EVALUATION OF THE REVIEW OF SIGNIFICANT TRADE: CASE STUDIES*

1. *Hippopotamus amphibius*

Hippopotamus amphibius (common hippopotamus or hippo) is a large semi-aquatic African mammal, traded largely for its teeth, used as ivory, but also for its skin and as trophies. It was included in Appendix II in 1995.

Range and overall status
Range States: Angola, Benin, Botswana, Burkina Faso, Cameroon, Central African Republic, Chad, Congo, Cote d'Ivoire, Democratic Republic of the Congo, Equatorial Guinea, Eritrea, Ethiopia, Gabon, Gambia, Guinea, Guinea Bissau, Malawi, Mali, Namibia, Niger, Nigeria, Rwanda, Senegal, Somalia, South Africa, Sudan (and South Sudan), Swaziland, Togo, Uganda, United Republic of Tanzania, Zambia, Zimbabwe.

The current status of *H. amphibius* according to the IUCN Red List is Vulnerable. The species was last assessed in 2008, having also been identified as Vulnerable in the assessment carried out in 2006. The total estimated population is thought to be somewhere between 125,000 and 148,000, with the largest proportion in Eastern and Southern African countries (Lewison and Oliver, 2008). The species was classified as Lower Risk/least concern in 1996.

Review of Significant Trade

Hippopotamus amphibius has been selected twice for the Review of Significant Trade, in 1998 and in 2008.

In the first Review, range States were categorised (according to Decision 10.79) as d iii) or d ii) at AC 15 (1999). Those classified as d iii) were those for which preliminary review indicated that the level of trade was evidently not a problem. Range States classified as d ii) were those for which preliminary review had found insufficient information on which to base a judgement on the impact of trade.

Botswana, Democratic Republic of the Congo, Malawi, Mozambique, Rwanda, South Africa, United Republic of Tanzania, Zambia and Zimbabwe were classified as d ii) and all other range States as d iii). Recommendations were transmitted to range States considered to be d ii) in 2000 in which they were asked to respond providing;

> "the CITES Secretariat with detailed information on management measures in place to monitor wild populations of the species and implement the requirements of Article IV.2 of the Convention when authorizing exports."

Responses were considered at AC16 in 2000, by which time only Botswana had replied, and again at AC17 (2001). At AC17 Botswana, Mozambique, Zambia and Zimbabwe were considered to have provided satisfactory responses and were removed from the Review. The implementation of the review was discussed by the Standing Committee at SC45 in 2001. South Africa and the United Republic of Tanzania provided additional information and were removed from the process. The Standing Committee then recommended that no imports of specimens of *H. amphibius* should be accepted for those range State that had not responded to requests for information, namely Democratic Republic of the Congo, Rwanda and Malawi, until the actions recommended had been implemented.

The Hippo was again selected for inclusion in the review at AC 2008 with all range States to be contacted except DRC and Rwanda. Range State responses were considered at AC24 (2009) with a number being removed from the process at that time. With the exception of South Africa, the major exporters of teeth or tusks were removed from the process based on information provided to the Secretariat. The Animals Committee provisionally selected the following countries as of Possible Concern: Cameroon, Mali, Mozambique, South Africa and Swaziland (AC25, Doc 9.4, 2011)1.

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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.*

[1] CITES documents including summary records, working group reports and information documents have been cited with the meeting number and document number followed by the date. Most can be found on the CITES website. They are not included in the reference list.

After review and consideration of additional information provided by range States at AC25, all countries were removed from the Review except Cameroon and Mozambique, both classified as Possible Concern. Recommendations were formulated for these countries to provide information on the basis of non-detriment findings and management.

Range States subject to Recommendations

Botswana

Review Recommendations
In the first Review Botswana was classified in category d ii) and recommendations were made asking the country to provide information. The country responded, indicating that no commercial trade was allowed, and was therefore removed from the Review.

Botswana was regarded as Least Concern in the second Review.

Status, trade and management
The population in the mid-2000s was estimated at between 2000-4000 and believed to be decreasing, though not of conservation concern (Lewison and Oliver, 2008). The species is protected under the Wildlife Conservation Policy and no commercial trade is allowed. Killing of problem animals was reported in 2000 as rare (correspondence from the Director of Wildlife and National Parks to CITES Secretariat, June 2000, documented in AC16, 7.1, 2001). Trade had not resumed by the second Review.

Impacts of the Review
The Review appears to have had negligible impact on the status or management of hippos in Botswana.

Cameroon

Review Recommendations
Not subject to recommendations in the first Review.

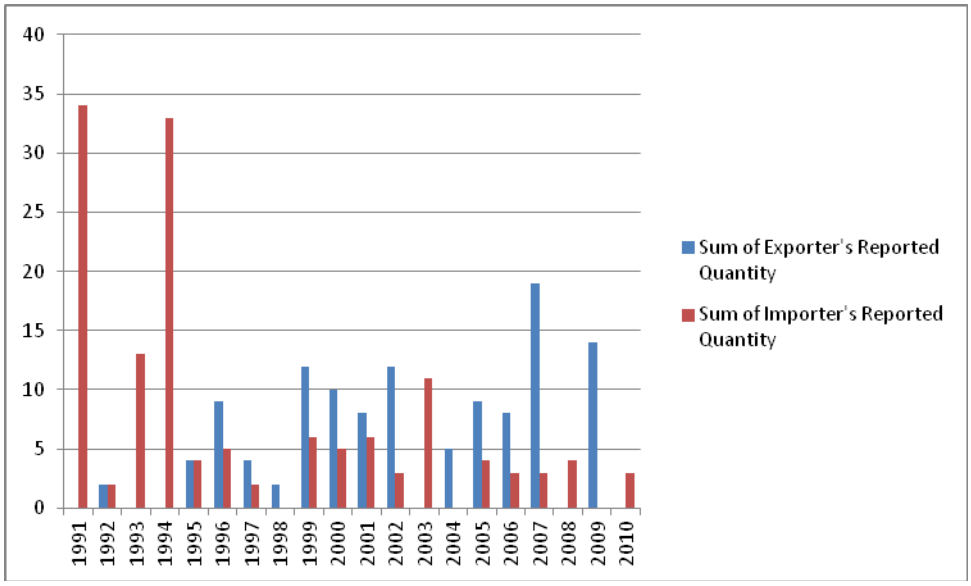
In 2011 Cameroon was classified as Possible Concern and asked to provide information within 90 days for the following:

a) The Management Authority should clarify what legal protection is afforded to this species in Cameroon and provide an explanation for the perceived discrepancies between reported Customs data (imports) and CITES data (exports) referred to in AC25 Doc 9.4;
b) Provide available information to the Secretariat on the distribution, abundance and conservation status and any current management measures in place for *H. amphibius* in Cameroon; and
c) Provide justification for, and details of, the scientific basis by which it has been established that the quantities of *H. amphibius* exported were not detrimental to the survival of the species and in compliance with Article IV, paragraphs 2 (a) and 3.

