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

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Joint sessions of the 26th meeting of the Animals Committee and
20th meeting of the Plants Committee
Dublin (Ireland), 22-24 March 2012

EVALUATION OF THE REVIEW OF SIGNIFICANT TRADE [DECISION 13.67 (REV. COP14)]

1. This document has been prepared by the Secretariat.

2. At the 12th meeting of the Conference of the Parties (Santiago, 2002) the Animals and Plants Committees sought and received a mandate to develop terms of reference for an evaluation of the Review of Significant Trade. These terms of reference were proposed and adopted at the 13th meeting of the Conference of the Parties (Bangkok, 2004) and can be found in Annex 1 to the Decisions of the Conference of the Parties in effect after its 15th meeting (CoP15, Doha, 2010). For ease of reference, they are reproduced in Annex 1 to the present document.

3. The terms of reference give the responsibility for overseeing the evaluation to the Animals and Plants Committees, with the help of an advisory working group comprising Committee members, Parties, the Secretariat and invited experts. The Secretariat is responsible for administering the evaluation and for reporting regularly on progress to the Committees. Whilst the evaluation was to commence after CoP14 (The Hague, 2007), there is no fixed time by which it must be concluded.

4. The Animals and Plants Committees discussed this matter during a joint meeting on 19 April 2008 and gave to the Secretariat, as administrator of the evaluation, some general guidelines on its conduct and the composition of the advisory working group.

5. At their 24th and 18th meetings respectively (Geneva, April 2009, and Buenos Aires, March 2009), the Animals and Plants Committees agreed on the composition of the advisory working group. Following subsequent discussion at the 25th meeting of the Animals Committee (Geneva, July 2011) and correspondence between the Secretariat and the Parties and experts concerned, the members are currently as follows:

   a) Animals Committee: Ms Carolina Caceres (nominated)

   b) Plants Committee: Mr Noel McGough

   The above are co-chairs for the group.

   c) Parties:

      Africa

      Democratic Republic of the Congo (Mr Pascal Ngoy-Taki)
      Guinea (Mr Ansoumane Doumbouya)
      Madagascar (Mr Aro Vonjy Ramarosandratana)
      United Republic of Tanzania (Mr Dennis Ikanda)

Asia

China (Mr Meng Xianlin)
Indonesia (Ms Siti Nuramaliati Prijono)
Islamic Republic of Iran (Mr Asghar Mobaraki)

Central and South America and the Caribbean

Guyana (Ms Alona Sankar)
Jamaica (Mr Jane Cohen)
Peru (Srta. Fabiola Rocío Nuñez Neyra)

Europe

Norway (Mr Tomas Holmern)
Switzerland (Mr Mathias Lörtscher)
United Kingdom of Great Britain and Northern Ireland (Ms Alison Littlewood)

North America

United States of America (Ms Rosemarie Gnam)

Oceania

Fiji (Mr Aisake Batibasaga)

d) Invited experts:

IUCN (Ms Thomasina Oldfield)
TRAFFIC (Mr Sabri Zain)
UNEP-WCMC (Mr Jon Hutton)
European Commission (Mr Marco Valentini)
Canadian Scientific Authority Working Group (Ms Gina Schalk)

6. The Committees further agreed on a *modus operandi* for conducting the evaluation of the Review of Significant Trade which is contained in Annex 2 to the present document. This modus operandi is meant as general guidelines and may be diverted from by the working group. Finally the Committees agreed on the following list of species, in order of priority, to be the subjects of the case studies referred to in paragraph 7 b) of the terms of reference:

	FAUNA	**FLORA**
1.	*Psittacus erithacus*	*Prunus africana*
2.	*Strombus gigas*	*Pericopsis elata*
3.	*Cuora amboiensis*	Madagascar, country study
4.	*Hippopotamus amphibius*	
5.	Madagascar, country study	

7. Thanks to a generous contribution from the European Union, the Secretariat has been able to commission case studies of most the cases selected by the Committees. A case study of the country-based Review of Significant Trade in Madagascar would have required a different sort of review and the available funds did not allow this to be undertaken. After consulting the AC and PC Chairs and the members of the advisory working group for their views, the Secretariat commissioned TRAFFIC to undertake this work. Its reports are attached in Annexes 3 to 5 to the present document. In order to save translation and document processing costs, the size of the final reports has been limited and the full report is only available in English, the language in which it was written. However, the contract with TRAFFIC makes provision for it to attend the present meeting to explain the background to their findings, and the Committees may wish to invite TRAFFIC to make a presentation on this matter.

8. In September 2011, the German Scientific Authority advised the Secretariat that it was placing an internal funding request to hold a meeting of the advisory working group for the evaluation of the Review of Significant Trade. Funding of EUR 45,000 (c.a. USD 57,500) has now been confirmed. The meeting will be held at the International Academy for Nature Conservation on the Isle of Vilm, Germany, sometime between 21 and 27 June 2012. The Secretariat takes this opportunity to warmly thank the German CITES authorities for taking this initiative and for funding the meeting.

9. The Committees are invited to:

   a) Examine the case studies presented in Annex 3 to the present document;

   b) Determine the agenda and any instructions for the meeting of the advisory working group for the evaluation of the Review of Significant Trade to be held in June 2012; and

   c) Prepare a roadmap for the preparation of the final report on the evaluation of the Review of Significant Trade.

TERMS OF REFERENCE FOR AN EVALUATION OF THE REVIEW OF SIGNIFICANT TRADE

Objectives

1. The objectives of the evaluation of the Review of Significant Trade are to:

    a) evaluate the contribution of the Review of Significant Trade to the implementation of Article IV, paragraphs 2 (a), 3 and 6 (a);

    b) assess the impact over time of the actions taken in the context of the Review of Significant Trade on the trade and conservation status of species selected for review and subject to recommendations, taking into consideration the possible effects of these measures on other CITES-listed species;

    c) formulate recommendations in view of the results and findings of the evaluation and the impact assessment; and

    d) prepare a document on the evaluation of the Review of Significant Trade and the resulting conclusions and recommendations for consideration at the first appropriate meeting of the Conference of the Parties.

Process

2. The evaluation will commence immediately after the 14th meeting of the Conference of the Parties, contingent on the availability of sufficient funds to ensure its completion.

3. The Animals and Plants Committees will oversee the evaluation, which will be administered by the Secretariat. Consultants may be engaged to assist it in this regard.

4. A working group composed of members of the Animals and Plants Committees, Parties, the Secretariat and invited experts will be responsible for advising on the evaluation process, reviewing the findings of associated research and developing recommendations for wider consideration by the Parties.

5. The Secretariat will regularly report on the progress of the evaluation at meetings of the Animals and Plants Committees.

6. A final report, which may include proposed amendments to existing Resolutions or Decisions, or other recommendations, and which will incorporate the comments of the Animals and Plants Committees and of range States addressed in the report, will be submitted by the Chairmen of the Animals and Plants Committees for consideration at a future meeting of the Conference of the Parties. The Chairman of the Animals or Plants Committee may submit an interim report to the Standing Committee when appropriate and considered useful.

Content of the evaluation

7. The evaluation of the Review of Significant Trade should include the following activities:

    a) assess:

        i) the process used to select species for review (including the reliance on numerical data), and the species selected as a result;

        ii) the process and means used to compile and review information concerning the implementation of Article IV, paragraphs 2 (a), 3 and 6 (a), for the selected species (including communications with the range States), and the subsequent use of this information by the Animals and Plants Committees for the categorization of species and the issuance of recommendations;

        iii) the types and frequency of recommendations made;

iv) the nature and rate of responses to recommendations, and problems identified;

v) the use of the recommendations by range States as guidance for managing target species and other CITES-listed species with similar characteristics;

vi) the nature and scale of the support provided to range States for implementing the recommendations, including field projects, financial aid and assistance in building local capacities;

vii) the ongoing process to monitor and review the implementation of recommendations, having regard to differing points of view as to where this responsibility should lie; and

viii) the impacts of the process on other aspects of CITES implementation, including how problems identified in the course of the review but not directly related to the implementation of Article IV, paragraphs 2 (a), 3 and 6 (a), were addressed;

b) conduct case studies of a representative range of species and countries subject to recommendations to assess subsequent short- and long-term changes, and whether these could be attributed to the process, in:

i) conservation status of the target taxa in the range States;

ii) trade volumes and patterns of the target taxa, considering trade involving the range States subject to recommendations, other range States and non-range States;

iii) production or management strategies for the target taxa;

iv) market developments of conservation relevance (such as shifts in supply or demand);

v) costs and benefits associated with the management of and trade in the target taxa (such as the effects of trade suspensions and export quotas, shift in trade to non-CITES species or increased illegal trade);

vi) protection status of the target taxa within range States, and regulatory measures outside range States;

vii) trade patterns, conservation status and management for other CITES-listed species that might be suitable 'substitutes' for the target taxa; and

viii) changes in conservation policies in range States; and

c) analyse the information to assess the effectiveness, costs and benefits[1] of the Review of Significant Trade as implemented so far, by reference to the cost of the process and the time it takes, and identify means to improve the contribution it makes to the objectives of the Convention by reducing the threats to wild species.

[1] *The phrase 'effectiveness, costs and benefits' is intended to address issues such as whether or not the funds spent on the process give value for money comparable to that for other CITES activities, and whether the time-scale envisaged in the process is too long for species that are in rapid decline.*

MODUS OPERANDI FOR THE TERMS OF REFERENCE FOR THE EVALUATION OF THE REVIEW OF SIGNIFICANT TRADE

a) Assessment

Terms of reference	Proposed *modus operandi*
i) The process used to select species for review (including the reliance on numerical data), and the species selected as a result	The existing procedures will be described in writing by Secretariat staff in conjunction with the Animals and Plants Committee Chairs.
ii) The process and means used to compile and review information concerning the implementation of Article IV, paragraphs 2 (a), 3 and 6 (a), for the selected species (including communications with the range States), and the subsequent use of this information by the Animals and Plants Committees for the categorization of species and the issuance of recommendations	With the assistance of an intern, the Secretariat will list the consultants used for recent reviews, detail the terms of reference that they were given and contact the consultants to ascertain the process and means that they used. The existing procedures for the review of this information and subsequent categorization of the species involved under paragraph k) of Resolution Conf 12.8 (Rev. CoP13) will be described in writing by Secretariat staff in conjunction with the Committee chairs.
iii) The types and frequency of recommendations made	This information has been provided in documents AC23/PC17 Doc. 8.1
iv) The nature and rate of responses to recommendations, and problems identified	The nature and rate of response from affected countries to recommendations made under the Review of Significant Trade and the problems identified will be determined from the Secretariat's correspondence archives by an intern.
v) The use of the recommendations by range States as guidance for managing target species and other CITES-listed species with similar characteristics	An assessment of this factor will be done for those case studies referred to in paragraph b) below.
vi) The nature and scale of the support provided to range States for implementing the recommendations, including field projects, financial aid and assistance in building local capacities	A compilation of the support provided by the Secretariat to range States subject to recommendations will be accomplished by an examination of the Secretariat archives by an intern. Affected range States could be requested to provide information detailing support provided by third parties (e.g. other countries, international donors, and industry groups).
vii) The ongoing process to monitor and review the implementation of recommendations, having regard to differing points of view as to where this responsibility should lie	Responsibility for the assessment of implementation is clearly set out in Resolution Conf. 12.8 (Rev. CoP13). The advisory working group can assess this.
viii) The impacts of the process on other aspects of CITES implementation, including how problems identified in the course of the review but not directly related to the implementation of Article IV, paragraphs 2 (a), 3 and 6 (a), were addressed	Documents AC23/PC17 Doc. 8.1 list the nature and frequency of non-NDF recommendations made by the Committees. The advisory working group will reflect on the impact of these and the Review of Significant Trade, and on other aspects of CITES implementation.

b) Case studies

Terms of reference	Proposed *modus operandi*
Conduct case studies of a representative range of species and countries subject to recommendations to assess subsequent short- and long-term changes, and whether these could be attributed to the process, in: i) conservation status of the target taxa in the range States; ii) trade volumes and patterns of the target taxa, considering trade involving the range States subject to recommendations, other range States and non-range States; iii) production or management strategies for the target taxa; iv) market developments of conservation relevance (such as shifts in supply or demand); v) costs and benefits associated with the management of and trade in the target taxa (such as the effects of trade suspensions and export quotas, shift in trade to non-CITES species or increased illegal trade); vi) protection status of the target taxa within range States, and regulatory measures outside range States; vii) trade patterns, conservation status and management for other CITES-listed species that might be suitable 'substitutes' for the target taxa; and viii) changes in conservation policies in range States	The Committee will identify, in priority order, case studies which could usefully be undertaken. Parties may be willing to conduct these case studies, but otherwise consultants will to be hired to undertake these case studies. In line with paragraph c) in the fourth INSTRUCTS of Resolution Conf. 14.1, the Secretariat will welcome suggestions from the Committee about suitable contractors.

c) Analysis

Terms of reference	Proposed *modus operandi*
The information above should be analysed to assess the effectiveness, costs and benefits[2] of the Review of Significant trade as implemented so far, by reference to the cost of the process and the time it takes, and identify means to improve the contribution it makes to the objectives of the Convention by reducing the threats to wild species.	The Secretariat will keep the advisory working group informed of developments and the group is expected to work electronically. Nevertheless, subject to funding, the group could possibly meet for a day or two immediately before or after AC26 or PC20.

[2] *The phrase 'effectiveness, costs and benefits' is intended to address issues such as whether or not the funds spent on the process give value for money comparable to that for other CITES activities, and whether the time-scale envisaged in the process is too long for species that are in rapid decline.*

EVALUATION OF THE REVIEW OF SIGNIFICANT TRADE: CASE STUDIES
(submitted by TRAFFIC*)

The Review of Significant Trade (referred to in the following as the Review) is one of the longest established and, by general agreement, important evaluation and intervention processes undertaken within the remit of CITES. Its aim is to ensure that specimens of species listed in Appendix II are exported in accordance with Article IV of the Convention, specifically paragraph 2 (a), which states that an export permit should only be granted if:

> "a Scientific Authority of the State of export has advised that such export will not be detrimental to the survival of that species;"

and the part of paragraph 3 that states:

> "Whenever a Scientific Authority determines that the export of specimens of any such species should be limited in order to maintain that species throughout its range at a level consistent with its role in the ecosystems in which it occurs and well above the level at which that species might become eligible for inclusion in Appendix I, the Scientific Authority shall advise the appropriate Management Authority of suitable measures to be taken to limit the grant of export permits for specimens of that species."

