLoS Biol</i> , 6(12), e303. https://doi.org/10.1371/journal.pbio.0060303 accessed via Conde <i>et al.</i> (2019).		✓			Birds
Lislevand <i>et al.</i> (2007). Avian body sizes in relation to fecundity, mating system, display behavior, and resource sharing. <i>Ecology</i> , 88, 1605-1605. https://doi.org/10.1890/06-2054 .	✓	✓			Birds
Maran, J. & Pauwels, O. (2005). Etat des connaissances sur les tortues continentales du Gabon: distribution, écologie et conservation. <i>Bulletin de l'Institut Royal des Sciences naturelles de Belgique, Biologie</i> , 75, 47–60.	✓	✓			<i>Cycloderma aubryi</i>

Dataset	Life history trait				Taxonomic scope
	Adult body size	No. offspring	No. broods/year	Female age at maturity	
Meiri, S. (2018). Traits of lizards of the world: Variation around a successful evolutionary design. <i>Global Ecology and Biogeography</i> , 27, 1168–1172. https://doi.org/10.1111/ .	✓				Lizards
Oliveira <i>et al.</i> (2017). AmphIBIO, a global database for amphibian ecological traits. <i>Scientific Data</i> , 4, 170123 https://doi.org/10.1038/sdata.2017.123 .	✓		✓	✓	Amphibians
PanTHERIA: a species-level database of life history, ecology, and geography of extant and recently extinct mammals. <i>Ecology</i> , 90(9), 2648-2648. https://doi.org/10.1890/08-1494.1 . Accessed via Conde <i>et al.</i> (2019).		✓	✓	✓	Mammals
Petrozzi, F. <i>et al.</i> (2021). <i>Centrochelys sulcata</i> . The IUCN Red List of Threatened Species 2021: e.T163423A1006958. https://dx.doi.org/10.2305/IUCN.UK.2021-1.RLTS.T163423A1006958.en .	✓	✓		✓	<i>Centrochelys sulcata</i>
Platt, S. <i>et al.</i> (2008). Biodiversity, Exploitation, and Conservation of Turtles in the Tonle Sap Biosphere Reserve, Cambodia, with Notes on Reproductive Ecology of <i>Malayemys subtrijuga</i> . <i>Chelonian Conservation and Biology</i> , 7, 195-204. 10.2744/CCB-0703.1 .		✓			<i>Malayemys subtrijuga</i>
Rigby, C. & Simpfendorfer, C. (2015). Patterns in life history traits of deep-water chondrichthyans. <i>Deep Sea Research Part II: Tropical Studies in Oceanography</i> 115, 30-40, 0967-0645. 10.1016/j.dsr2.2013.09.004 .				✓	Chondrichthyans (cartilaginous fishes)
Shine, R. & Charnov, E. (1992). Patterns of survival, growth and maturation in snakes and lizards. <i>The American Naturalist</i> , 139(6), 1257-1269. 10.1086/285385 . Accessed via Conde <i>et al.</i> (2019).				✓	Snakes and lizards
Shine, R. & Iverson, J. (1995). Patterns of survival, growth and maturation in turtles. <i>Oikos</i> , 72(3), 343-348. 10.2307/3546119 . Accessed via Conde <i>et al.</i> (2019).				✓	Turtles
Sironi, M. <i>et al.</i> (2003). Intrapopulation variation in life history traits of <i>Boa constrictor occidentalis</i> in Argentina, <i>Amphibia-Reptilia</i> , 24(1), 65-74. doi: https://doi.org/10.1163/156853803763806957 .		✓			<i>Boa constrictor occidentalis</i>
Tobias <i>et al.</i> (2022). AVONET: morphological, ecological and geographical data for all birds. <i>Ecology Letters</i> , 25, 581– 597. https://doi.org/10.1111/ele.13898 .	✓				Birds
Trochet <i>et al.</i> (2014). A database of life-history traits of European Amphibians. <i>Biodiversity Data Journal</i> , 2, e4123. https://doi.org/10.3897/BDJ.2.e4123 .	✓	✓		✓	Amphibians
Van Wynsberge, S. <i>et al.</i> (2017). Growth, survival and reproduction of the giant clam <i>Tridacna maxima</i> (Röding 1798, Bivalvia) in two contrasting lagoons in French Polynesia. <i>PLoS ONE</i> , 12(1), 1–20. https://doi.org/10.1371/journal.pone.0170565 .	✓				<i>Tridacna maxima</i>