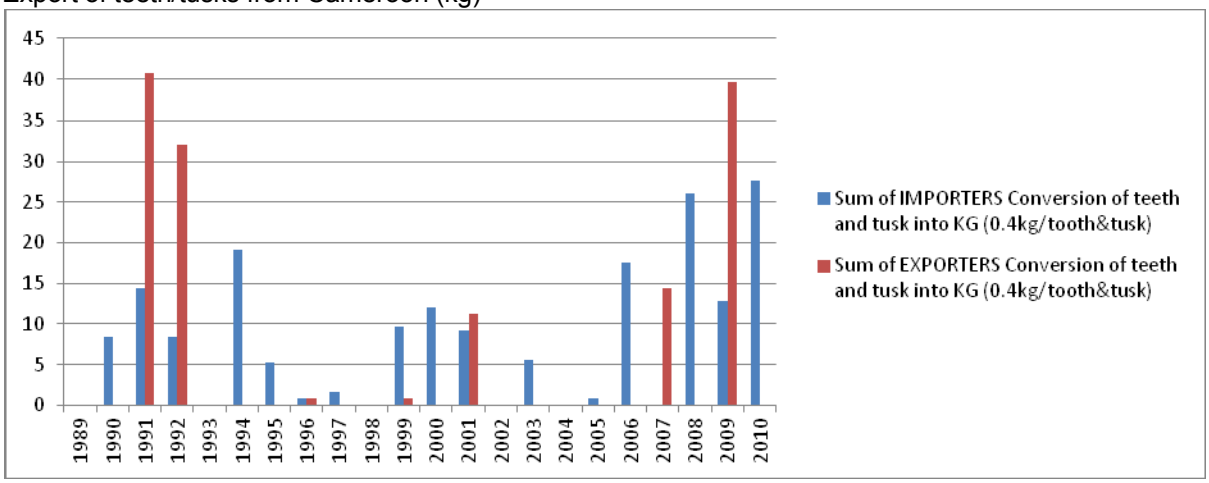
Status, trade and management
The species is currently thought to be widespread but at low density in Cameroon, occurring in Benoue national Park and River, Faro National Park, Kalamaloue National Park, Panmgar-Djerem National Park, Lake Lagdo and Lake Maga (Lewison and Oliver, 2008). The population is estimated at between 500-1500 individuals but the population trend is unknown, although concern for the conservation of this species has been noted with the main threat considered to be human-hippo conflict as a result of crop raiding (Lewison and Oliver, 2008).

Levels of trade in hippo products have been relatively low from Cameroon with the primary traded products being teeth (recorded as whole) and trophies. There are some discrepancies in the reports received from importers and exporters, with importers generally reporting more trade in teeth and Cameroon reporting greater numbers of trophies. Part of this discrepancy may be because Cameroon generally reports on permits issued rather than actual trade.

There have been some other hippo products traded from Cameroon, although only at very low numbers. Over the last 20 years this has included (according to importer only): feet (20), ivory pieces (30), tails (6) and skulls (5) along with some other products in even smaller quantities.
Export of trophies from Cameroon



Export of teeth/tusks from Cameroon (kg)



From 2006 hippos were “fully protected” by law (under Arrete 0648/MINFOF of 18/12/2006) within Cameroon, being listed as a class A species (i.e. a species which is rare or threatened with extinction). It is forbidden to kill hippos except where special authorization has been obtained for persons wishing to capture or keep these species for management purposes within the framework of scientific research or to protect people and their property. The species occurs in five national parks (Lewison and Oliver, 2008).

The Cameroonian Management Authority have specified that levels of hunting for sport are less than 5 specimens per year (Cameroonian Management Authority in litt. to TRAFFIC, 2011). It would appear that trade has continued in both trophies and teeth being reported in trade. The level of trade is difficult to determine as importer and exporter reports varying significantly.

Impacts of the Review

Because the current review is on-going it is not yet possible to assess its impacts. However, the Management Authority of Cameroon has stated that terms of reference for a study on the status of *H. amphibius* have already been drafted but that that funding is not currently available (Management Authority of Cameroon in litt. to TRAFFIC, August 2011).

Democratic Republic of the Congo (DRC)

Review Recommendations

In the first Review the Democratic Republic of the Congo was classified in category d ii) and recommendations were made asking the country to provide information. No response was received and in 2001 the Standing Committee recommended to Parties not to accept imports of specimens of *H. amphibius* from the country until the Management Authority provided adequate information regarding management measures in-place and

implementation of Article IV of the Convention. In 2008, at SC57, the Standing Committee withdrew this recommendation on the basis that the Hippo had become a fully protected species in DRC in 2006.

Status, trade and management
In 2006, the species was classified as Vulnerable on the IUCN Red List, having previously been of Lower Risk/least concern. This classification was closely linked to the rapid decline in numbers of the species in the DRC between 1996 and 1998, estimated at around 95%, linked to severe hunting pressure for meat and ivory (Hillman Smith et al, 2003 In: Lewison and Oliver, 2008). In 1994, the DRC was considered to have the second largest hippo population in Africa, approximately 30,000 individuals; it is now thought to hold 2000-4000 hippos (Lewison and Oliver, 2008).

The majority of hippos in the DRC are thought to be in the east, where they are found around Epulu and Wamba and along some of the large rivers in Ituri Forest. There are also hippos along the Zaire River, Bomu River and in some other national parks, including Garamba, Kundelungu, Salonga, Upemba and Virunga (Lewison and Oliver, 2008).

Reported trade in *H. amphibius* from the DRC has been minimal since 1998 with just one tooth in 2007 reported by the United States as source code I. The majority of trade that has taken place in the past in *H. amphibius* products has been to Belgium and the United States. Trade according to the CITES trade database has been fairly sporadic, but large shipments, particularly of teeth recorded by weight, have been recorded, with over 10 mt of teeth exported in 1994.

There have been large numbers of re-exports originally from the DRC, mainly of carvings and teeth, primarily exported from Hong Kong SAR and China and imported to various countries but the majority to the United States. Re-exports are recorded from 1987 to 2007, amounting to almost 8500 carvings and 18000 teeth, plus small quantities of leather pieces and ivory scraps according to importers' reports.