The ultimate impact of the Review should thus be manifested in improved status of the species concerned. The mechanism for achieving such change is action of the Scientific and Management Authorities of the exporting countries.

The Review of Significant Trade process

The Review has its origins in Resolution Conf. 4.7, adopted at CoP4 in Gaborone, Botswana in 1983. It was recognised at that time that many countries exporting Appendix-II listed species were unable, on their own, to determine whether the levels of trade were having a detrimental effect on wild populations. The Resolution recommended that the then CITES Technical Committee (in 1994 to become the separate Animals and Plants Committees under Resolution Conf. 9.1) should provide assistance by identifying those Appendix-II species which were currently being traded in significant quantities but for which there was insufficient scientific information on the capacity of the species to withstand such levels of trade to satisfy the requirement of Article IV, paragraph 3, of the Convention as determined by the range States. It further recommended that, once the species of particular concern had been identified, the Technical Committee, together with the range States involved, importing states and organizations experienced in the management of wildlife develop and negotiate measures required to ensure that continued trade in these species is within the terms of Article IV, paragraph 3.

A working group was established by the Technical Committee to coordinate work on the review. The process followed by the group forms the basis of the Review as it is carried out today, although procedures have now become more formalised. The current process is set out in Resolution Conf. 12.8 (Rev. CoP13), which replaced Resolution Conf. 8.9 (Rev.). In summary, the following steps are carried out:

1. Selection by the Animals and Plants Committees of priority species to be reviewed on the basis of trade levels recorded in the CITES Trade Database for the previous five years and additional information.

2. Consultation with the range States concerning implementation of Article IV.

3. Compilation of information and preliminary categorization into species of 'urgent concern', species of 'possible concern' and species of 'least concern'. These categorizations are applied to particular species in particular range States: a species may be categorized as of 'least concern' in one range State and of 'urgent concern' in another.

4. Review of information and confirmation of categorization by the Animals and Plants Committees.

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* *The geographical designations employed in this document do not imply the expression of any opinion whatsoever on the part of the CITES Secretariat or the United Nations Environment Programme concerning the legal status of any country, territory, or area, or concerning the delimitation of its frontiers or boundaries. The responsibility for the contents of the document rests exclusively with its author.*

5. Formulation of recommendations and their transmission to the range States.

6. Review of implementation of recommendations and action to attempt to ensure their implementation.

The resolution identifies the actors involved in each of these stages, sometimes explicitly and sometimes more generally. The process centres on the Animals and Plants Committees and the Scientific and Management Authorities of the ranges States of the species concerned, with major roles for the Secretariat, the Standing Committee and external consultants and advisors, of which historically UNEP-WCMC, IUCN and TRAFFIC have been important. Wider implementation of actions under the process has also involved other international organizations, notably FAO and ITTO, Parties that are not range States, ngos and a range of donors.[3]

A species or range State for a species may be removed from consideration under the process at any stage if it is considered that Article IV is being implemented satisfactorily. In the early stages of the process (up to and including 4 above) this assessment is essentially made by the Animals or Plants Committee, on the basis of information obtained in the preliminary review, particularly the responses of the relevant range States. Once recommendations have been made for those species remaining in the review after this stage, the primary responsibility for the decisions to remove of retain a species for consideration under the process falls to the Secretariat in consultation with the relevant scientific committee Chair. If the Secretariat, in consultation with the relevant committee Chair, believes that the recommendations made by the committee have not been implemented and that, therefore, Article IV is still not being implemented satisfactorily, it may recommend to the Standing Committee that appropriate action be undertaken including, as a last resort, a suspension of trade in the affected species with that State. This last is a powerful sanction.

The Review process may be a protracted one – several years may elapse between a species first being identified as a candidate and the process being effectively completed; in a few cases (though none in the present case studies) Standing Committee recommendations to suspend trade because of lack of implementation of Review recommendations remain in force from the 1990s, indicating that the Review in these cases is still not completed. Species may be subject to review more than once, as has occurred in three of the case studies discussed below.

Evaluating the Review: using case studies

The present study looks at six species, selected by the Animals and Plants Committees, that have been included in the Review in order to assess the impact of the process on the conservation, management and trade in the species in question, on other CITES-listed species and on conservation policies in range States, and to determine whether any more general findings can be extrapolated from them. The species are:

Prunus africana **African Cherry** A tree species, found in montane forests in sub-Saharan Africa and associated islands, exported as bark or bark products for use in herbal medicine; included in Appendix II in 1994 and first included in the review in 2002.

Pericopsis elata **Afromosia** A tree species, found in moist forests in central and western Africa, exported as timber; included in Appendix II in 1992 and first included in the review in 2002.

Strombus gigas **Queen Conch** A marine mollusc, found in the Western Atlantic region, exported as meat, and also as shell; included in Appendix II in 1992 and first identified for included in the review in 1995.

Cuora amboinensis **South Asian Box Turtle** A semi-aquatic reptile, found in south-east Asia, exported primarily as a live animal for its meat, with some export for the pet trade and as shell; included in Appendix II in 2000 and first identified for inclusion in the Review in 2000.

Psittacus erithacus **African Grey Parrot** A bird found in moist forests in central and western Africa, exported as a live animal for the pet trade; included in Appendix II in 1981 and first reviewed in 1988.

Hippopotamus amphibius **Common Hippopotamus or Hippo** A semi-aquatic mammal found in sub-Saharan Africa exported as ivory (the canine and incisor teeth); included in Appendix II in 1995 and first included in the review in 1998.

[3] Representatives of all these are likely to participate in meetings of the scientific committees and thus be involved directly in the Review process.

For each of these species we have looked at the short- and long-term changes in the following parameters and assessed the extent to which the Review may have influenced these changes:

i) conservation status of the target taxa in the range States;

ii) trade patterns for the target taxa and impacts of the Review on these;

iii) market developments;

iv) impacts on other CITES-listed species;

v) management and production systems and protection status;

vi) costs and benefits associated with management of and trade in the target taxa;

vii) conservation policies in range States.

A summary of findings for each species is presented in the accompanying document. Here we present a synthesis of these findings, with some overall conclusions concerning the effectiveness of the Review as reflected in these particular cases.

Assessing impacts of the Review

Like any other complex process, the Review will have many different impacts, direct and indirect, intended and unintended. Intended consequences are, by definition, positive. Unintended ones may be positive, negative, mixed or largely neutral. In this context direct impacts are associated with the recommendations as formulated by the Committees; indirect impacts are associated with countries reacting to the review and instituting changes without formal recommendations having been drafted.

The focus of the Convention text is on the conservation of the species included in the Appendices and the impact of the Review on this has been the primary focus of the evaluation; however the species included in the Review are, by definition, Appendix-II listed species which are exported in significant quantities. Trade of this kind has economic and wider livelihood impacts, which are themselves likely to be affected by actions undertaken as a consequence of the Review. How these impacts are addressed is likely to have a bearing on how successful the process is in achieving its primary goals in the medium or long term.

Attributing impacts to the Review

For each species that is included in the Review the particular set of circumstances – that is its conservation status, the state of management and state of trade in any given range State at a particular point in time – is unique. Moreover, the Review is one of many different factors influencing these circumstances. These different factors interact with each other, and may indeed be scarcely independent of each other, in that they may involve largely overlapping sets of actors. Determining what changes in the conservation status, management and trade of species can be ascribed directly or indirectly to the Review is thus not easy. It essentially requires us to ask the question: what would have happened, or be happening, if the Review had *not* taken place in the form that it did at the time that it did? We can, for course, never know this with absolute certainty. However some changes can with considerable confidence be ascribed to the process, particularly those relating to changes in export controls such as the establishment of quotas (including zero quotas) that have been explicitly stated to be an outcome of the process. Specific and general factors that have been identified in the case studies as influencing the various parameters assessed are discussed in the relevant sections below.

Changes in the conservation status of the target taxa

The extent to which the Review process has affected the status of species depends on the importance of harvest for international trade as a driving force for changes in status and the degree to which the review ultimately influences that harvest. As noted above, assessing such change requires, at the very least, a baseline assessment of status and one or more subsequent assessments within a time-frame that can be related to activities and outcomes of the review, along with an understanding of other factors that influence status. It is thus dependent on some form of monitoring of wild populations.

In all the case studies it has been possible to make some largely qualitative judgement on the relative importance of harvest for international trade as a factor influencing the status of the species, but it has proven generally difficult to demonstrate quantitative changes in the status of the species concerned.

For all species, harvest for international trade is clearly a significant factor influencing wild populations. For *Cuora amboinensis, Pericopsis elata, Prunus africana* and *Psittacus erithacus* such harvest is evidently by far the most important consumptive use of the species. For *Strombus gigas* harvest for domestic consumption is important, but international trade appears to be the major economic driver of the fishery. For *Hippopotamus amphibius* the situation is less clear-cut; the species is (legally and illegally) harvested for domestic consumption, in trophy hunting and in control of problem animals, these factors quite possibly outweighing harvest for commercial export in importance. Habitat changes are not important for *Cuora amboinensis,* an adaptable generalist. They may affect the other species to some extent, although all still have extensive or very extensive ranges with large areas of suitable habitat remaining. The possible exception is *Prunus africana* whose afromontane forest habitat is fragmented and relatively restricted in extent. In this case, declines in natural habitat are at least in part offset in some areas (notably Cameroon) by planting.

For *Strombus gigas* there is good, though localised, quantitative information showing major historical population declines that are clearly a result of overharvest. For *Cuora amboinensis* there is persuasive anecdotal information indicating population depletion as a result of overharvest, and one small-scale study showing large differences between an exploited and an unexploited population. For *Prunus africana* there is evidence of differences in population structure between heavily exploited and unexploited populations. For *Pericopsis* there is historical information indicating depletion in heavily exploited parts of the range in West Africa, but very little indication of impacts of harvest in Central Africa, where virtually all trade now originates. For *Hippopotamus amphibius* there is good information showing a slow overall decline in population but little indication that this is linked to harvest for international trade. Historically, major depletion of one population (in Democratic Republic of Congo) in the 1990s is believed to be a result of harvest for the ivory trade and domestic meat consumption (though there is little indication of elevated levels of legal trade in ivory from that country at the time). For *Psittacus erithacus* there is very little population trend information and correspondingly minimal concrete evidence showing impacts of harvest on wild populations.

Understandably, given the general state of knowledge of the species in question, there is little definite evidence demonstrating an impact of the Review on wild populations. There is indication that some *Strombus gigas* populations have stabilised or begun to recover as a result of fishery controls for which the Review may have been at least in part responsible, and it is possible that improved implementation of Article IV in some range States as a result of the Review accounts for the relative stability of *Hippopotamus amphibius* populations in those countries. There is a very anecdotal account of slow recovery of *Psittacus erithacus* populations in Cameroon following suspension of exports, but this has not been independently verified.

Impact on trade patterns of the target species

In all cases there have been significant changes in declared trade volumes and patterns of the target taxa during the Review. For many of these, it is evident that actions undertaken as part of the Review have been the main or only cause of the changes. In some cases, this attribution cannot be made quite so clearly, as other factors may have contributed. These include:

Actions by importing countries restricting imports for reasons that may be unrelated to CITES implementation. Examples include restriction on import of *Strombus gigas* meat from Jamaica into the EU in the 1990s as a result of food sanitary regulations, and the general prohibition on import of wild birds (affecting *Psittacus erithacus*) into the EU in 2005 (made permanent in 2007) because of regulations to control the spread of bird flu.

Actions by importing countries restricting imports for reasons related to CITES implementation but not necessarily a direct response to the Review. Examples include: the seizure by the USA in 1993 of a significant amount of *Strombus gigas* meat; the restriction on import into China of a range of south-east Asian chelonians (including *Cuora amboinensis*) introduced in 2003 following inclusion of many of these species in Appendix II in 2000; the various decisions of the EU Scientific Review Group (SRG) of EU Member State Scientific Authorities, principally concerning imports of *Pericopsis elata* and *Prunus africana.* In the case of the specific opinions of the SRG these may be closely and sometimes explicitly (as in *Prunus africana*) tied to the Review, so that the impacts of one cannot be strictly separated from the other, particularly becauseindividuals sitting on the SRG are very likely also to participate in the work of the Animals and Plants Committees on the Review. The SRG meets several times a year, so that decisions can generally be made much more rapidly than those linked to formal CITES processes, including the Review. In some cases the SRG has reversed its opinions more than once in the space of a year.

Measures associated with other aspects of non-compliance with the Convention. Examples include: the recommendation in place from Dec 2006 to March 2010 to Parties to suspend trade with Rwanda, owing to lack of progress in developing national legislation for implementation of the Convention; the recommendation made by the Standing Committee in 1997 not to accept export permits for *Psittacus erithacus* from Cameroon until 31

Dec 1997 because of lack of adherence to the country's own export quotas; the recommendations for a suspension on all trade with Democratic Republic of Congo at various times from 2001 to 2003 because of irregularities with the issuing of CITES permits there.

Because the Review is a protracted one it may be difficult to unequivocally associate changes in global trade with its interventions. This is particularly the case where significant exporting countries are identified early on in the process as 'least concern'. In addition, inconsistencies and irregularities, notably discrepancies in trade reported by importers and exporters in particular years, mean that trade data have to be interpreted with caution. However, there are indications of sometimes temporary reductions of overall reported trade associated with the Review in some of the cases here, most clearly in *Strombus gigas* which showed sharp drops in trade between 1997 and 1998 and again between 2003 and 2004, but also in *Prunus africana* trade from 2005 to 2008, and (at least according to import data) in *Hippopotamus amphibius* around 2000.