Dataset	Life history trait				Taxonomic scope
	Adult body size	No. offspring	No. broods/year	Female age at maturity	
Zhang, L. & Lu, X. (2012). Amphibians live longer at higher altitudes but not at higher latitudes. <i>Biological Journal of the Linnean Society</i> , 106(3), 623-632. https://doi.org/10.1111/j.1095-8312.2012.01876.x .				✓	Amphibians
Reports					
CITES listing proposals: CoP14 Prop. 14, CoP16 Prop. 32, CoP17 Prop. 47, CoP18 Prop. 31, CoP19 Prop. 35	✓	✓		✓	<i>Heloderma horridum charlesbogerti</i> , <i>Ctenosaura alfredschmidtii</i> , <i>Cuora pani</i> , <i>Cuora zhoui</i> , <i>Holacanthus clarionensis</i> , <i>Ctenosaura alfredschmidtii</i> , <i>Mauremys annamensis</i>
UNEP-WCMC (2019) (<i>and references within</i>). Review of species selected on the basis of the analysis of 2018 CITES export quotas. Part II. UNEP-WCMC, Cambridge. Available at: https://speciesplus.net/api/v1/documents/10527 . Retrieved March 1 2021.	✓	✓			<i>Cycloderma aubryi</i>
Isamu, T. (2008) WG 9 - Aquatic Invertebrates Case study 2: Palau Case Study - Tridacnidae.	✓				<i>Tridacna maxima</i>
UNEP-WCMC (2020) (<i>and references within</i>). Review of species selected on the basis of an overview of long-standing positive opinions. Part II. UNEP-WCMC, Cambridge. Available at: https://speciesplus.net/api/v1/documents/15125 . Retrieved March 1 2021.	✓				<i>Tridacna maxima</i>
UNEP-WCMC (2012) (<i>and references within</i>). Review of butterflies from Asia and Oceania subject to long-standing positive opinions. Available at: https://speciesplus.net/api/v1/documents/4801 . Retrieved March 1 2021.	✓	✓			Butterflies
UNEP-WCMC (2022) (<i>and references within</i>). Review of species selected on the basis of the analysis of 2021 CITES export quotas. UNEP-WCMC, Cambridge. Available at: https://speciesplus.net/api/v1/documents/15600 . Retrieved March 1 2021.	✓			✓	<i>Morelia</i> spp.
UNEP-WCMC (Comps.) (2020). Checklist of CITES species – CITES Identification Manual. CITES Secretariat, Geneva, Switzerland, and UNEP-WCMC, Cambridge, United Kingdom.	✓	✓		✓	Invertebrates
Expert consultation/unpublished data					
Deutsche Gesellschaft für Herpetologie und Terrarienkunde (DGHT) (personal communication, 2 nd Febrary 2023).	✓	✓	✓	✓	Reptiles and Amphibians