Primary traded hippo parts and derivatives traded directly from DRC showing importers (I) and exporter (E) reports from the CITES Trade Database (showing years with data between 1989-2009)

	Trophies		Teeth/tusks		Teeth (kg)	
Reporter	I	E	I	E	I	E
1989		4	14			7
1994			2		10550	8750
1995						5250
1996					7050	
1997			259			
1998						7500
2007			1 (illegal)			

The species was classified in 2006 as totally protected (Ministerial Decree No 020/CAB/MIN/ECN-EF/2006). Lewison and Oliver (2008) regarded enforcement in the country as poor to fair.

Impacts of the Review

The cessation of recorded export of hippo products from DRC preceded the first Review and cannot be ascribed to it. However, the designation of the species as fully protected in 2006 may well be at least in part a response to the review process.

Malawi

Review Recommendations
In the first Review Malawi was classified in category d ii) and recommendations were made asking the country to provide information. No response was received and in 2001 the Standing Committee recommended Parties

not to accept imports of specimens of *H. amphibius* from Malawi until the Management Authority provided adequate information regarding management measures in-place and the implementation of Article IV of the Convention. Following a review at AC24 of information submitted by Malawi concerning implementation of Article IV, the Standing Committee at SC58 (July 2009) withdrew its recommendation to Parties to suspend trade in *H. amphibius* with Malawi (Notification 2009/032).

Status, trade and management

There is considerable variation in estimates of the population of hippos in Malawi. The population of hippos in Malawi in 1993-1994 was estimated at between 7000 and 10,000 (Eltringham, 1999). In the IUCN Red List, the population in Malawi was estimated at 10,000 and identified as stable, likely based on this earlier estimate (Lewison and Oliver, 2008). However, more recent observations indicate that the true population is considerably lower. A study conducted by Harrison et al (2007) in Liwonde National Park during 2002 and 2003, counted 640 individuals but estimated the true number to be around 950 hippos along the River Shire only. In March 2006, Malawi's Department of National Parks and Wildlife (DNPW) gave estimates of various hippo populations in Malawi during discussions with TRAFFIC, including the population along the River Shire (believed to be the largest population) which they estimated at between 1100 and 1150. They stated that they believed population of hippos in Malawi had declined from the late 1980s through the mid-1990s but that the population had stabilized since about 1997. They estimated the overall population size as between 1820 and 1900. In 2011 the Management Authority estimated the population at between 1800 and 2000 specimens (Malawian Management Authority In litt to TRAFFIC, 2011). According to the Malawi Fourth Country Report (2010) hippos are classified as Vulnerable in Malawi and regarded as declining due to habitat loss and conflict with human activities.

Prior to 2001, Malawi had published quotas for the years 1998 and 2000 which included 6000 kg of skins and 4000 kg of teeth and trophies. However trade in these two years was only reported by importing countries and was well below the quota (281 kg teeth, 1 tooth, 63 carvings in 1998 and 715. 7kg teeth in 2000). Trade did occur in 2001, mainly reported by Malawi as exported to South African (only 13 teeth to elsewhere) totalling 1304 teeth plus 32 kg, amounting to approximately 553.6 kg to South Africa (based on one tooth weighing 0.4 kg). However, it is possible that this trade took place prior to the trade suspension in June 2001.

Since the trade suspension in 2001, trade appears to have continued in *H. amphibius* parts from Malawi; Malawi's reported export of 999 kg of teeth in 2004/2005 to South Africa with South Africa reporting the import of 890 kg. The majority of other trade reported since the trade suspension in 2001 has been reported as source code I. Since 2005, no trade of wild specimens for commercial purposes and very little trade for any other purpose has been recorded.

Trade in ivory carvings reported in the five years after the suspension is reportedly higher than the five years prior (30 from 1996 to 2000 and 115 from 2002 to 2006). Trade in skins has declined but this does not appear to be linked to the Review given that high levels of trade only occurred in early 1990s. In general importing countries report lower levels of trade overall than Malawi, particularly for teeth.

A number of hippos are reportedly killed each year by the DNPW due to crop damage (20-30 cases per year). The teeth are held at DNPW headquarters and registered trophy dealers are able to buy and sell worked ivory from these teeth within Malawi. There are known to be four such trophy dealers in Malawi (SC 57, Doc 29.2, Annex 2, 2008).

According to the IUCN, the species is partially protected in Malawi, with protection well enforced (Lewison and Oliver, 2008). According to the Malawi Fourth Country report (2010), substantial hippopotamus populations are protected within Liwonde National Park, Kasungu National Park and Vwaza Wildlife Reserve. The Management Authority stated that the species is protected under the 1992 National Parks and Wildlife Act although there is no specific management strategy in-place (Malawian Management Authority in litt to TRAFFIC, 2011).

Impacts of the Review

Despite the trade suspension in 2001 it appears that some trade continued after that time, although since 2005, no trade of wild specimens for commercial purposes has been reported from Malawi either by importers or Malawi. The Review would appear to have had little impact on status or management of the species in Malawi.

Mozambique

Review Recommendations

In the first Review Mozambique was classified in category d ii) and recommendations were made asking the country to provide information. At AC17 the Animals Committee decided that the information provided by Mozambique was sufficient and it was removed from the review (see AC 17 Doc 7.1, 2001).

In 2011 trade from Mozambique was considered to be of possible concern, with the recommendation that Mozambique provide the following information within 90 days:

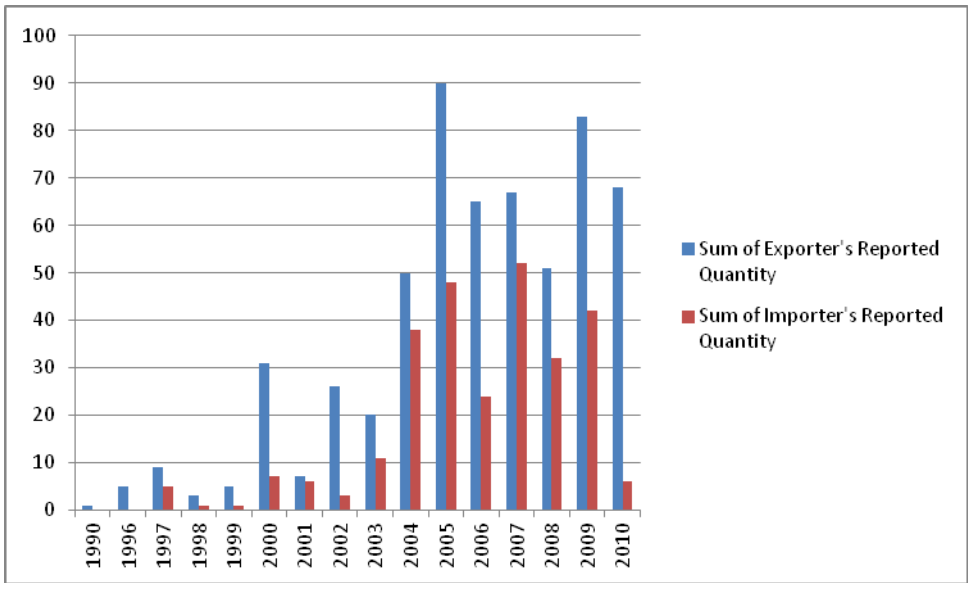
a) The Management Authority should provide an explanation of the 'internal system of annual quotas' and other management measures in place and clarify the perceived discrepancies between reported customs data (imports) and CITES data (exports) referred to in AC25 Doc 9.4;
b) Provide information derived from the national survey undertaken in 2008 on the distribution, abundance and conservation status of *H. amphibius* in Mozambique, including details of methodologies employed; and
c) Provide justification for, and details of, the scientific basis by which, it has been established that the quantities of *H. amphibius* exported were not detrimental to the survival of the species and in compliance with Article IV, paragraphs 2 (a) and 3.