At the national level the clearest indications of impacts of the Review on trade volumes are manifested in changes to export quotas, either voluntarily undertaken by exporting states or imposed (usually as a recommendation to Parties to accept no imports) by the Standing Committee. Changes can entail temporary or permanent zero quotas, either imposed or decided on by the range State, the establishment of non-zero quotas where export was not previously restricted in this way, or a change in existing quotas. At least one change of this kind has taken place in each of the species examined (see Document 2). In almost all cases, the change has been towards a decrease in legal trade, sometimes sustained and sometimes not.

In some cases there are also indications that the Review, or actions closely associated with it, have led to shifts in supply from one range State to another. Uganda began export of substantial amounts of *Prunus africana* in 2006, the year when the major exporting countries at the time (Cameroon, Democratic Republic of Congo and Madagascar) were all classified as of 'urgent concern' in the Review. Similarly after temporary moratoria on trade in *Strombus gigas* imposed by Honduras and Dominican Republic as recommended by the Review, trade from Belize, Nicaragua and Turks and Caicos Islands increased. In other cases, for example relative amounts of *Pericopsis elata* exported from Cameroon, Congo and Democratic Republic of Congo from 1996 to 2009, shifts in trade are less clear-cut and cannot be ascribed with confidence to the Review. Shifts in production systems are addressed below.

The extent to which restrictions on legal trade resulting from the Review have led to increases in illegal trade in the target species is difficult to ascertain. In the case of *Cuora amboinensis*, in which the great majority of trade is evidently illegal, the Review seems to have had relatively little impact. For *Psittacus erithacus* there is evidence of ongoing illegal trade and indications of misreported trade (of wild birds imported as captive-bred), which would probably not be occurring, or be at a lesser level, if there were fewer restrictions on legal trade. However, the extent of illegal trade in this species remains unknown. Evidence for extensive illegal trade in the other species has not been found during the evaluation.

Market developments

The major international markets for the species appear to be characterised by demand that is robust and often increasing. Where markets have contracted this is evidently usually because of restrictions in supply, discussed above. There may be some decline in demand for wild-caught *Psittacus erithacus* in major markets, particularly in Europe, owing to shifts in sentiment regarding the wild-bird trade, but demand elsewhere – reflected in increasing levels of imports - may be growing. Demand for ivory of *Hippopotamus amphibius* appears largely a product of restrictions on supply of elephant ivory. Were the latter to become more available it is possible that demand for hippo ivory would decline, although there is little prospect of this in the immediate future.

Impacts on other CITES-listed species that might be suitable 'substitutes' for the target taxa

In virtually all of the cases examined, there has been relatively little evidence of any 'knock-on' effects of the Review on other CITES-listed species, at least as far as legal international trade is concerned. For *Prunus africana* there are no substitutes amongst CITES-listed species in international trade. *Pericopsis elata* comprises a very small part of the international timber trade, even from those countries that export reasonable quantities of the species; changes in supply appear to have had little impact on trade in other species. For the hippo, the main CITES-listed substitute for its ivory (the major product in trade) is elephant ivory; changes in management of hippos have not been identified as a causal factor in changes in the (currently illegal) international trade in elephant ivory. *Cuora amboinensis* is thought to be largely exported in undeclared (illegal) form, and the Review appears to have had little impact on trade in the species itself, making it difficult to assess whether the process might have had an impact on other taxa. The only CITES-listed substitute for *Strombus* meat is meat of giant clams *Tridacna* spp., (themselves subject to the review of significant trade in the 2000s), and there are no indications that trade patterns in this have changed as a result of actions undertaken under the Review for *Strombus.* For *Psittacus erithacus* there is some indication that restrictions in trade may have

had some impact on trade in the Senegal Parrot *Poicephalus senegalus* in 1998-1999 (although, as noted above, the restrictions on *P. erithacus* at that time were primarily associated with other issues of non-compliance with CITES, not strictly part of the Review). The increase in trade in the Senegal Parrot (itself subject to the Review in the 2000s) was evidently temporary, CITES trade data showing it declining in 2000 to just above 1997 levels, and then decreasing substantially from 2006 following Review recommendations for the species and the ban on import of wild birds into the EU.

Impacts on management, legislation and production systems

In all cases there have been changes to management in at least some range States during the course of the Review, some of which can clearly be ascribed to the Review, particularly those that are in response to specific Review recommendations. As noted above, the most frequent changes are to export controls, usually in the form of quotas (also discussed above). These may be decided on and adopted by the range State or may be effectively imposed by the Standing Committee owing to lack of implementation of Review recommendations. In several cases range States have adopted zero quotas, or stopped all trade – sometimes through changing the legal status of the species concerned – or have effectively allowed zero quotas imposed by the Standing Committee to stand rather than implement active measures to make non-detriment findings.

The degree to which monitoring and assessment of wild populations has been undertaken varies in the different case studies. In several range States of *Psittacus erithacus* and *Strombus gigas* surveys or other forms of stock assessment have been undertaken as a direct result of the Review, often funded by external donors. In *Prunus africana* and *Pericopsis elata* the Review has prompted collation of existing information and evidently been a driver for some new assessments or for the planning of assessments. It has also prompted an assessment of the status of *Cuora amboinensis* in the two major exporting countries. It does not appear to have led to significant new survey work on *Hippopotamus amphibius* although may have prompted range States to use existing survey work in making non-detriment findings.

The Review has led to or catalysed the development of national management plans in a number of cases, for *Prunus africana* in Cameroon and Madagascar, for *Pericopsis elata* in the three main exporting countries (Cameroon, Congo and Democratic Republic of Congo) and for *Strombus gigas* in a number of range States. For the other species such plans (other than establishment of export quotas) have not been notable outputs of the Review. In *Prunus africana* and *Strombus gigas* the review has also prompted the development of methods for sustainable harvest, although in the case of *Prunus* these have yet to be adopted in practice and in the case of *Strombus gigas* such methods were in development before the Review took place, or indeed the species was listed in Appendix II. The Review has also served to highlight areas where there are specific practical problems or deficiencies in the implementation of CITES, for example in Indonesia and Malaysia when species are not protected under national legislation, as with *Cuora amboinensis,* and in the Democratic Republic of Congo in the forestry sector where permitting and licensing systems are not easily compatible with requirements under CITES.

The Review has clearly catalysed international efforts to help improve species management in three cases: *Strombus gigas, Prunus africana* and *Pericopsis elata*. In all three it has served as a focus to bring together various international actors, including importing countries, international organizations such as CIFOR, ITTO, FAO and regional fisheries organizations, and non-governmental organizations.

With the partial exception of *Prunus africana* there is little evidence of any shift in production systems in range States of any of the species, which continue to be harvested from the wild. Substantial planting of *Prunus africana* has taken place in Cameroon in the past two or three decades, much of it preceding the inclusion of the species in the Review, although it is not clear how much harvest is derived from this source at present (all exports are reported as wild-sourced). There are reports of captive breeding in range States of *Cuora amboinensis* but if any does occur (generally considered unlikely), it is on a very small scale. Since 2005 a large number of *Psittacus erithacus* have been reported by importing countries as captive-bred in range States. Very few of these birds appear in CITES annual reports of exporting countries, and there is not currently known to be any large-scale captive breeding in any of these countries. The contrasting real growth in captive supply of this species within US and EU markets appears to be due to demand shifts and importing country legislation not related to the Review process.

Costs and benefits associated with management of and trade in the target taxa

In all cases it is evident that international trade in the species concerned generates notable income with annual trade in two – *Prunus africana* and *Strombus gigas* – worth tens or hundreds of millions of US dollars annually at retail in destination markets. Benefits delivered further down the value chain, at export and at collector or harvester level, are much smaller – hundred-fold increases in dollar value between collector and retail are not unusual. However, they can still be significant in terms of livelihoods, with many thousands of people believed

to benefit substantially from harvest in the two cases above. However, only in the case of *Strombus gigas* fisheries in some small countries is trade in any of these products economically significant at national level in range States.

It is difficult to generalise about the costs of management of the different species involved. It is notable, however, that many of the activities undertaken in response to the Review have been largely or entirely externally funded, usually by bilateral or multilateral donors and sometimes by non-governmental organizations. These include, for example, the various status surveys of *Psittacus erithacus,* studies of *Cuora amboinensis* in the two major exporting countries, and much of the research on *Prunus africana* and *Strombus gigas* as well as the development of some national management plans in both these. International efforts mentioned above, including international workshops on *Strombus gigas, Pericopsis elata* and *Prunus Africana,* have been supported by donors.

The Review has clearly been successful in galvanising donor funding for work on the species in the case studies. However, the question of financing for the recurrent costs of management in many cases remains unresolved. Indeed, in several cases some basic Review recommendations, such as national surveys or inventories, remain unfulfilled, apparently largely owing to lack of resources. In some cases it is evident that range States have decided to suspend exports, or allowed suspensions imposed by the Standing Committee to stand, because they do not at present have the resources to implement Article IV effectively, or believe that it is not economically feasible to do so. This is the case, for example, with exports of *Psittacus erithacus* from Equatorial Guinea and Cameroon, of *Prunus africana* from Kenya, *Cuora amboinensis* from Malaysia and *Strombus gigas* from Haiti.

As discussed above, while there is relatively little evidence of the Review leading to an increase in legal or illegal harvest or trade in other CITES-listed species, there are indications in some cases, most notably in *Psittacus erithacus* and *Cuora amboinensis,* that increased trade restrictions associated with the Review have led to increasing illegal and questionable trade. This places pressure (of unknown importance) on populations of the species in question, and may impose costs in terms of foregone benefits of those involved in legal harvest and trade (including licence and permit fees) and, in theory, increases enforcement costs. All these costs are very difficult to quantify.

Impacts on conservation policies in range States

The Review has clearly had impact on policy and legislation in at least some range States of each of the species considered here. These are summarised above and in the accompanying document. It is harder to identify impacts at the more general policy level, in part because many of the range States involved in the Review have undergone great political, social and economic changes during the time under review, in part because changes in policy, where these are made explicit, are rarely attributed to external causes. Often changes may be more related to changes in perception of the Convention or the resource under consideration. One example of the latter is with *Prunus africana* in Cameroon, where the attention drawn to the species, related to the Review and associated trade suspensions, is said to have raised the profile of non-timber forest products in general in the country.

In several instances the Review has clearly increased national engagement with CITES. This is evidently the case with several range States of *Strombus gigas,* which have hitherto not been heavily involved with the Convention. Conversely, the Review may sometimes have given a negative impression to at least some stakeholders in some countries, particularly where they believe that it has imposed onerous obligations for little obvious need. This is (or at one time was) evidently the case with *Pericopsis elata* in Cameroon and appears likely to be the case with *Cuora amboinensis* in Indonesia and possibly Malaysia. This may have the effect of reducing support for the Convention as a whole, at least in some sectors.

Non-detriment findings and the Review

As can be seen from the above, the Review has evidently had a wide and variable range of impacts across the six case studies. The degree to which it might be assessed as having been successful - that is in ensuring that Article IV is clearly applied in the cases that are subject to the Review – is also clearly variable. This is not surprising, given the huge range of biological and socio-economic conditions that prevail. The focus of the Review is an assessment of the extent to which non-detriment findings can be shown to have been made in any given case. Making even this assessment may be problematic, given the range of different scenarios that exist for the species listed in Appendix II, clearly shown in the case studies and sometimes the lack of agreement on what might constitute a satisfactory non-detriment finding in any given case.

From the case studies it is clear that some of the most important parameters to consider are:

Impact of harvest on wild populations The ultimate impact of harvest for export on wild populations is fundamental to the Review process and the implementation of Article IV. Such harvest may have negligible impact on wild populations; it may have a non-negligible impact but still conform to the fundamental requirement of Article IV (that is, maintaining the species throughout its range at a level consistent with its ecological role and well above the level at which it might become eligible for inclusion in Appendix I); or it may have a non-negligible impact which does not meet the requirements of Article IV. Examples of all these have been found in the case studies, either historically or ongoing. Thus in some places harvest of *Cuora amboinensis* is evidently currently unsustainable, and that of *Prunus africana,* again in some places. Historically, harvest of *Strombus gigas* for trade was clearly unsustainable across a wide area, and that for *Pericopsis elata* almost certainly was in West Africa. Elsewhere and in other cases it has been difficult to demonstrate unequivocally that harvest for trade has been unsustainable. Conversely, it is apparent that in some cases harvest for trade has little impact, for example in many range States of *Hippopotamus amphibius,* in some range States of *Prunus africana* and in inaccessible parts of the ranges of *Pericopsis elata* and, probably, *Psittacus erithacus*. (Where a lack of impact is evident at national level, range States are classified as 'least concern' and drop out of the Review at an early stage). Cases where there is significant harvest for trade which is sustainable under the terms of Article IV are, of course, the most problematic to identify. This appears to be the case in some range States exporting *Strombus gigas, Pericopsis elata* and *Hippopotamus amphibius*. In other cases it remains unclear just how important harvest for export is as a factor influencing wild populations.

The state of monitoring Assessing the impact of harvest requires at least some form of population status monitoring. The difficulty in determining the impact in so many of the cases in the review is a reflection of how little monitoring is being carried, as discussed in the section on 'Management, legislation and production systems' above. How accurate, frequent and comprehensive such monitoring needs to be to ensure that Article IV is being implemented in any particular case is clearly highly variable, and is also the subject of considerable uncertainty and debate. Importantly, an absence of monitoring, or incomplete or irregular monitoring does not necessarily mean that a species is being unsustainably harvested.