Dataset	Life history trait				Taxonomic scope
	Adult body size	No. offspring	No. broods/year	Female age at maturity	
Websites/other					
African Wild Ass (<i>Equus africanus</i>) Fact Sheet (c2008-2021). San Diego (CA): San Diego Zoo Wildlife Alliance. Available at https://ielc.libguides.com/sdzg/factsheets/africanwildass . Retrieved March 1 2021.	✓		✓	✓	<i>Equus africanus</i>
Freshwater Habitats Trust (2023). Available at https://freshwaterhabitats.org.uk/pond-clinic/identifying-creatures-pond/medicinal-leech/ . Retrieved March 1 2023.		✓			Leeches
Lukan, E. & Brough, C. (2011). Squamosa Clam - <i>Tridacna squamosa</i> . Animal World. Available at http://animal-world.com/encyclo/reef/clams/TridacnaSquamosaClam.php . Retrieved March 1 2023.	✓				<i>Tridacna squamosa</i>
Przewalski's Horse (<i>Equus ferus przewalskii</i>) Fact Sheet (c2008-2021). San Diego (CA): San Diego Zoo Wildlife Alliance. Available at http://ielc.libguides.com/sdzg/factsheets/przewalskishorse . Retrieved March 1 2023	✓	✓		✓	<i>Equus ferus przewalskii</i>
University of Michigan (2020). Animal diversity web. Available at https://animaldiversity.org/ . Retrieved March 1 2023.	✓	✓		✓	Mammals, Reptiles and Lungfish

Appendix 3: ISO codes and country and territory names

Code	Name
AD	Andorra
AE	United Arab Emirates
AF	Afghanistan
AG	Antigua and Barbuda
AI	Anguilla
AL	Albania
AM	Armenia
AO	Angola
AQ	Antarctica
AR	Argentina
AS	American Samoa
AT	Austria
AU	Australia
AW	Aruba
AX	Åland Islands
AZ	Azerbaijan
BA	Bosnia and Herzegovina
BB	Barbados
BD	Bangladesh
BE	Belgium
BF	Burkina Faso
BG	Bulgaria
BH	Bahrain
BI	Burundi
BJ	Benin
BL	Saint Barthélemy
BM	Bermuda
BN	Brunei Darussalam
BO	Bolivia, Plurinational State of
BQ	Bonaire, Sint Eustatius and Saba
BR	Brazil
BS	Bahamas
BT	Bhutan
BV	Bouvet Island
BW	Botswana

Code	Name
BY	Belarus
BZ	Belize
CA	Canada
CC	Cocos (Keeling) Islands
CD	Democratic Republic of the Congo
CF	Central African Republic
CG	Congo
CH	Switzerland
CI	Côte d'Ivoire
CK	Cook Islands
CL	Chile
CM	Cameroon
CN	China
CO	Colombia
CR	Costa Rica
CU	Cuba
CV	Cabo Verde
CW	Curaçao
CX	Christmas Island
CY	Cyprus
CZ	Czech Republic
DE	Germany
DJ	Djibouti
DK	Denmark
DM	Dominica
DO	Dominican Republic
DZ	Algeria
EC	Ecuador
EE	Estonia
EG	Egypt
EH	Western Sahara
ER	Eritrea
ES	Spain
ET	Ethiopia
FI	Finland

Code	Name
FJ	Fiji
FK	Falkland Islands (Malvinas) ⁷⁰
FM	Micronesia, Federated States of
FO	Faroe Islands
FR	France
GA	Gabon
GB	United Kingdom of Great Britain and Northern Ireland
GD	Grenada
GE	Georgia
GF	French Guiana
GG	Guernsey
GH	Ghana
GI	Gibraltar
GL	Greenland
GM	Gambia
GN	Guinea
GP	Guadeloupe
GQ	Equatorial Guinea
GR	Greece
GS	South Georgia and the South Sandwich Islands
GT	Guatemala
GU	Guam
GW	Guinea-Bissau
GY	Guyana
HK	Hong Kong, Special Administrative Region
HM	Heard Island and McDonald Islands
HN	Honduras
HR	Croatia
HT	Haiti
HU	Hungary
HS ⁷¹	Introduction from the sea
ID	Indonesia
IE	Ireland
IL	Israel
IM	Isle of Man

Code	Name
IN	India
IQ	Iraq
IR	Iran, Islamic Republic of
IS	Iceland
IT	Italy
JE	Jersey
JM	Jamaica
JO	Jordan
JP	Japan
KE	Kenya
KG	Kyrgyzstan
KH	Cambodia
KI	Kiribati
KM	Comoros
KN	Saint Kitts and Nevis
KP	Democratic People's Republic of Korea
KR	Republic of Korea
KW	Kuwait
KY	Cayman Islands
KZ	Kazakhstan
LA	Lao People's Democratic Republic
LB	Lebanon
LC	Saint Lucia
LI	Liechtenstein
LK	Sri Lanka
LR	Liberia
LS	Lesotho
LT	Lithuania
LU	Luxembourg
LV	Latvia
LY	Libya
MA	Morocco
MC	Monaco
MD	Republic of Moldova
ME	Montenegro
MF	Saint Martin