Status, trade and management

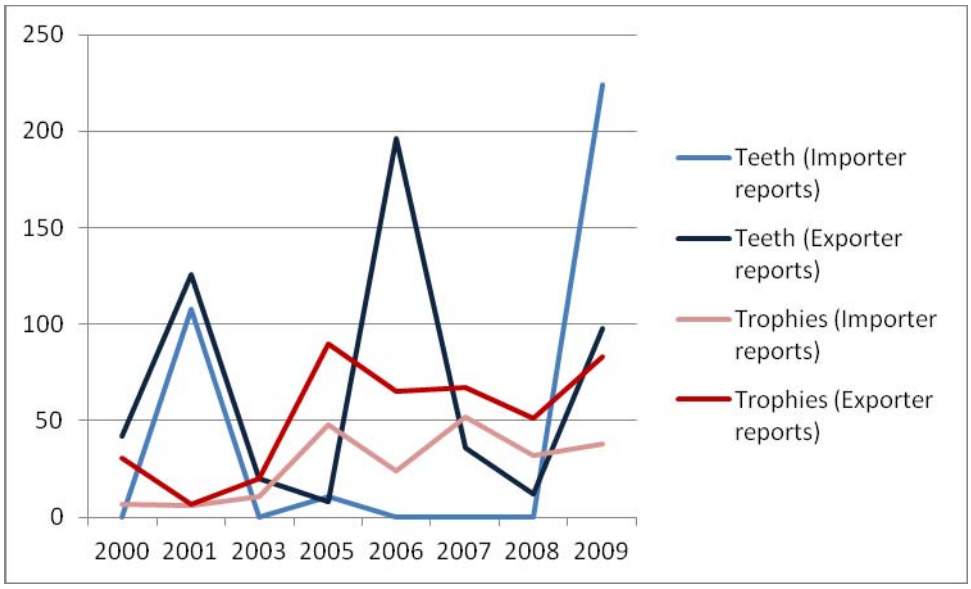
Hippos are reported to be widespread and locally abundant in Mozambique. Despite this, Lewison and Oliver (2008) identified hippos of conservation concern and numbers to be declining. The estimated population is 18,000 individuals with the most sizeable population, of around 2000, suspected to occur in Gorongosa (Lewison and Oliver, 2008). A relatively recent survey in Cahora Bassa counted a total of 473 individuals (Fergusson, 2006) and Mozambique's Management Authority has reported a national wildlife survey which was completed in 2008 covering 80% of the country and estimating 8,388 herds with limits of 3,896-12,879 (Mahanjane in litt. to UNEP-WCMC, 2010). Threats to the species exist through human-wildlife conflict due to crop raiding.

The majority of trade from Mozambique is of teeth/tusks and trophies. Other than in 2009, Mozambique's reports generally exceed importers' reports. Trophies have been the main export. If one trophy is assumed to be one individual the numbers have likely exceeded the level of exports of teeth.

Trade in trophies (with no unit specified) from Mozambique



Direct trade in teeth/tusks (whole) and trophies from Mozambique (2000-2009).



The species occurs in a number of protected areas within Mozambique, including: Gorongosa and Limpopo National Park and Gile, Maputo and Niassa Game Reserves. Lewison and Oliver (2008) reported that the level of legal protection for hippos in Mozambique is partial but the level of enforcement is not known. Some years ago, Eltringham (1999) reported that the national park structure had been under stress and that difficulties in enforcement of the law had been noted.

In 2001 Mozambique reported the export of around 43 kg of teeth, after which little trade was reported until 2009, when 90 kg were reported as exported. Fewer than 10 trophies were reported as exported in 2001; reported export has increased significantly since then.

Hippopotamus are utilised through trophy hunting and a wild cropping operation was carried out in 1988/89 in Mozambique. Sustainable hippo cropping has been implemented to a limited extent in the South Luangwa National Park, to the north of the Heartland (Fergusson, 2006).

The CITES MA of Mozambique reported that the basis of non-detriment findings for exports was the national surveys undertaken in 2008 (Mahanjane in litt. to UNEP-WCMC, 2010).

On the basis of information provided to in 2001, the CITES Secretariat believed that no further action was required provided that annual export quotas remained at the 2001 level, although no quota has ever been posted on the CITES website (AC17. Doc 7.1, 2001). Exports of teeth have remained low but exports of trophies have increased somewhat.

Impacts of the Review
It would appear that the first Review had relatively little impact on trade levels from Mozambique and is not known to have had any impact on management of the species in the country. The second Review is at an early stage.

Rwanda

Review Recommendations
In the first Review Rwanda was classified in category d ii) and recommendations were made asking the country to provide information. No response was received and in 2001 a trade suspension for hippo was recommended by the Standing Committee. At its 57th meeting, the Standing Committee reviewed, in consultation with the Secretariat and the Chairman of the Animals Committee, recommendations to suspend trade that had been in place for more than two years. The Committee decided to withdraw its recommendation to Parties not to accept imports of specimens of *Hippopotamus amphibius* from Rwanda.

Rwanda was not included in the 2011 Review of Significant Trade.

Status, trade and management
Rwanda is thought to have a very small population of between 200-400 hippos, with the largest numbers on the border with the United Republic of Tanzania in Akagera River (Lewison and Oliver, 2008). There is little recent information on the status of the species in Rwanda.

There is very little evidence of significant trade in hippo or hippo parts from Rwanda. Total trade for the past 20 years (1989-2009) amounts to, according to importers reports: 27 teeth and one skull or according to Rwanda's reports: 263 teeth (whole) plus 6 kg of teeth and 21 feet of which nearly all trade took place in 1989 when the species was still listed in Appendix III. The last record of trade from Rwanda was of one tooth in 2002 for personal purposes.