The state of management of the species The species examined in the case studies are subject to a wide range of management and regulatory regimes, aspects of which include: the specific regulations controlling harvest and use; wider environmental regulations (for example regarding protection of its habitat); active management measures such as enrichment planting or control of competitors and predators. In most cases there is little active management beyond control of harvest, usually in the form of quota allocation systems, although *Strombus gigas* is subject to a wide range of fisheries management measures and there has been a good deal of planting of *Prunus africana* in at least one range State. Clearly, the effectiveness of management measures is dependent on their appropriateness and how well they are implemented. In some cases – for example where there is still extensive habitat and few other threats to the species – minimal management may be all that is necessary, although even this may be very difficult to achieve in practice. This is the case, for example, with *Cuora amboinensis* and *Psittacus erithacus*. In other cases more sophisticated management may be needed. For example sustainable harvest of *Prunus africana* from the wild is predicated on carefully controlled harvest regimes. These may be correspondingly difficult to put into practice.

Effectiveness of communication It has become clear in examining the case studies that the effectiveness of communications, particularly between the relevant Scientific and Management Authorities and the other major actors involved in the Review (chiefly the CITES Secretariat as the principal coordinator of activities) is very variable. It may be good – that is timely and informative – or it may be poor, or non-existent. This may have considerable bearing on the progress of range States through the Review process. There are several instances where lack of response from range States has led to their being retained in later stages of the Review and sometimes being subject to recommendations (including suspensions of trade). In some of these it has subsequently become clear that harvest for trade is not an important factor in that range State, or that satisfactory non-detriment findings have been made but have not been communicated to the Committees via the Secretariat in timely fashion. Conversely, rapid communication and evidence of some form of management in place (the existence of an export quota, for example) is not in itself evidence that harvest of the species for export is sustainable as defined in Article IV.

Some general conclusions on the Review as Significant Trade

The Review of Significant Trade was established in the relatively early days of the Convention with two tightly linked aims: to ensure that international trade was not or did not become a threat to species included in Appendix II and to build capacity in implementing the Convention in countries that were exporting Appendix-II species where such capacity was limited. The case studies reviewed here give, we hope, some insight into the degree to which the Review has succeeded in its aims in different situations and into some of the reasons why it may have been more successful in some situations than in others. These reasons are to do both with the

Review process itself and with a host of other factors, many of which are outside the control of the actors engaged in the Review.

It seems evident that one of the great strengths of the Review has been its ability to combine support (through financial and technical input) with the possibility of sanction (ultimately through recommended suspensions of trade). Balancing the two, and perceptions amongst different stakeholders as to how well these two are balanced, seems crucial to the Review's long-term success. Under the current Resolution, support is explicitly reliant on voluntary contributions from Parties and others. As discussed above, the Review has been notably successful in catalysing funding of this sort, at least in the case studies reviewed, but it is not clear whether it will continue in the more stringent global financial conditions likely to pertain at least in the near future.

Moreover, while the Review has served as a focus for or helped to obtain funding for a range of activities including survey work, development of sustainable harvest methods, international cooperation and development of national action or management plans, the question of long-term financing and capacity for implementing the Convention in at least some range States remains unresolved. Without this, any positive impacts of the Review in these cases may be only temporary.

Often a specific Review case has been only one of a number of different ways in which CITES mechanisms have been involved with particular range States. Often particular range States have been or are the subject of Review recommendations for a range of different species (some African countries have been the subject of recommendations for four out of the six species in the case studies alone) as well as participants in other capacity-building exercises and, sometimes, sanctions related to problems with implementation of other aspects of CITES. It may be that a more country - rather than species-based approach (as has been carried out with Madagascar) may sometimes be more effective in the long term. Within individual species, the case studies have shown that other issues (notably harvest for illegal trade) may be as or more important than the management of the legal trade. These issues lie outside the current remit of the Review but resolving them may be the most important measure in ensuring that the ultimate aim of Article IV is met. Again this indicates that a more holistic approach may be advantageous.

The Review process has become more formalised with time. This has undoubtedly delivered benefits in terms of transparency, accountability and engagement of a wider range of stakeholders, but this has arguably been accompanied by the loss of some speed, flexibility and adaptability. There is certainly a perception amongst some stakeholders that the process can be unduly lengthy and sometimes a little rigid. A greater emphasis on communication might help to resolve this.

EVALUATION OF THE REVIEW OF SIGNIFICANT TRADE –
SUMMARIES OF MAJOR FINDINGS OF THE SIX CASE STUDIES
(submitted by TRAFFIC*)

Prunus africana

The African Cherry is a tree found in montane forests in 21 ranges States in sub-Saharan Africa and associated islands, exported as bark or bark products for medicinal purposes. The species was included in Appendix II in 1994. It was first included in the Review in 2002 with recommendations made in 2006 for Burundi, Cameroon, Democratic Republic of Congo, Equatorial Guinea, Kenya, Madagascar and United Republic of Tanzania. In 2006 an intersessional working group was established to help in implementing these recommendations, the first time such a group has been formed as part of the Review. This working group organised an international workshop in 2008.

Status

Prunus africana was classified as Vulnerable in 1998 by IUCN, although this categorisation is currently noted as in need of updating. Inventory data are only available for limited areas and no reliable time-series data are available. Inventories cover parts of Cameroon, where most work on the species has been carried out, parts of Bioko (Equatorial Guinea) and a pilot site in Madagascar. Elsewhere there are usually only very general assessments. In Cameroon the various studies have used a wide range of different survey techniques, making comparison between them difficult and meaning that there are still no extensive baselines for future assessments. However, assessments of population structure make it clear that harvesting has had a deleterious impact on wild populations in heavily collected areas. There has been no systematic study to determine whether the Review has yet had an impact on the structure of wild populations.

Trade patterns and impacts of the Review on these

Global trade in bark has shown two distinct peaks since 1996 - in the late 1990s and again in the mid 2000s with a major peak in 2005 (according to importers' records), followed by a decline to 2008, with volumes increasing again in 2009 (see Annex 1). Over this period there have been shifts in supply. Kenya was a major exporter until 2003. Cameroon's exports grew more or less steadily from 1997 until 2005, when it exported a very large quantity, and then declined, with none exported in 2008. Equatorial Guinea has shown two distinct peaks in exports, coinciding with the two global peaks. The Democratic Republic of Congo export substantial quantities in the period 1996-1998 and again from 2003 onwards, with recorded imports from the country peaking in 2005. Uganda began exporting in 2007. Madagascar has shifted from exporting bark to exporting extract (chiefly from 2003 onwards) and has imported considerable quantities of bark from Cameroon and Democratic Republic of Congo to process for re-export. Recently (2007 onwards) exports from Congo (not a range State) to India have been reported; those from 2009 were recorded as originating in Democratic Republic of Congo and it is likely that those for 2007 and 2008 also did.

Many of the changes in the past five years have undoubtedly been heavily influenced by the Review, along with the actions of the EU Scientific Review Group (SRG) (the EU accounts for the vast majority of imports). The cessation of export from Kenya is associated with the Review, although it preceded the preparation of the formal review document. The decline in export from Cameroon and the cessation of exports in 2007 is indirectly an outcome of the Review, through the actions of the EU SRG suspending imports to the EU in that year. The start of Uganda's exports in 2007 are very likely a response to the increasing restrictions on trade from Cameroon and Kenya.

Standing Committee recommendations to suspend imports from Democratic Republic of Congo, Equatorial Guinea and United Republic of Tanzania from 3 February 2009 are currently in force.

* *The geographical designations employed in this document do not imply the expression of any opinion whatsoever on the part of the CITES Secretariat or the United Nations Environment Programme concerning the legal status of any country, territory, or area, or concerning the delimitation of its frontiers or boundaries. The responsibility for the contents of the document rests exclusively with its author.*

Market developments

The primary market is herbal medicine for the treatment of benign prostatic hyperplasia in older men. Demand is agreed to be robust and projected to increase.

Impacts on other species

There are no known substitutes amongst CITES-listed species for the most important international use of *Prunus africana*.

Management and production systems and protection status

In most countries, there has been little or no active management of *Prunus africana* and collection of bark has not been strongly regulated. The main exception has been Cameroon, where historically (until the mid-1980s) bark processing was controlled by a monopoly and collection was reportedly reasonably well regulated. This changed after 1985, leading to often unsustainable harvesting of the bark. Since then a considerable amount of work has been carried out on the species, chiefly in Cameroon but also in Equatorial Guinea and Madagascar, to try to develop management strategies for sustainable use. This work has involved a range of donors and international actors, including CIFOR, FAO and ITTO. Some of this has taken place while the species has been the subject of review, although a considerable proportion began well before the species was formally included in the Review. It is difficult to assess how much recent work would have gone on without the Review. However, it seems very likely that it has at least catalysed action, particularly at international level and has, for example, helped to ensure the inclusion of *Prunus africana* in the joint work of CITES and ITTO – the latter normally concentrating on timber species. The international workshop organised by the Review working group on *Prunus africana* in 2008 (Naivasha, Kenya) and the 2010 joint CITES-ITTO regional workshop on *Prunus africana* and *Pericopsis elata* (Limbe, Cameroon) have raised the international profile of work on this species, and helped build capacity in countries where relatively little work has yet been carried out.

The development and subsequent adoption of a comprehensive management plan in Cameroon and of an experimental programme in Madagascar have undoubtedly been prompted by the Review, acting in concert with stricter domestic measures imposed by the EU Scientific Review Group. In Cameroon it appears that the (temporary) import suspension to the EU in 2007-2008, has had a major impact in the uptake of the management plan. There has also been in Cameroon a long-term trend for the establishment of plantings of *Prunus africana,* individually mostly of small scale, but collectively important. This has taken place independently of the Review.

Costs and benefits associated with management of and trade in the target taxa

Assessments of the economic value of trade in *Prunus africana* as with the other species here depends crucially on the point in the value chain at which estimates are made. Retail value of *Prunus africana* products is estimated at over USD 200 million annually, and possibly considerably more. In Cameroon in 2005 (the peak year for export) the value of the trade was estimated at around USD 500,000 at harvester level and USD 3 million at export level. It directly benefited some 1500 people, providing indirect benefits to perhaps 80,000 more, and providing over 80% of income in some households in major harvesting areas. Incomes and beneficiaries in other countries that export lesser quantities are likely to be proportionately lower, except in Madagascar, where domestic processing serves to add some value.

Many of the activities carried out to date on *Prunus africana* have been externally funded, either by bilateral donors or through international agencies such as CIFOR, FAO and ITTO. It Is difficult to assess overall sums involved, although they are likely to run into several hundred thousand dollars at minimum (the one-year project in 2004 assessing the status of *Prunus africana* on Bioko, Equatorial Guinea, cost around EUR 60,000). As noted above, it is unclear how the costs of implementation of many of the actions called for under the Review, and more widely the recurrent costs of management of wild stocks of *Prunus Africana,* will be met in most or all range States without continuing donor support.

Conservation policies in range States

As in all the case-studies, it is difficult to ascribe changes in wider conservation policies to specific reviews. However, in this case it has been reported that in Cameroon the attention focused on *Prunus africana* has attracted wide interest to the potential importance of non-timber forest products in the forestry sector, where previously timber was regarded as essentially the sole product of interest. This may well have wider implications for management of other resources in the future. In Madagascar it is difficult to separate the influence of the Review of *Prunus africana* from the country-based review of significant trade carried out from

2000 to 2004. The latter certainly had and continues to have a significant impact on policies, management and legislation in the country.

Overall conclusions

The Review has clearly had considerable impact on several aspects of the management and trade in *Prunus africana*. It has affected trade patterns, served as a catalyst and focus for international efforts to improve management of the species, and prompted the development of action plans and other activities at national level. It is not yet clear whether these efforts will be sufficient to establish sustainable harvest for export from wild populations in the longer term.

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Pericopsis elata

Afromosia is a tree found in moist forests in seven ranges States in central and western Africa, exported as timber and included in Appendix II in 1992. It was included in the Review in 2002 with recommendations made in 2004 for Cameroon, Central African Republic, Congo and Democratic Republic of Congo.

Status

Pericopsis elata was assessed in 1998 by IUCN as Endangered although this categorisation is currently noted as in need of updating. It has a very extensive, though patchy distribution. Assessments of status have generally been based on sample forest inventory data which may then be extrapolated to cover much larger areas with similar characteristics. Sample inventories have been carried out in most of the forest management units in Cameroon where exploitation of the species is allowed, as well as in some areas of Democratic Republic of Congo, Congo and a few sites elsewhere. The results may allow some overall estimates of sustainable yield to be made based on general assessments of increment rates for tropical forest trees, but are not in general adequate to establish baselines against which to measure changes in status over time, and thus to assess the impact of different management interventions on wild populations of the species. It has been established, however, that the species is widespread and at least locally abundant in the three major exporting countries, Cameroon, Congo and Democratic Republic of Congo.

Trade patterns and impacts of the Review on these

Trade in *Pericopsis elata* is in two main categories: roundwood and sawnwood. Detailed analysis of trade patterns in *P. elata* is hampered by the fact that there have been large and persistent discrepancies in reported trade in roundwood, with importers reporting four times as much by volume as exporters. Very general trends, however, are similar in the two data sets (see Annex 1). Roundwood trade was relatively high in the late 1990s, with Cameroon the main recorded exporter. Cameroon ceased exporting roundwood in 1999. The Democratic Republic of Congo also reported exporting moderate quantities of roundwood until 1999. In the period 2000-2001 no exports were reported from the Democratic Republic of Congo. From 2003 onwards the country has been by far the most important exporter of roundwood. Congo reported exporting moderate quantities of roundwood in the period 2000-2003, but very little before or since. Cameroon has been by far the most important exporter of sawnwood since the late 1990s, although exports from the Democratic Republic of Congo have grown consistently since 2005.

Actions undertaken as part of the Review may have had some impact on overall trade patterns. As part of the process, import from Congo was suspended under recommendation from the Standing Committee for the duration of 2006, although quantities exported by the country in the previous few years had been small (the same recommendation applied to the Central African Republic which has never featured significantly in trade of this species). The low level of export reported since then may be a consequence of the Review. The cessation of export of roundwood by Cameroon in 1999 was a result of domestic policy change. The cessation of export from Democratic Republic of Congo in the period 2000-2003 was a consequence of Standing Committee recommendations that all trade in CITES-listed species be suspended at the time.

Market developments

There is no indication of any major market developments affecting *Pericopsis elata,* which, as noted below, forms a very small proportion of the trade in relatively high-value tropical hardwoods.