⁷⁰ A dispute exists between the Governments of Argentina and the United Kingdom of Great Britain and Northern Ireland concerning sovereignty over the Falkland Islands (Islas Malvinas).

⁷¹ Non-ISO code.

Code	Name
MG	Madagascar
MH	Marshall Islands
MK	North Macedonia
ML	Mali
MM	Myanmar
MN	Mongolia
MO	Macao, Special Administrative Region
MP	Northern Mariana Islands
MQ	Martinique
MR	Mauritania
MS	Montserrat
MT	Malta
MU	Mauritius
MV	Maldives
MW	Malawi
MX	Mexico
MY	Malaysia
MZ	Mozambique
NA	Namibia
NC	New Caledonia
NE	Niger
NF	Norfolk Island
NG	Nigeria
NI	Nicaragua
NL	Netherlands
NO	Norway
NP	Nepal
NR	Nauru
NU	Niue
NZ	New Zealand
OM	Oman
PA	Panama
PE	Peru
PF	French Polynesia
PG	Papua New Guinea
PH	Philippines
PK	Pakistan
PL	Poland

Code	Name
PM	Saint Pierre and Miquelon
PN	Pitcairn
PR	Puerto Rico
PT	Portugal
PW	Palau
PY	Paraguay
QA	Qatar
RE	Réunion
RO	Romania
RS	Serbia
RU	Russian Federation
RW	Rwanda
SA	Saudi Arabia
SB	Solomon Islands
SC	Seychelles
SD	Sudan
SE	Sweden
SG	Singapore
SH	Saint Helena, Ascension and Tristan da Cunha
SI	Slovenia
SJ	Svalbard and Jan Mayen
SK	Slovakia
SL	Sierra Leone
SM	San Marino
SN	Senegal
SO	Somalia
SR	Suriname
SS	South Sudan
ST	Sao Tome and Principe
SV	El Salvador
SX	Sint Maarten
SY	Syrian Arab Republic
SZ	Eswatini
TC	Turks and Caicos Islands
TD	Chad
TF	French Southern Territories
TG	Togo
TH	Thailand

Code	Name
TJ	Tajikistan
TK	Tokelau
TL	Timor-Leste
TM	Turkmenistan
TN	Tunisia
TO	Tonga
TR	Türkiye
TT	Trinidad and Tobago
TV	Tuvalu
TW	Taiwan, Province of China
TZ	United Republic of Tanzania
UA	Ukraine
UG	Uganda
UM	United States Minor Outlying Islands
US	United States of America
UY	Uruguay
UZ	Uzbekistan
VA	Holy See
VC	Saint Vincent and the Grenadines
VE	Venezuela, Bolivarian Republic of
VG	Virgin Islands, British
VI	Virgin Islands, United States
VN	Viet Nam
VU	Vanuatu
WF	Wallis and Futuna Islands
WS	Samoa
XV ⁷²	Various
XX ²⁵	Unknown
YE	Yemen
YT	Mayotte
ZA	South Africa
ZM	Zambia
ZW	Zimbabwe

⁷² Non-ISO code

Appendix 4: Term codes and descriptions

See [Notification to the Parties No. 2023/039](#)