The species is reported from Akagera National Park, though this area has been gazetted to accommodate refugees and in 2000 was reported to be suffering from drought, thought likely to be having an adverse impact on the hippo population (Lewison and Oliver, 2008).

Impacts of the Review
Given the minimal amount of trade reported from Rwanda before or after the first Review, it is unlikely that the Review has had any impact on the status or management of the species in the country.

South Africa

Review recommendations
In the first Review South Africa was classified in category d ii) and recommendations were made asking the country to provide information. At SC45 in 2001 South Africa provided information and was removed from the process.

South Africa was retained in the 2008 Review and asked to provide information on the basis of its non-detriment findings. It did this in 2011 and was removed from the Review.

Status, trade and management
The species is regionally listed as of Least Concern. Lewison and Oliver (2008) estimated the South African population of hippos to be between 3,000 and 5,000, with a stable population and restricted distribution within which it was locally abundant.

South Africa has reported the export of some 1000 hippo trophies in the period 1996-2009 (a figure very close to that reported by importers). Around 400 of these were reported as re-exports from neighbouring range States. In the same period it has reported the export of around 3300 kg of teeth, of which 3000 kg was reported as re-exported from neighbouring range States. On the basis that exports with no specified origin in fact originated in South Africa, the country has exported an annual average of just over 40 hippo trophies and just over 20 kg of hippo teeth in the period 1996-2009.

In response to the Review in April 2011 the Scientific Authority of South Africa submitted a non-detriment finding evaluation. This provided a population estimate of more than 6300 hippos and specified that the population was increasing and that monitoring of populations was generally regular. Around 75% of the population was legally excluded from any harvest but there was no specified harvest quota in place. Instead, hippos were harvested at a rate designed to meet the "biological objectives of those protected areas". They concluded that the population was well managed and that there were no current concerns over the harvest of the species (South African Scientific Authority in litt. to the CITES Secretariat, April 2011).

Impacts of the Review
The Review appears to have had little impact on the status or management of the hippo in South Africa, although it has given the Scientific Authority of South Africa an opportunity to demonstrate explicit the making of a non-detriment finding for this species.

United Republic of Tanzania

Review Recommendations
In the first Review the United Republic of Tanzania was classified in category d ii) and recommendations were made asking the country to provide information. At SC45 in 2001 they provided information and were removed from the process.

In 2009 at AC24 United Republic of Tanzania was removed from the second Review on the basis of additional information given in plenary.

Status, trade and management
A population of just over 20,000 was estimated by the Tanzanian Wildlife Institute in 2001 on the basis of a survey of 20 major rivers and 6 other water bodies (Tanzania Wildlife Research Institute, 2001). In 2008 IUCN reported the population to be widespread, stable and locally abundant, with an estimate of 20,000 – 30,000 (Lewison and Oliver, 2008).

Trade from United Republic of Tanzania has been mainly in teeth/ tusks and trophies. If teeth/ tusks are converted to potential number of individuals at a rate of 5.25 kg per hippo, then trade of teeth since 1989 could be the equivalent of around 18,000 individuals according to importers or around 14,000 according to exporters.

Since 2001 Tanzania has set an annual quota of 10598 kg of teeth and hunting trophies from 1200 animals. This would appear to be more than 3% of the current population estimate. There have been wide discrepancies between reported import and export data in the trade since then. According to importers, in the period 2001-2009 around 5000 kg of teeth were export by Tanzania annually; Tanzania reported less than a quarter of this. Data on trophies show far less difference, both indicating approximately 150 exported each year.

At the 45th Standing Committee, United Republic of Tanzania made a verbal commitment to carry out a field survey on hippos throughout Tanzania by the end of 2001. This was designed to comply with the recommendations of the Review of Significant Trade process. The aerial population count totalled 20,079 individuals, predicting that the population was likely to be more than this. It also detailed that the majority (>80%) of hippos occurred in Protected Areas within Tanzania (Tanzania Wildlife Research Institute, 2001).

Tanzania was removed from the second Review process in 2009 on the basis of information provided at the meeting that in 2001 the population was over 10,000 and was stable or increasing, and that the export quota was less than 3% of the total population (AC24 Sum. Record, 2009).

Impacts of the Review
The first Review appears to have prompted the United Republic of Tanzania to undertake a survey of the hippo population in the country and to formalise the basis on which quotas are decided. The quota may represent a higher percentage of the population than has been stated. There remain unexplained discrepancies in trade data reported by importers and by Tanzania.

Zambia

Review Recommendations
In the first Review Zambia was classified in category d ii) and recommendations were made asking the country to provide information. At AC17 Zambia was regarded as having provided satisfactory responses to the recommendation (AC 17, Doc 7.1, 2001) and removed from the Review.

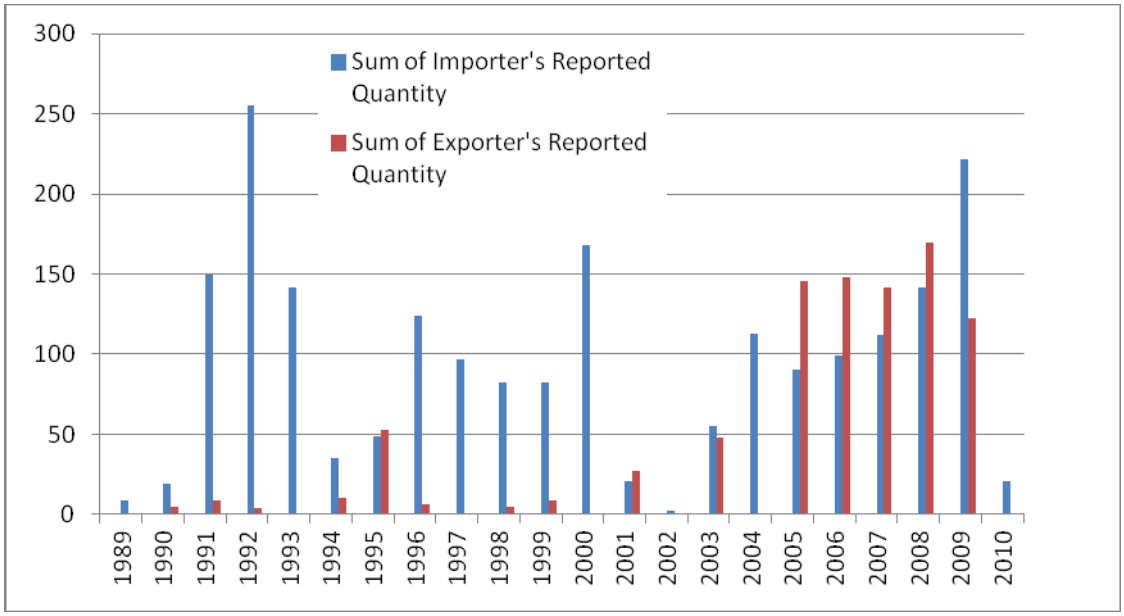
In 2011 trade from Zambia was considered of Least Concern and the country was removed from the Review.