Impact on other species

Export markets for tropical timbers are geographically organised so that substitutions for timbers such as *P. elata* are much more likely to be found locally than in other continents. There are no similar African timber species included in the Appendices. It is unlikely that any restriction of export of *P. elata* would have an impact on other similar CITES-listed timber species (mahogany *Swietenia* spp. from South and Central America and ramin *Gonystylus* species from South-east Asia).

Management and production systems and protection status

In the major exporting countries *Pericopsis elata* is treated for management purposes in similar fashion to other timber-producing trees, as part of the commercial forestry sector. In all three countries, this sector has undergone major changes in the past decade, that is before, during and after the Review of *P. elata*. It is difficult to separate these more widespread changes, many of which have been supported by donors, from specific changes brought about as a result of the Review. However, there have evidently been some specific impacts. Action plans for the species for all three countries have been drafted as a direct result of the Review. In Cameroon there have been specific modifications in management, with minimum size for harvest reduced, the previous minimum having been unrealistically high. In Democratic Republic of Congo the Review has drawn attention to the need for reform in the way that CITES is implemented in the forestry sector.

Costs and benefits associated with management of and trade in the target taxa

Pericopsis elata is a reasonably highly valued tropical hardwood. However, even in the major exporting countries it comprises a very small proportion (less than 5%) of exported timber by volume and therefore makes only a very small contribution to the forestry sector. The species is managed along with other timber species; the only additional costs of its management are those associated with implementing CITES, which are unlikely to be great compared with other costs (although may be perceived by exporters as onerous).

The Review has served as a focus and catalyst for international cooperation, notably between CITES and ITTO, who are undertaking a joint project to improve management of this species along with other CITES-listed tropical timbers and *Prunus africana*.

Conservation policies in range States

Management of *Pericopsis elata* in exporting countries is under the forestry sector which in all cases is undergoing various reforms which are likely largely to overshadow any policy impacts of the Review. It is possible that the perceived additional burden of implementing CITES, particularly Article IV, for this species has made exporting range States (and perhaps other timber-exporting nations) look less favourably on the use of CITES as a tool to regulate trade in timber species in general.

Overall conclusions

The Review has had some impact on trade in the species, and on management planning, through the development of species action plans and the catalysing of funding for national and international work on the species. It is not clear, however, that it has materially affected the actual management of the species.

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Strombus gigas

The Queen Conch is a marine mollusc harvested mainly for its meat occurring in least 36 countries and dependent territories in the wider Caribbean. It was listed in Appendix II in 1992 and first included in the Review in 1995 with recommendations made in 1997 for all range States. The species was included again in 2001 with recommendations made for 16 range States in 2003.

Status

The species was assessed by IUCN in 1994 as “Commercially Threatened”, a category no longer used, and has not been assessed since. There are no overall population estimates but there are numerous assessments of local population density. Recent surveys have often found densities below 100 individuals per ha, some below 50 per ha, the critical density for successful breeding. There are relatively few time-series data, but where these are available they generally show very large decreases over time: for example surveys in Colombia’s San Andres archipelago found nearly 6000 individuals per ha in 1974, 38 per ha in 1997 and fewer

than 3 per ha in 2005. Management measures, including restrictions in trade, introduced at least in part as a result of the Review, appear to have led to recovery of populations in some places (e.g. Colombia) but not in others (e.g. Haiti).

Trade patterns and impacts of the Review on these

The main commodity in trade is meat. According to import data (which often differ markedly from export data) there was a rapid increase in exports in the early 1990s, culminating in annual exports of around 3000 tonnes in 1996 and 1997 (see Annex 1). Trade dropped sharply in 1998 to around 1400 t and then increased again, to around 2600 t, in 2001-2003, declining sharply in 2004 to less than 1500 t. Annual exports since then have remained below 2000 t, although they show an increasing trend over the period 2007-2009. The top five exporting range States have been Jamaica, Honduras, Turks & Caicos Islands, Belize and the Dominican Republic. The great majority of exports have gone to the United States.

The overall drops in trade in 1997-1998 and 2003-2004 are strongly correlated with the Review. However the drop in 1997-1998 is largely the result of a continuing declining trend in exports from Jamaica (then the most important exporter) that began in 1996 and it is not clear how far the Review process influenced this. The EU market (including territories in the Caribbean), previously important for Jamaica, also temporarily closed during this period. The cessation of export from Jamaica in 2000 was the result of a national lawsuit that suspended the fishery at that time. The 1999 Standing Committee recommendation to suspend trade from Antigua and Barbuda, Barbados, Dominica, Haiti, Saint Lucia and Trinidad & Tobago, because of non-compliance with review recommendations did not have a significant impact on total trade, as trade from these range States was at a low level at the time.

In contrast, the 2003 recommendations, notably temporary moratoria on trade from Honduras, Dominican Republic (at that time the two largest exporters) and Haiti clearly had a major impact on overall trade. Trade from Honduras resumed in 2006 at a low level, thanks to the establishment of a national export quota (210 t). Exports from other range States, notably Bahamas, Belize, Nicaragua and Turks & Caicos Islands, have increased somewhat since the early 2000s.

Market developments

The main market for *Strombus gigas* is the USA where demand evidently remains strong. In 1998 the EU market (including territories in the Caribbean) was closed because of Food Sanitary Provisions. In 2001 trade from Jamaica was permitted again and since then trade from some other range States has also been allowed but imports remain at a relatively low level.

Impacts on other species

Other CITES-listed marine invertebrates traded for their meat are the Giant Clams (Tridacnidae spp.). Reported trade in meat from these has decreased since the early 1990s and it is unlikely that restrictions on trade in *Strombus gigas* have had significant impact on demand for these species.

Management and production systems and protection status

There has been considerable progress in management and legislation governing harvest and trade in *Strombus gigas* over the past two decades, much of which is likely to have been at least in part a response to the Review, although the continuing evolution of fisheries management in general has clearly also been important. Many range States have enacted legislation with minimum size limits for the species. Some have developed specific management plans and most have adopted a range of management measures variously including closed seasons, specified harvesting areas, no-take zones and limits on fishing gear. Harvest or export quotas have been established in several range States and have in some cases been based on ongoing monitoring of the resource (e.g. Honduras, Nicaragua and Turks & Caicos Islands). Voluntary moratoria, sometimes only temporary, on trade have been adopted by some countries or territories, e.g. Colombia.

Regional collaboration has occurred through workshops and joint programmes involving national and international actors including the US's Caribbean Fisheries Management Council, Caribbean Fisheries Resource Mechanism (CFRM), the Food and Agriculture Organization of the United Nations (FAO), the US federal agency National Oceanic and Atmospheric Administration (NOAA), TRAFFIC and others. A 2003 international workshop in Jamaica was designed specifically to address the recommendations arising from the Review, as well as wider capacity-building issues. However, regional concern over the management of the resource is of long standing, with the International Queen Conch Initiative established by Caribbean Region countries at around the time the species was included in the Appendices.

Costs and benefits associated with management of and trade in the target taxa

The species is one of the most important fishery resources in the Caribbean, used extensively domestically as well as exported. The wholesale value of annual landings was estimated to be USD 60 million in 1992. In the late 1990s it was Jamaica's single most valuable fishery, creating employment for around 3,000 people, largely in processing and packaging. Similarly in Honduras the fishery employed around 1200 people in the early 2000s. Restrictions on trade in these countries are likely to have had significant economic impact. Shells and pearls, normally a by-product of the meat trade, are sold domestically, often to tourists, and are additional sources of income.

The costs of implementation of recommendations arising from the Review, particularly monitoring and enforcement of restrictions on harvest and trade, are likely to be considerable. Different exporters have adopted or considered different approaches to meeting these, including funding from donors, central government funding, tax on exports, industry funding or the sale of products harvested for scientific research. Where enforcement capacity is not adequate there has apparently been in some cases a shift to illegal harvest and trade, for example in St Lucia.

The Review has served as a catalyst for the provision of funding and technical support as well as for research efforts leading to improved understanding of the ecology and management of the species. Through regional bodies such as the Caribbean Fisheries Resource Mechanism it has encouraged international cooperation and coordination of management. It is likely that the Review has increased regional understanding of and capacity to implement CITES. The species was recently used as a case study for a CITES capacity building workshop in the region on non-detriment findings.

Conservation policies in range States

Regional workshops focusing on *Strombus gigas*, held in response to the Review, evidently raised the profile of and engagement with CITES in range States, and helped in developing wider regulatory and policy frameworks for harvested wild marine species.

Overall conclusions

The Review appears to have had significant impact on the management of *Strombus gigas*, both in major exporting countries and elsewhere. It is is also thought to have increased regional capacity to implement CITES. Trade restrictions imposed as part of the process have undoubtedly served as a stimulus to action, but most progress has been achieved through capacity-building and the provision of external funding and technical support, in cooperation with importing countries and regional organisations. Capacity to enforce regulations is likely to be a continuing issue.

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Cuora amboinensis

The South Asian Box Turtle is a semi-aquatic reptile, found in South-east Asia, exported primarily as a live animal for its meat, with some export for the pet trade and as shell. The species was included in Appendix II in 2000 and was first identified for inclusion in the Review in late 2000, with recommendations for Indonesia and Malaysia finally made in 2005.

Status

Cuora amboinensis was assessed as Vulnerable by IUCN in 2000. There is very little quantitative information indeed on its wild status, and no reliable time-series. Indications of change in status are based on anecdotal accounts and observations on changes in abundance in markets, which may be influenced by a range of other factors. Anecdotal information from Peninsular Malaysia and Indonesia indicate substantial declines in abundance in at least some areas in the past few decades. A study in the late 2000s, carried out in response to the Review, indicated a very marked difference in abundance and population structure between an exploited and an unexploited population of the species, but was based on only one survey of each, covering a small area.

Trade patterns and impacts of the Review on these

Cuora amboinensis has been a very heavily traded species. Incomplete data from the 1990s indicate export from range States of several hundred thousand individuals annually, almost all to China and Hong Kong S.A.R..

Only three countries – Indonesia, Malaysia and Viet Nam – have reported significant levels of exports since the species was listed in Appendix II (see Annex 1). Other than in 2000 (the year the species was listed), when Malaysia reported exports of around 270,000 individuals, trade reported under CITES has been at a much lower level than that in the 1990s, particularly since 2006 when Malaysia ceased export. However, a very large proportion of trade is believed to be illegal and goes unreported. Surveys in the mid-2000s estimated that illegal export from Indonesia was , conservatively, at least 10 times and more likely 100 times greater than reported exports (the latter being around 20,000-30,000) while that from Peninsular Malaysia was likely to be at least as large as legal export before a zero quota was introduced in 2005 (also several tens of thousands). Trade for the pet trade is insignificant in terms of number of individuals compared with the trade for food and medicine. A large proportion of Malaysia's exports up to 2000 is believed to have originated in East Malaysia (Sabah and Sarawak). Trade in the species is prohibited there and levels of illegal trade appear low. Viet Nam's reported exports have been far lower than those from Indonesia and Malaysia (around 27,000 in total for 2000-2009); all are reported as re-exports, mostly from Lao P.D.R..

It would appear that recent export from Indonesia may be of the same order of magnitude (several hundred thousand individuals per year) as in the years immediately preceding listing in Appendix II. In contrast, recent export from Malaysia may be at a considerably lower level as much earlier export originated in East Malaysia where there appears to be relatively little illegal trade. Illegal exports originating in Peninsular Malaysia (perhaps a few tens of thousands per year) may be lower than exports from there in the 1990s and early 2000s. The decrease in the latter may be in part a response to actions undertaken in response to the CITES listing and the Review (see below), but may also reflect decreasing availability of the species in Peninsular Malaysia. There is not enough information from elsewhere to discern trends. Export from Viet Nam was suspended by Standing Committee recommendation in 2009 because the country had failed to respond to requests for information early in the Review.

Market developments

Demand for this and similar species appears stable or increasing. China, the largest potential market has introduced general regulations including a ban in 2003 on the commercial import of most species of chelonian including *Cuora amboinensis*. China's action can be seen as a response to general concerns regarding trade in Asian chelonians, of which *C. amboinensis* is the most heavily traded and of which the Review is another manifestation. Imports of *C. amboinensis* since 2004 have shifted to Hong Kong S.A.R. and remained largely unchanged in quantity.

Impact on other species

The species is evidently regarded as a generic chelonian in food and medicine markets in Asia. Restriction in trade in this species may in theory increase international demand for other Appendix-II listed species from the region, notably other *Cuora* spp., *Malayemys* spp. and *Siebenrockiella* spp. However, as discussed above, available information indicates most trade in *Cuora amboinensis* is illegal and unaffected by the Review (see above). There is also comparatively speaking little recorded trade in these other species (although almost certainly substantial illegal trade) and certainly too little to discern any definite trends. The continuing depletion of accessible stocks of *C. amboinensis* as a result of harvest for illegal trade may drive demand for other species.

Management and production systems and protection status

Impact of the Review on management and production systems appears to have been relatively slight, and largely confined to changes to export regulations in Indonesia and Malaysia. In Indonesia the annual export quota was reduced in 2001 from 90,000 individuals to 18,000; the latter was not based on any survey or assessment of the wild population but was considered conservative relative to previous export levels. In Malaysia initial (post CITES-listing) export quotas of 50,000 for 2001 and 2002 were reduced to 15,000 for 2003 and 2004 and zero in 2005, undoubtedly in direct response to the Review. The species is not protected by domestic legislation at the national level in either Indonesia or Malaysia (although is covered by general wildlife ordinances in East Malaysia). This has not changed as a result of the Review.

Costs and benefits associated with management of and trade in the target taxa

Harvest and trade in the species has clearly been at a large scale for many years and has generated considerable revenues at all stages, despite the species being of relatively low unit value. It is not clear how the shift from legal to essentially illegal trade has affected the amount and distribution of the income generated. Observations in the late 2000s made during a study prompted in part by the Review indicate that depletion of this and other reptile species from areas where commercial collection has taken place over a number of years has had considerable impact on local livelihoods.