Trade term code	Description	Explanation
BAL	Baleen	Whalebone
BOD	Bodies	Substantially whole dead animals, including fresh or processed fish, stuffed turtles, preserved butterflies, reptiles in alcohol, whole stuffed hunting trophies, etc.
BON	Bones	Bones, including jaws
CAP	Carapaces	Raw or unworked whole shells of Testudines species
CAR	Carving	Carved products other than ivory, bone or horn – for example coral and wood (including handicrafts). N.B: Ivory carvings should be specified as such (see below – “IVC”). Also, for species from which more than one type of product may be carved (e.g. horn and bone), the trade term code should indicate the type of product in trade (e.g. bone carving “BOC” or horn carving – “HOC”), where possible.
BOC	Carving – bone	Bone carving
HOC	Carving – horn	Horn carving
IVC	Carving – ivory (worked ivory)	Ivory carvings, including e.g. smaller worked pieces of ivory (knife handles, chess sets, marjoram sets etc). N.B. Whole carved tusk should be reported as carving – ivory (IVC) not as tusks (see “TUS” below). Jewellery made from carved ivory should be reported as ‘jewellery – ivory’ (see IJW below).
CAV	Caviar	Unfertilized dead processed eggs from all species of Acipenseriformes; also known as roe.
COR	Coral (raw)	Raw or unworked coral and coral rock (also live rock and substrate) [as defined in Resolution Conf. 11.10 (Rev. CoP15)]. Coral rock should be recorded as ‘Scleractinia spp.’ NB: the trade should be recorded by number of pieces only if the coral specimens are transported in water. Live rock (transported moist in boxes) should be reported in kg; coral substrate should be reported as number of pieces (since these are transported in water as the substrate to which non-CITES corals are attached).
EGG	Egg	Whole dead or blown eggs (see also ‘caviar’)
EGL	Egg (live)	Live fertilized eggs – usually birds and reptiles but includes fish and invertebrates
FIN	Fins	Fresh, frozen or dried fins and parts of fins (including flippers)
FIG	Fingerlings	Live juvenile fish for the aquarium trade, aquaculture, hatcheries, consumption or for release, including live European eels (<i>Anguila anguilla</i>) up to 12cm in length
GAB	Gall bladder	Gall bladder
GAL	Gall	Gall
HOR	Horn	Horns – includes antlers
JWL	Jewellery	Jewellery – including bracelets, necklaces, and other items of jewellery from products other than ivory (e.g. wood, coral, etc.)
IJW	Jewellery – ivory (worked ivory)	Jewellery made of ivory – includes ekipas.
LIV	Live	Live animals and plants, excluding live fingerling fish (FIG)
MEA	Meat	Meat, including flesh of fish if not whole (see ‘body’), fresh or unprocessed meat as well as processed meat (e.g. smoked, raw, dried, frozen or tinned). The code for meat (MEA) should be used in preference for trade in eels for human consumption.
MUS	Musk	Musk
PLA	Plate	Plates of fur skins – includes rugs if made of several skins
PUP	Pupae	Butterfly pupae
SCA	Scale	Scales – e.g. of turtle, other reptiles, fish, pangolin
SHE	Shell	Raw or unworked shell of molluscs
SKE	Skeleton	Substantially whole skeletons

Trade term code	Description	Explanation
SKI	Skin	Substantially whole skins, raw or tanned, including crocodilian Tinga frames, external body lining, with or without scales
SKP	Skin piece	Skin pieces – including scraps, raw or tanned
SKU	Skull	Skulls
TEE	Tooth	Teeth – e.g. of whale, lion, hippopotamus, crocodile, etc.
TRO	Trophy	Trophy – all the trophy parts of one animal if they are exported together: e.g. horns (2), skull, cape, backskin, tail and feet (i.e. ten specimens) constitute one trophy. But if, for example, the skull and horns are the only specimens of an animal that are exported, then these items together should be recorded as one trophy. Otherwise the items should be recorded separately. A whole stuffed body is recorded under 'BOD'. A skin alone is recorded under 'SKI'. Trade in 'full mount', 'shoulder mount' and 'half mount', along with any corresponding parts of the same animal exported together on the same permit, should be reported as '1 TRO'
TUS	Tusk (raw ivory)	Substantially whole tusks, not worked. Includes tusks of elephant, hippopotamus, walrus, narwhal, but not other teeth - N.B. Whole carved tusks should be reported as carving – ivory (see "IVC" above).