Status, trade and management
Lewison and Oliver (2008) reported the hippo in Zambia to be widespread, locally abundant and increasing, with a population of around 40,000.

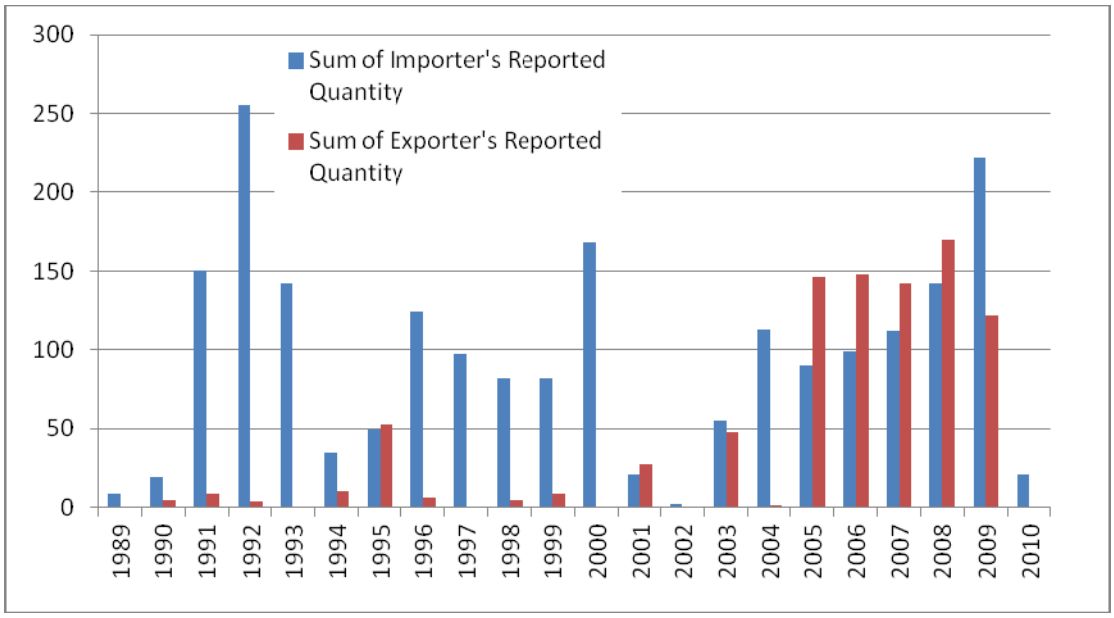
Export of teeth or tusks and trophies has been reported by Zambia. Exports and imports reported differ somewhat although there were clear peaks in 1995, 1999 and 2005 in teeth and trade in trophies has increased since 2001.

No export quotas have been posted on the CITES website.

Trade in teeth and tusks (kg)* from Zambia as an exporter and according to importers. Individual teeth and tusks converted to kg at 0.4 kg each.



Trade from Zambia in trophies according to Zambia and to importers.



At AC24 in 2009 Zambia provided information regarding off-take, carried out through a quota system. Quotas are set below 2.5 % of the population where populations are stable or show upward trend. Export permit is processed only with evidence of the original hunting license. In addition reintroduction of *H. amphibius* is greatly encouraged in Zambia. On this basis Zambia was removed from the Review (AC24 Doc 7.4, 2009).

Impacts of the Review
The Review appears to have had negligible impact on the status and management of the hippo in Zambia.

Zimbabwe

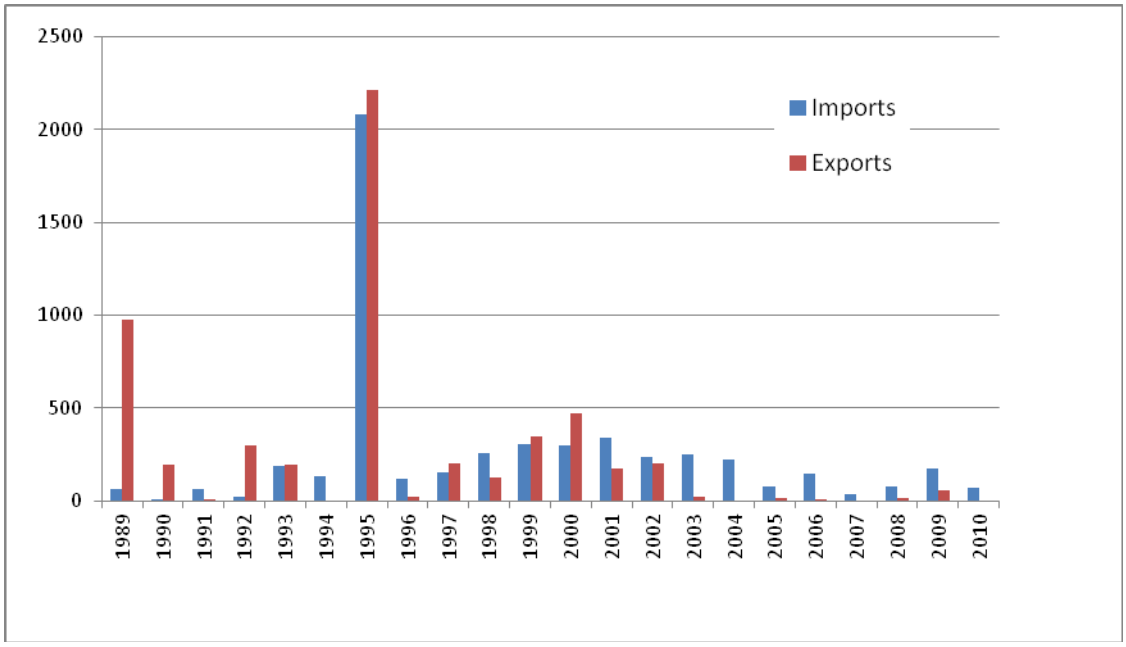
Review Recommendations
In the first Review Zimbabwe was classified in category d ii) and recommendations were made asking the country to provide information. At AC17 Zimbabwe was regarded as having provided satisfactory responses to the recommendation (AC 17, Doc 7.1, 2001) and was removed from the review.