The species is not actively managed in either of the main exporting countries, so that immediate costs have been restricted to those of permitting and export control associated with CITES species in general. No range State is known to have carried out an assessment to form the basis of a non-detriment finding; it is likely that the costs of even a basic assessment would be considerable, as would the recurrent costs of implementation of any management plan that included effective enforcement. The studies carried out to date were funded by external donors as part of specific projects aimed at improving the quality of scientific input in CITES decision-making.

Conservation policies in range States

There is little direct evidence that the Review has had direct impact on wider conservation policies in target range States. However, in both Indonesia and Malaysia it has drawn attention to the challenge of regulating harvest and trade in species that are not formally protected but that are included in the CITES Appendices. It is possible that attempts may be made in the future to address this.

Overall conclusions

The Review appears to have had little impact on the status or management of *Cuora amboinensis* because most of the trade is now illegal, although it may have led to some reduction in harvest and export in one part of one range State (Peninsular Malaysia). The Review has drawn attention to the problems of managing this and similar species. However, solutions to these problems, if they can be found, evidently lie for the most part outside the remit of the process.

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Psittacus erithacus

The African Grey Parrot is a forest-dwelling bird occurring in 23 countries in western and central Africa. It is traded as a pet and was included in Appendix II in 1981. It has been selected for the Review of Significant Trade three times, in the 1980s (published in 1988), 2004 and 2011. In 1992 recommendations arising from the 1988 review were made for Cameroon, Ghana, Guinea, Liberia and Togo. In 2006 recommendations were made for Cameroon, Côte d'Ivoire, Democratic Republic of Congo, Equatorial Guinea, Liberia and Sierra Leone. The 2011 review, only including range States not recently subject to earlier review recommendations still in effect, is at an early stage.

Status

The species was classified as Near Threatened by IUCN in 2008. The most recent global estimate (made in the mid-2000s) is of a population between 680,000 and 13 million. Thanks to surveys, mostly carried out in the late 1990s and early 2000s it has been possible to make reasonably accurate population estimates in some countries (including Côte d'Ivoire, Cameroon, Democratic Republic of Congo, Ghana, Guinea, Guinea-Bissau, and Nigeria). There are also some local estimates of breeding density (nest per hectare) of similar accuracy (with upper and lower confidence limits varying by a factor of two or three). However, status in large parts of its range remains speculative. Estimates are based on limited surveys, or largely anecdotal observations and inferences drawn from population densities found in other, better known parts of the range. Furthermore there has been virtually no continuing monitoring, or repeats of earlier surveys. It is therefore not possible to assess the impact of the Review on wild populations.

Trade patterns and impacts of the Review on these

In 1985-1993 trade as reported by importers averaged around 35,000 birds annually (see Annex 1). From 1994 to 1998 this dropped to around 25,000 birds annually (fewer than 10,000 in 1998). It increased again from 1999, reaching a peak of around 45,000 birds in 2005. From 2006 onwards trade has been much lower, though on a rising trend, just exceeding 10,000 in 2009. Recorded origins of birds in trade have shifted. In the early 1980s a significant proportion of birds were reported as originating in Mali with almost all the remainder from West African countries and Cameroon. The latter remained a major exporter until 2006. Since the early 1990s the Democratic Republic of Congo has become an important exporter, and has accounted for virtually all exports of wild birds since 2006. Congo also exported significant numbers from 2001 to 2005. Exports from West African countries dropped to very low levels in 1994, with some countries (notably Côte d'Ivoire, Ghana, Guinea and Togo) ceasing all exports at that time. Côte d'Ivoire resumed exports in 2001 and some other West African countries (Liberia, Guinea, Sierra Leone) have recorded very low levels of exports in the 2000s. Since 2000 there has been a large increase in the numbers of birds in trade reported as captive-bred, reaching some 15,000 (according to reported imports) in 2009. Since 2004 a large proportion of these have been reported by

importing countries (chiefly in Asia) as exported from range States or as re-exports originating in range States. Very few such exports have been reported by the range States in question.

The Review has had significant impacts on patterns of trade, although other factors have also played a part, particularly the EU ban on import of all wild birds in 2005, which became permanent in 2007. The restriction on import of wild birds into the United States as a result of the 1992 Wild Bird Act appears to have contributed to the decline in trade seen in the second half of the 1990s. Reported exports from Mali ceased in 1987, probably as a result of the 1980s review. Exports from Guinea (almost certainly the actual source of many of the 'Malian' birds) began at this time. The general shift from West Africa to Central Africa as source of supply may have been in response to the first review. Exports from Togo were subject to a temporary suspension in 1992 as an outcome of the 1988 review. Concerns regarding quota implementation in Cameroon in 1996 led to the temporary cessation of exports in 1997, although this was not directly linked to the Review. Lack of compliance with 2006 review recommendations, notably to prepare national management plans, led the Standing Committee to recommend zero export quotas for 2008 for Cameroon, Côte d'Ivoire, Guinea, Liberia and Sierra Leone, to suspend all exports from Equatorial Guinea and to impose reduced quotas on Congo and Democratic Republic of Congo. These restrictions are still in place. No exports have been reported from Equatorial Guinea since 2005. Cameroon and Guinea have reported low levels of export since 2008.

Market developments

Changes in the European and US markets appear to have been largely driven by unilateral regulatory changes discussed above. Most birds legally offered for sale in these markets are now domestically captive-bred; the shift from wild-caught to captive-bred birds has increased prices and probably reduced demand somewhat. Demand for the species clearly remains strong and, judging by recent import records, appears to be growing in non-EU, non-US countries.

Impact on other species

The species has historically been traded in higher volume as wild-caught birds than any other CITES-listed member of the parrot family (Psittacidae) so that it might be expected that restrictions on trade would significantly increase demand for other species. Exports of the Senegal Parrot *Poicephalus senegalus* did indeed increase in 1998 and 1999 following a year of lower trade in *Psittacus erithacus* in 1997. However, there has subsequently been a general decline in the numbers of wild psittacines, including the Senegal Parrot, in (legal) international trade.

Management and production systems and protection status

There appears to be little active management of the species in most range States and few countries have drafted national management plans. Collection for export is generally mediated through a permit system, though it is not clear how effectively this operates in all cases. In response to recommendations arising from the Review a number of countries have carried out population surveys. Cameroon increased the protection status of the species in 2006 so that collection for commercial export is no longer legal. A study on the species has recently been undertaken there.

As noted above, since the mid-2000s large and increasing numbers of captive-bred birds have been reported in trade. No range State is currently known to have large-scale captive breeding facilities for the species.

Costs and benefits associated with management of and trade in the target taxa

Trade in *Psittacus erithacus* can generate considerable income along the value chain. In 2003 it was reported that Cameroonian trappers would sell each parrot for an average of USD10 with each then fetching an export price of USD20-30 and retailing at USD600-800 in European markets. Where no active management or monitoring takes place, costs incurred are low, chiefly entailing administration of quotas and CITES documentation.

Earlier population surveys, mostly carried out in response to the Review, have been funded by external donors. It is logistically challenging and expensive to carry out surveys in large parts of the range. With the exception of some localised recent study in Cameroon, none appears to have been carried out in response to the recent (2006) review. It appears some range States may effectively have decided to cease exporting rather than incur the expense of carrying out surveys and other recommended actions, particularly in view of the currently reduced global demand owing to the restrictions operating in the EU and US.

Illegal, mis-reported and questionable trade has been a persistent problem with *Psittacus erithacus*. It has proven extremely difficult to quantify the extent of the problem or assess its impact on wild populations.

Increasing restrictions on legal trade resulting from the Review evidently create an incentive for illegal trade, but it is not possible to quantify this impact.

Conservation policies in range States

It is unclear what impact the Review (which began for this species more than 25 years ago) may have had on conservation policies in range States as it is difficult to separate the Review from other interventions in relation to the live bird trade during this period.

Overall conclusions

Over the years the Review has clearly had an impact on trade patterns and, probably, overall levels of legal trade in the species. It has led to a number of national surveys, catalysing funding for these, and may have contributed to increased protection for the species in at least one case. It does not appear to have led to any ongoing monitoring programmes or other forms of active management. Its impact on illegal trade is unknown.

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Hippopotamus amphibius

Common Hippopotamus or hippo is a semi-aquatic mammal found in 38 countries in sub-Saharan Africa exported primarily as ivory (the canine and incisor teeth) and as leather. It was included in Appendix II in 1995. The hippo was first included in the Review in 1998, with recommendations made in 1999 for Botswana, Democratic Republic of Congo, Malawi, Mozambique, Rwanda, South Africa, United Republic of Tanzania, Zambia and Zimbabwe. The hippo was again included in the Review in 2008, with recommendations made in 2011 for Cameroon and Mozambique.

Status

The hippo was assessed as Vulnerable by IUCN in 2008. For a wild animal its overall status is well known, with a 2008 global population estimate of 125,000 – 148,000 individuals. There are few detailed time-series (an exception being South Africa) but there are assessments of national trends for most range States. In 2008 IUCN assessed populations as of unknown trend in seven range States, declining in 17, possibly declining in five, stable in seven, stable or increasing in one and increasing in one.

The major documented change in hippo status in the past twenty years has been the rapid decline in the 1990s of a previously large population in the Democratic Republic of Congo, said to have been largely prompted by increasing demand for hippo ivory (although this is not noticeably reflected in CITES trade data of the time). The population there was assessed by IUCN in 2008 as still declining although apparently at a lower rate. It is possible that this decrease in rate of reduction is associated with actions undertaken as a result of the Review (see below). Similarly, the stable state of the population in the United Republic of Tanzania (assessed as such by IUCN in 2008) may be in part a result of the reduction in export quota in the early 2000s introduced in response to the Review. Elsewhere the Review does not appear to have had a major impact on wild populations.

Trade patterns and impacts of the Review on these

Overall quantities and very broad patterns are similar in both import and export data, but there are sometimes large discrepancies in recorded trade from individual countries in individual years. Both sets show steep rises in overall trade from the mid-1990s to the late 1990s, with a decline around 1998 and 1999 and an increase in the early 2000s, with a declining trend since then, the latter being much more marked in export data than import data (see Annex 1). From 2000 onwards the United Republic of Tanzania and Uganda have been the most important exporters, with Uganda itself recording export of large quantities in 2002 and 2003, which are not well reflected in import data. Overall there has been a decline in recorded global trade since the 1999 review recommendations. In the years 1994-1999 trade averaged around 15 tonnes of hippo ivory per year (equivalent to perhaps 3000 hippos), while in the years 2000-2009 it as averaged 10 tonnes per year, or very roughly 2000 hippos per year (in each period, data from importers indicate slightly higher overall amounts than exporters).

It appears that the Review has been at least partially responsible for this reduction, most notably in leading to reduced export from the United Republic of Tanzania. The Democratic Republic of Congo ceased legal exports in 1998, before the species was first included in the Review, but it is possible that the Review, including the 2001 Standing Committee recommendation not to accept imports from the country (withdrawn in 2009 on the basis that the hippo remained a fully protected species there), has contributed to the fact that trade has not resumed. In the period 1997-2000 exports equivalent to perhaps 4000 hippos were reported from Burundi, this

figure far exceeding the total hippo population in the country at that time. At least some of these were recorded as originating in the Democratic Republic of Congo and it is possible that most if not all of the remainder also originated there. Although Burundi was removed from the Review at an early stage, having reported that it was implementing Article IV with respect to the hippo, it is possible that the focus on the species as a result of the Review led to the cessation of exports.

Market developments

It is thought likely that the major restrictions imposed by CITES Parties on the trade in elephant ivory in 1989, when the African elephant *Loxodonta africana* was transferred from Appendix II to Appendix I, were the major factor leading to the very large increase in trade in hippo ivory, notably from the Democratic Republic of Congo, observed in the 1990s. Demand for ivory clearly remains high. Hippo leather has been exported in some quantity, but appears to be largely a by-product.

Impact on other species

Increased restriction on the trade in hippo ivory may conceivably have impact on the illegal trade in elephant ivory but there is no concrete evidence for this.

Management and production systems and protection status

In the United Republic of Tanzania, a survey carried out in the early 2000s and the subsequent establishment of an annual export quota were evidently in direct response to the Review. The designation of the species as protected in the Democratic Republic of Congo in 2006 is likely to have been a response to the Review. Elsewhere, it appears in general that the outcome of the Review has been to confirm that exports of the species have been in accordance with Article IV and that therefore little change in management, at least as regards harvest for export, has been needed. It should, though, be noted that the 2008 review is ongoing.

Costs and benefits associated with management of and trade in the target taxa

In importing countries individual hippo teeth retail at between USD20 and USD275 depending on size. At this point in the market chain, product from one hippo (10-16 ivory teeth of varying size) is thus worth several hundred dollars. The value at export will be much less, but sale of ivory and leather clearly generates income for exporting countries although the amount is unlikely to be large compared with the overall benefits and costs derived from managing hippos. Benefits include income from tourism, trophy-hunting and harvest for domestic consumption; costs include enforcement of protection and other aspects of active management, including population monitoring and CITES implementation, and the impacts of human-hippo conflicts.

Conservation policies in range States

There is little evidence of any major impact of the Review on conservation policies in any range State. However, the inclusion of the hippo in the Review is likely to have helped reinforce the commitment to clear and transparent implementation of Article IV for the hippo (and perhaps other animal species) in major exporting countries.

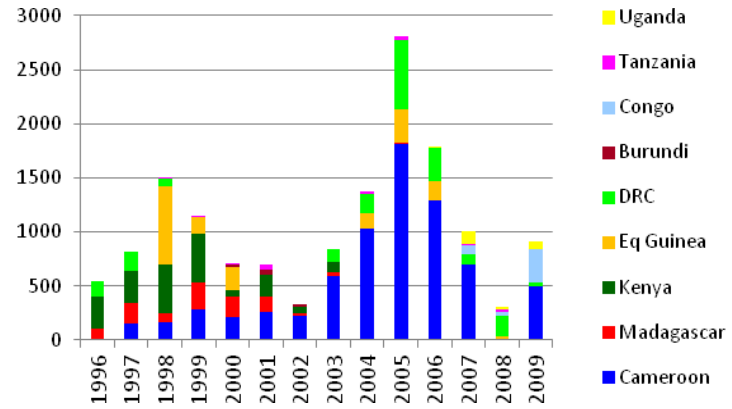
Overall conclusions

The Review appears to have been instrumental in ensuring that exports from the country with the second largest hippo population (United Republic of Tanzania) are in accordance with Article IV. It has also demonstrated, and probably helped ensure, that since 2000 other major exporters of hippo products have largely adhered to Article IV.

Annex 1: Trade in case-study species based on CITES trade data.

Figure 1: *Prunus africana* bark exports (mt) reported by i) importers and ii) exporters. (Nb Congo not a range State; DRC = Democratic Republic of Congo; Eq Guinea = Equatorial Guinea).

a)



b)

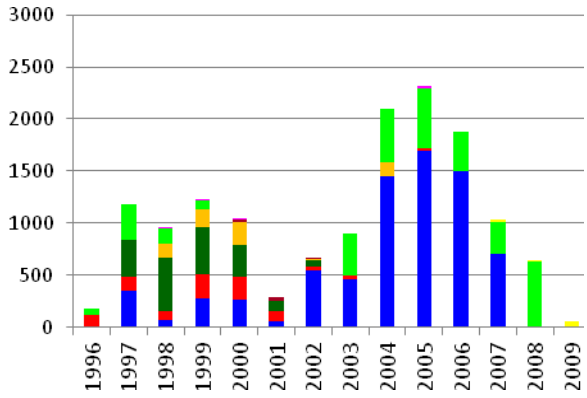
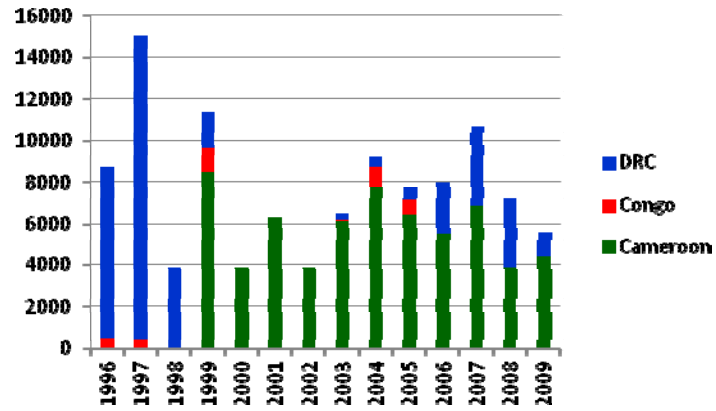


Figure 2a: *Pericopsis elata* sawnwood exports (cu m) reported by i) importers and ii) exporters. (DRC = Democratic Republic of Congo).

i)



ii)

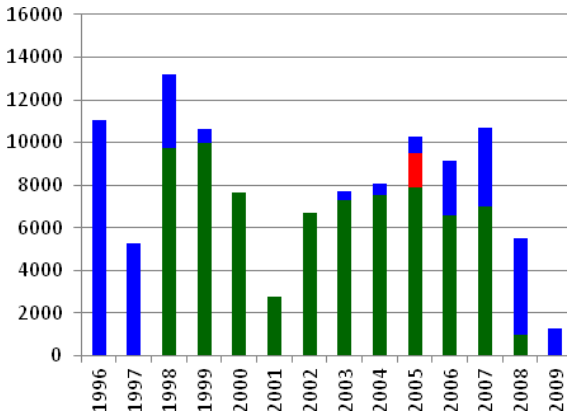
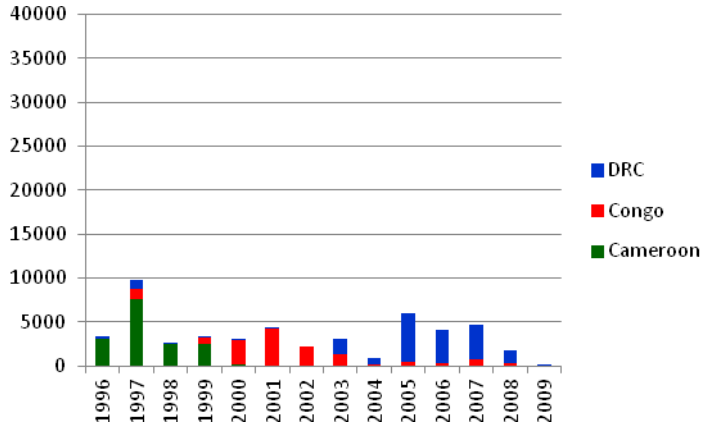


Figure 2b: *Pericopsis elata* roundwood exports (cu m) reported by iii) importers and iv) exporters. (DRC = Democratic Republic of Congo).

iii)



iv)

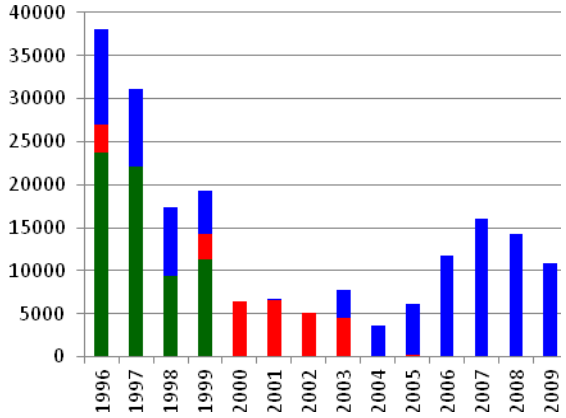


Figure 3: *Strombus gigas* meat export (kg) as reported by importers.

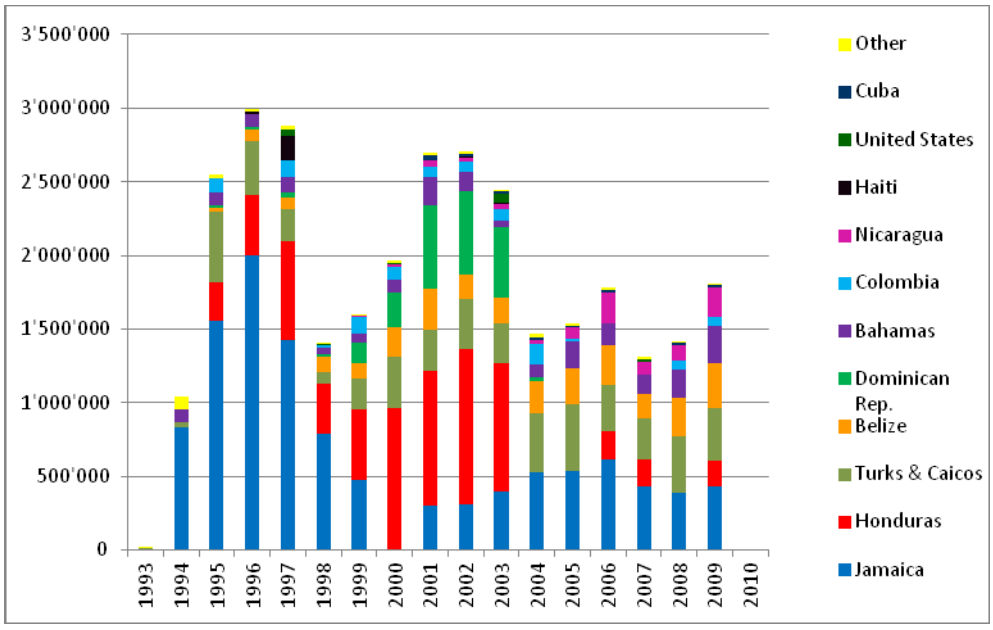
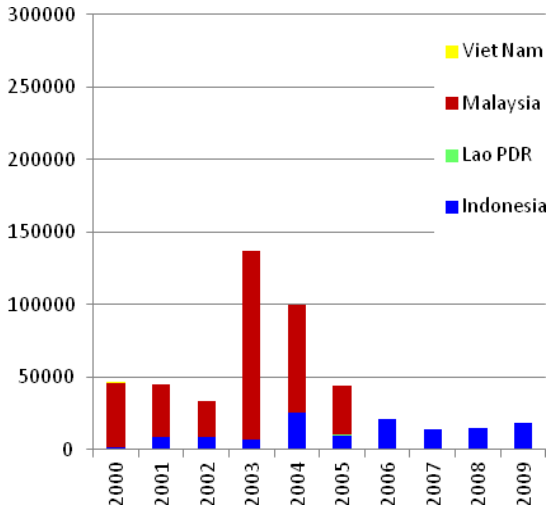


Figure 4: Trade from main exporting countries in live (number) of *Cuora amboinensis* as reported by a) importers and b) exporters (all source codes). All Viet Nam's reported exports were re-exports reported as originating in Malaysia 300 in 2003; Lao P.D.R. 2100 in 2005, 3500 in 2009; Myanmar 2500 in 2006.

a)



b)

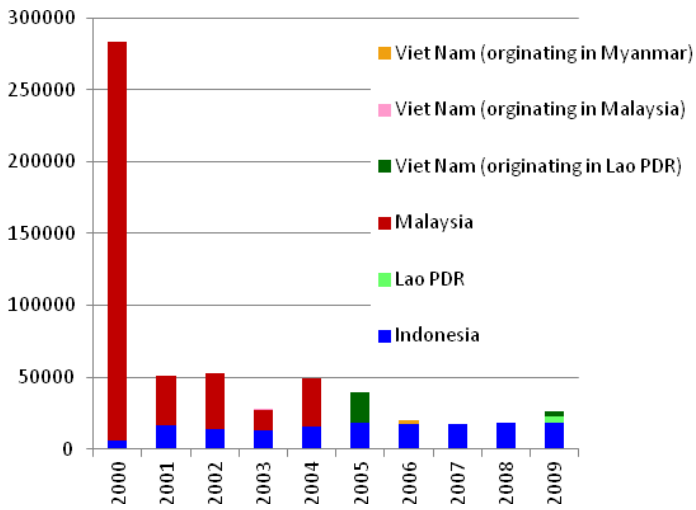


Figure 5a: *Psittacus erithacus* exports of live individuals as reported by importers (all source codes) from the 12 main exporters over this period.

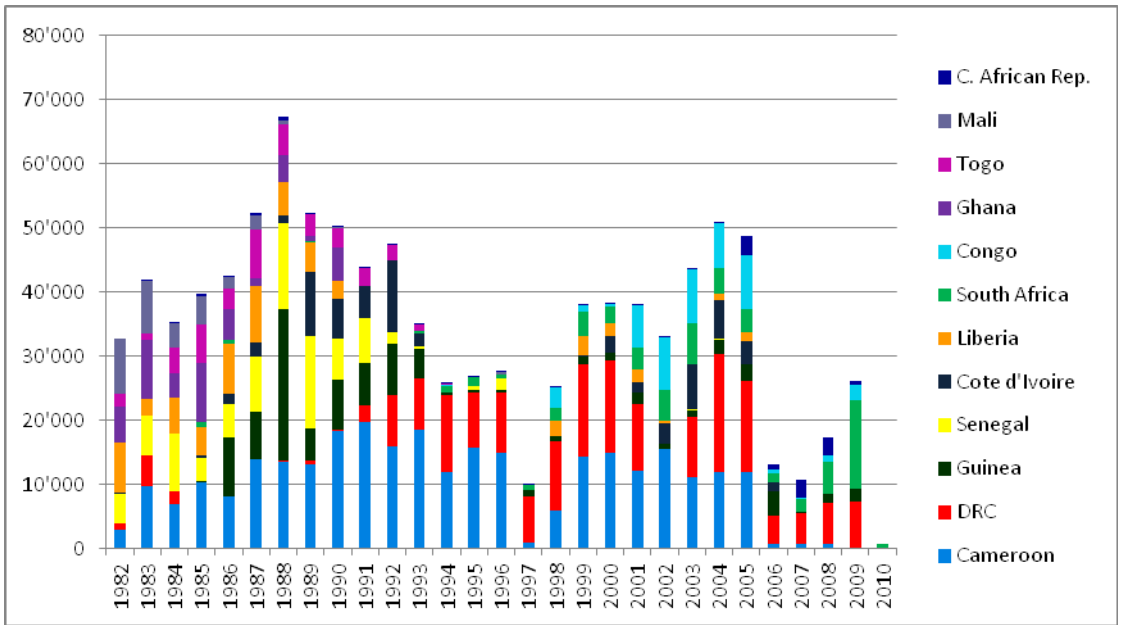


Figure 5b: *Psittacus erithacus* trade in wild and captive bred individuals as recorded by importers.

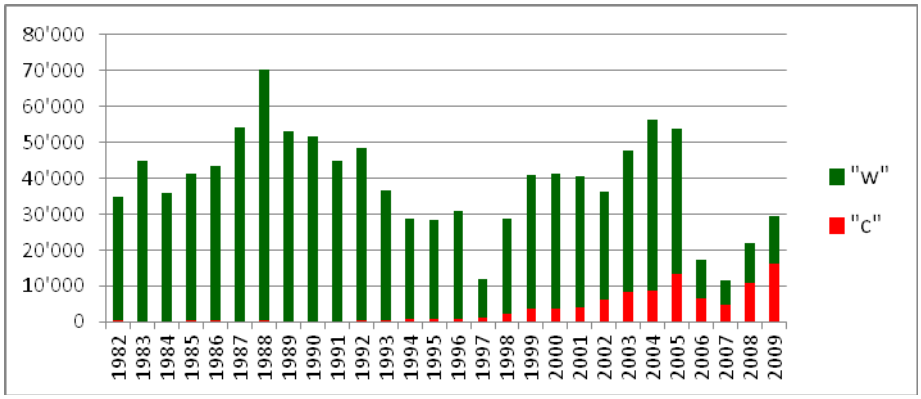


Figure 5c: Trade (including re-exports) of captive bred individuals of *Psittacus erithacus* as reported by importers from the main exporting countries. * indicates range State for the species. Some re-exports were also reported as originating in range States but this is not indicated here.