In 2009 Zimbabwe provided information on management and was removed from the second Review.

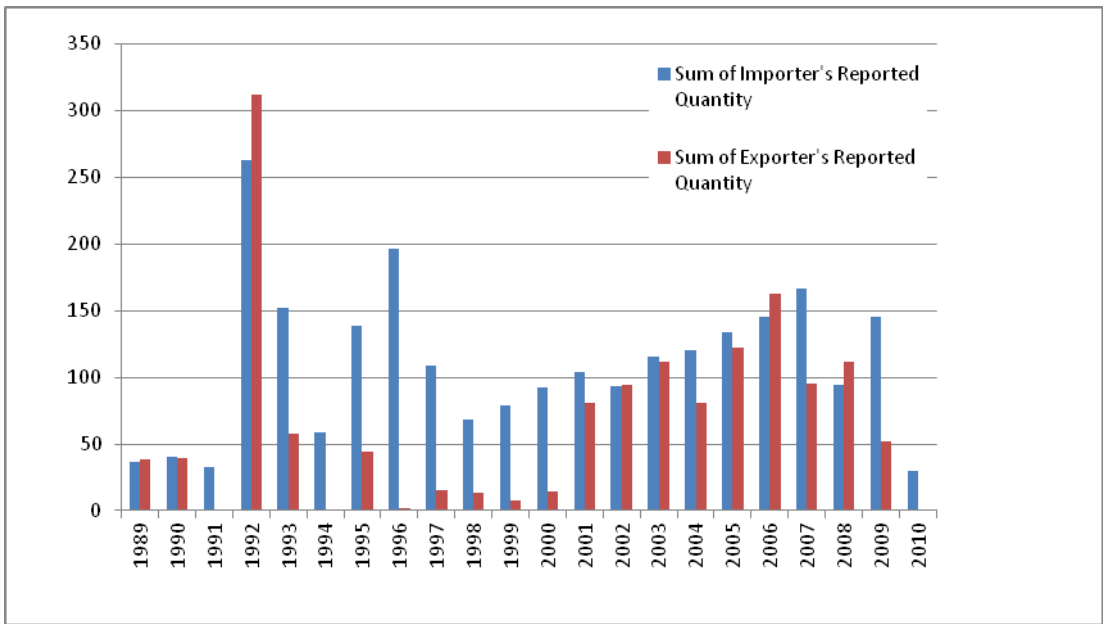
Status, trade and management
Restricted distribution, locally abundant with a population of around 7000 (Lewison and Oliver 2008). The Zimbabwe Management Authority (in litt. to the CITES Secretariat, June 2009) estimated a somewhat higher population of 9,404 (based on 2007 data) with most populations either increasing or stable and the overall trend in major areas of distribution as increasing. However, a recent study (Zisadza et al., 2010) found hippo populations in Gonarezhous National Park (a major area of distribution) had seemingly declined overall between 1965 and 2008. The population estimate in 2008 from aerial surveys was 187, compared with Management Authority estimate of 231 hippos in 2007. The overall decline is linked to past droughts, siltation, persecution in adjacent communal areas, shooting of problem animals and current legal and illegal hunting (Zisadza et al., 2010).

Apart from 1995, reported trade in teeth and tusks (kg) has been under 500 kg per year. Trophy trade increased since 2001 although according to Zimbabwe decreased slightly towards the end of the decade.

Trade in teeth and tusks from Zimbabwe (kg) according to importers and Zimbabwe



Trade in trophies from Zimbabwe according to Zimbabwe and importers



Zimbabwe Management Authority (in litt. to the CITES Secretariat, June 2009 specified that a database is in use which details the annual harvest of hippos. In 2008, the hunting quota was established at 300 specimens, which amounts to 3.2% of the estimated population. It seems that aerial and ground population surveys are conducted on a fairly regular basis in Zimbabwe, although population surveys are not targeted specifically at hippos but at “elephants and other herbivores” (Zimbabwe Management Authority in litt. to the CITES Secretariat, May 2009).

Impacts of the Review:
It does not appear that the Review has had a significant impact on the status or management of the hippo in Zimbabwe.

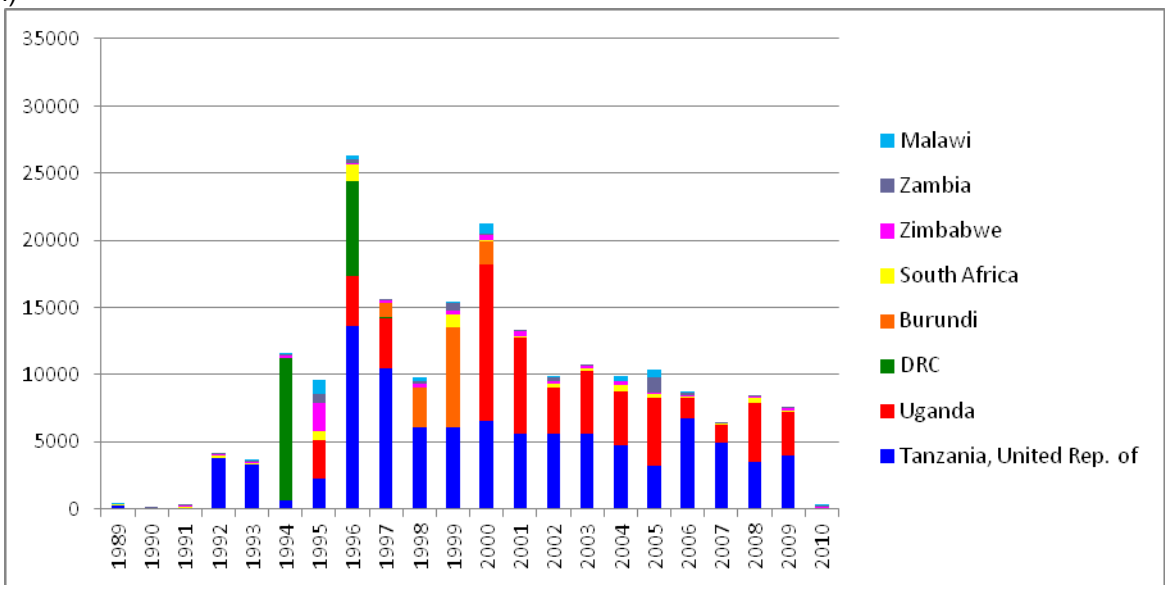
Overall trade patterns and impacts of the Review

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. From 2000 onwards 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 t of hippo ivory per year (equivalent to perhaps 3000 hippos), while in the years 2000-2009 it as averaged 10 t per year, or very roughly 2000 hippos per year (in each period, data from importers indicate slightly higher overall amounts than exporters).