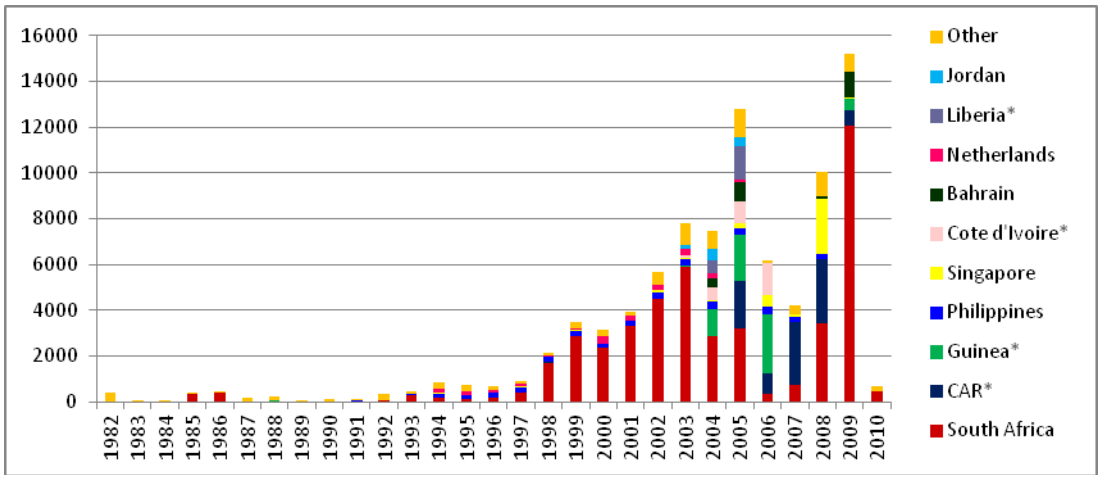
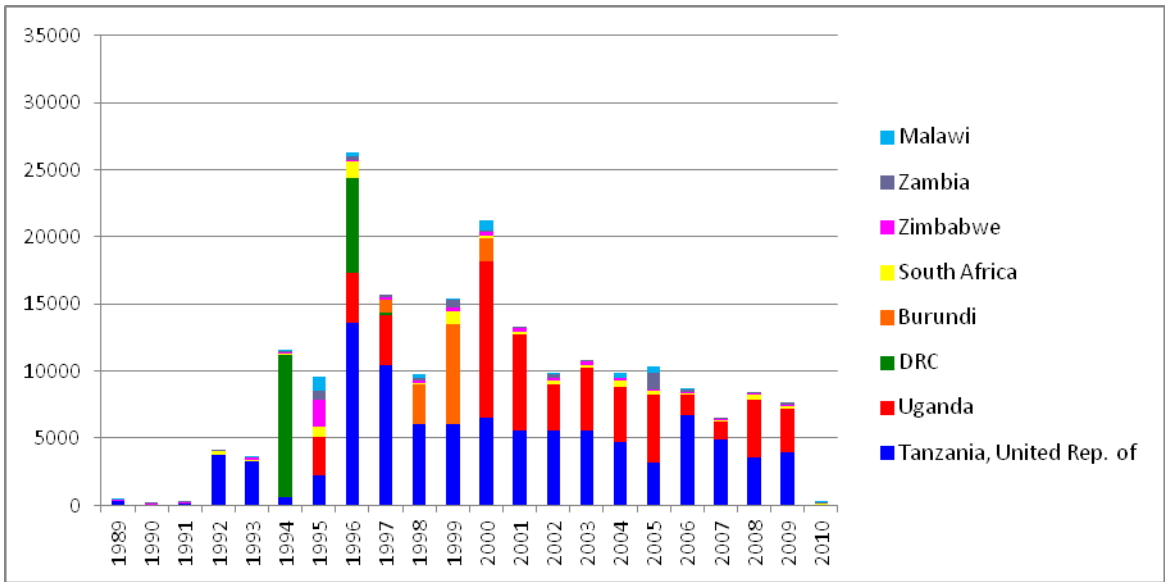
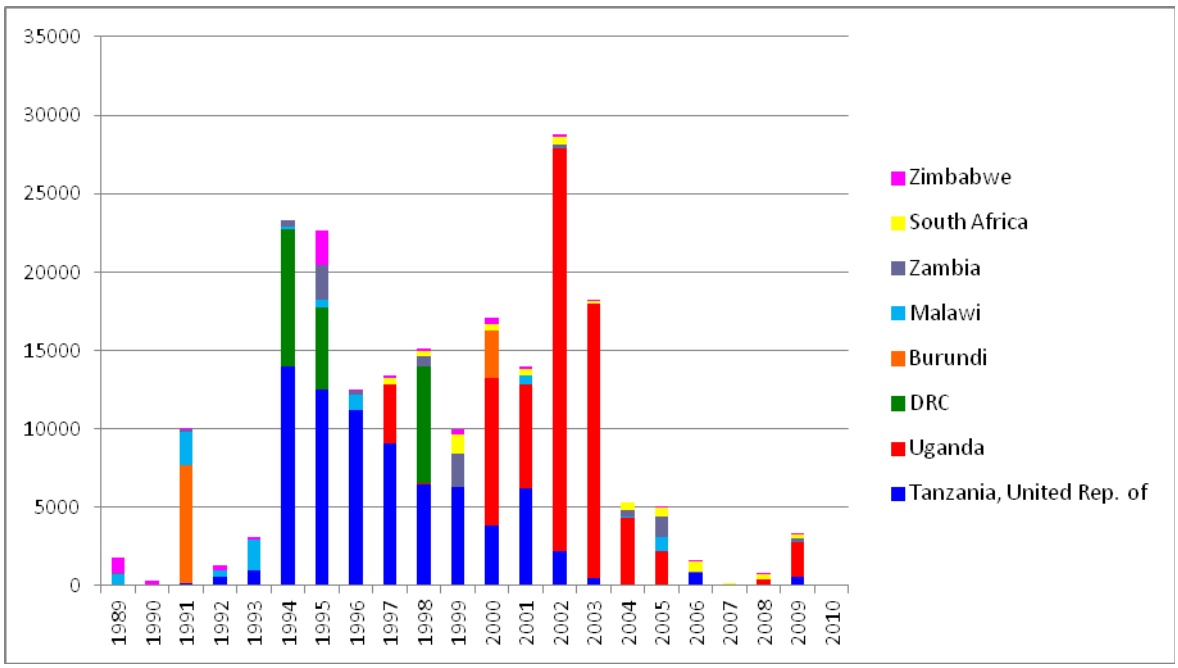


Figure 6: *Hippopotamus amphibius* export of teeth and tusks (kg) reported by i) importers, ii) exporters

i)



ii)


35000
30000
25000
20000
15000
10000
5000
0
1989
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
Zimbabwe
South Africa
Zambia
Malawi
Burundi
DRC
Uganda
Tanzania, United Rep. of

Annex 2: Main sources of information.

The main sources of information for these reviews have been official CITES documents, including Committee documents and Notifications, and sources cited within them. Major additional sources of information, some of which have been presented as Information Documents at Committee meetings, are given below. Full references, including correspondence with CITES Authorities, IUCN SSC Specialist Group members and others, are available in the long versions of the individual case studies.

Prunus africana

Anon. (2010) S'assurer que le commerce international des espèces africaines inscrites à l'annexe II de la CITES est compatible avec leur conservation. Rapport du 2ème Atelier Régional du Programme conjoint OIBT – CITES, Hotel Seme Beach, Limbé, Cameroun, du 29 Septembre au 02 Octobre 2010.

Betti, J. L. (2008)Non-detriment findings report on *Prunus africana* (Rosaceae) in Cameroon. NDF Workshop Case Studies. WG 1 – Trees; Case study 9.

CITES Secretariat. (2008). Summary report of the workshop on implementation of Review of Significant Trade recommendations for *Prunus africana* 8-11 September 2008 Naivasha, Kenya. PC18 Inf. 1.

Ingram, v. Awono, A. Schure, J. and Ndam, N. (2009). National action plan for *Prunus africana*: Cameroon. CIFOR.

Navarro-Cerrillo, R., Clemente-Muñoz, M., García-Ferrer-Porras, A. (2009). Setting export quotas of *Prunus africana*: Guidelines for a NDF plan. NDF Workshop Case Studies. WG 1 – Trees; Case study 8.

Navarro-Cerrillo, R., Clemente-Muñoz, M., García-Ferrer-Porras, A. (2009). Workshop on Implementation of Review of Significant Trade (RST) Recommendations for *Prunus africana.* Naivasha, Kenya, 8-11 September 2008. PC 18 Inf. 2 Annex.

Page, B. (2003). The political ecology of *Prunus africana* in Cameroon. *Area* 35.4, 357–370

Pericopsis elata

Anon. (2010). S'assurer que le commerce international des espèces africaines inscrites à l'annexe II de la CITES est compatible avec leur conservation. Rapport du 2ème Atelier Régional du Programme conjoint OIBT – CITES, Hotel Seme Beach, Limbé, Cameroun, du 29 Septembre au 02 Octobre 2010.

Betti, J. L. (2008) Non-detriment findings report on *Pericposis elata* (Fabaceae) in Cameroon. NDF Workshop Case Studies. WG 1 – Trees; Case study 2.

Dickson, B., Mathew, P., Mickleburgh, S., Oldfield, S., Pouakouyou, D. & Suter, J. (2005). *An assessment of the conservation status, management and regulation of the trade in* Pericopsis elata. Fauna & Flora International, Cambridge, UK. PC15 Inf. 2.

Mbarga, N.L. (2010). Main results of the CITES/ITTO project on Assamela in Cameroon.

Strombus gigas

Aiken, K, Kong, A., Smikle, S., Appeldoorn, R., Warner, G. (2006) Managing Jamaica's queen conch resources. *Ocean & Coastal Management* **49** pp 332–341

CITES Secretariat (2006) Review of Significant Trade in *Strombus gigas.* AC22 Inf. 4

Prada, M., Castro, E., Taylor, E., Puentes, V., Appeldoorn, R., and Daves, N. (2008) Non-detrimental findings for the Queen Conch (*Strombus gigas*) in Colombia NDF Workshop Case Studies WG 9 – Aquatic Invertebrates Case Study 3.

Cuora amboinensis

AC18 Inf 12 (2002) Technical workshop on conservation of and trade in freshwater turtles and tortoises Kunming, Yunnan Province, China, 25-28 March 2002

Schoppe, S. (2008). Science in CITES: The biology of the southeast Asian box turtle *Cuora amboinensis* and it uses and trade in Malaysia. A TRAFFIC Southeast Asia Report.

Schoppe, S. (2009). Status, trade dynamics and management of the southeast Asian box turtle *Cuora amboinenesis* in Indonesia. . A TRAFFIC Southeast Asia report.

Shepherd, C. R. (2000). Export of live freshwater turtles and tortoises from North Sumatra and Riau, Indonesia: A case study. In: Asian Turtle Trade: Proceedings of a workshop on conservation and trade of freshwater turtles and tortoises in Adia. Eds P. P. van Djik., B. L. Stuart., A. G. J. Rhodin. Chelonian Research Monographs. Number 2 – August 2000.

Shepherd, C. R. (2007). An overview of the regulation of the freshwater turtle and tortoise pet trade in Jakarta, Indonesia. A TRAFFIC Southeast Asia report.

van Djik., P. P.,. Stuart, B. L., Rhodin, A. K .J. (2000). Export of live freshwater turtles and tortoises from North Sumatra and Riau, Indonesia: A case study. In: Asian Turtle Trade: Proceedings of a workshop on conservation and trade of freshwater turtles and tortoises in Asia. Chelonian Research Monographs. Number 2 – August 2000.

Psittacus erithacus

BirdLife International (2008). *Psittacus erithacus*. In: IUCN 2011. IUCN Red List of Threatened Species. Version 2011.2. <www.iucnredlist.org>. Downloaded on **8 September 2011**.

BirdLife International (2011) Species factsheet: *Psittacus erithacus*. Downloaded from http://www.birdlife.org on 22/08/2011. Recommended citation for factsheets for more than one species: BirdLife International (2011) IUCN Red List for birds. Downloaded from http://www.birdlife.org on 22/08/2011.

Ngenyi, A. (2002). Report on activities of foraging and captured trend of African grey parrots in the Lobeke reserve. Report for WWF, Jengi SE project.

Ngenyi, A. (2003). The African grey Parrot (*Psittacus erithacus*) - Status and Commercial Exploitation in Cameroon. Report for WWF, Jengi SE project.

Yaokokoré-Béibro. (2004). Donnees Preliminaires Sur le Statut des Perroquets et Perruches en Cote d'Ivoire: Une Étude Avant Projet. Laboratoire de Zoologie et Biologie Animale, UFR Biosciences, Univesité de Cocody, Abidjan, Cote d'Ivoire.

Hippopotamus amphibius

Lewison, R. & Oliver, W. (2008). *Hippopotamus amphibius*. In: IUCN 2011. IUCN Red List of Threatened Species. Version 2011.2. <www.iucnredlist.org>. Downloaded on 8 September 2011.

Malawi's Fourth Country Report. (2010). Environmental Affairs Department, Ministry of Natural Resources, Energy and Environment. To the Convention on Biological Diversity (CDB).

Nchanji, A. C. & Fotso, R. C. (2006). Common hippopotamus (*Hippopotamus amphibius*): a survey on the River Djerem, Mbam-Djerem National Park, Cameroon / Hippopotames (*Hippopotamus amphibius*): l'inventaire des populations sur la rivière Djerem, Parc National de Mbam Djerem, Cameroun. *Mammalia*. 70 (1/2), 9–13.

Zisadza, P., Gandiwa, E., van der Westuizen, H., van der Westuizen, E. & Bodzo, V. (2010). Abundance, distribution and population trends of hippopotamus in Gonarezhou National Park, Zimbabwe. South African Journal of Wildlife Reserch. 40 (2), 149-157.