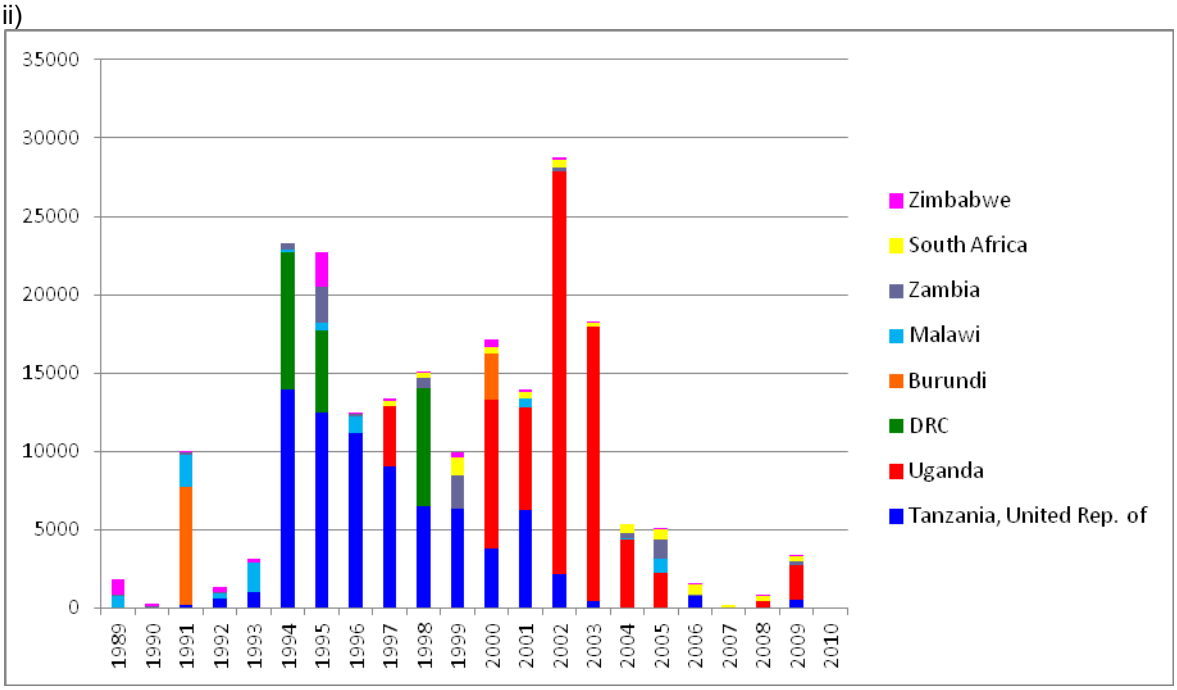
It appears that the review has been at least partially responsible for this reduction, most notably in leading to reduced export from the United Republic of Tanzania. The Democratic Republic of Congo ceased legal exports in 1998, before the species was first included in the Review process, but it is 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 process 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.

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

i)



ii)



Market developments

It is thought likely that the major restrictions imposed 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.

Costs and benefits associated with management of and trade in the species

In importing countries individual hippo teeth retail at between USD20 and USD275 depending on size (http://www.boonetrading.com/Pg25.html). 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.

Other CITES listed taxa which might be considered a substitute for *H. amphibius* parts and derivatives

There are a number of different species from which “ivory” can be derived. Hippo ivory is said to be the second most desirable ivory ‘type’ after elephant ivory. Hippo ivory is denser, more finely grained and harder to carve compared to elephant ivory, yet it decays at a slower rate and whereas international trade of “new” hippo ivory is allowed from many of the range States, trade in elephant ivory has been largely banned since 1989. According to the IUCN SSC Hippo Specialist Group after two years of the elephant ivory ban taking effect, annual exports of hippo teeth had increased by 530% (IUCN SSC Hippo Specialist Group webpage) suggesting hippo ivory was used to compensate for the lack of elephant ivory in the market.

Stockpiles of elephant ivory were released into the market from Namibia, Botswana and South Africa in late 2008. In 2009 exports of hippo teeth and tusks were much higher than in 2007 and 2008. Teeth and tusks traded in kg showed little variation between the three years but for whole teeth in 2009, direct exports (all source and purpose codes) were recorded by importers at 3588 teeth, whereas in 2007 and 2008 just a few hundred teeth were traded.

Other sources of ivory include Wart hog tusk (Phacochoerus africanus), not listed on the Appendices; Walrus (Odobenus rosmarus) tusks and teeth, listed in Appendix III; Helmeted hornbill (Rhinoplax vigil) , listed on Appendix I; Narwhal tusk (Monodon monoceros) listed on CITES Appendix III in Denmark and Appendix II elsewhere; teeth from Sperm whale (*Physeter macrocephalus),* listed on Appendix I in Japan, Norway, Palau and Iceland and Appendix II in other countries of distribution; and Killer whale teeth (*Orcinus orca*) listed in

Appendix II. Although extinct over 300 years ago, mammoth ivory is another popular alternative, although there are likely to be finite amounts available of this product.

A non-animal alternative known as “vegetable ivory”, primarily from the tagua palm tree (Phytelephas macrocarpa), and made from the seeds of the palm trees. This species is not currently listed in the CITES Appendices. Vegetable ivory is said to closely resemble elephant ivory. However given its small size, there are limitations on what it can be made using this product.

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2. *Psittacus erithacus*

Psittacus erithacus – the African grey parrot - is a forest-dwelling bird occurring in 23 countries in western and central Africa. It has been one of the most desirable bird species in the international pet trade, having long been a popular pet in Europe, the United States and the Middle East, with demand said to be increasing in Asia (BirdLife International, 2008). The popularity of *P. erithacus* is related to its longevity and most importantly, ability to mimic human speech and other sounds. Particularly desirable are young birds as they are most likely to be able to learn to mimic the human voice and can learn a wide vocabulary. The species has been listed under Psittaciformes spp. in Appendix II since 1981.

Range States and overall status
Angola, Benin, Burundi, Cameroon, Central Africa Republic, Congo, Democratic Republic of the Congo (DRC), Côte d'Ivoire, Equatorial Guinea, Gabon, Ghana, Guinea, Guinea-Bissau, Kenya, Liberia, Mali, Nigeria, Rwanda, Sao Tomé and Principe, Sierra Leone, Tanzania, Togo [query over status] and Uganda.

Psittacus erithacus is currently listed in the IUCN Red List as Near Threatened. The global population has been estimated at between 680,000 and 13 million individuals with an estimated global extent of occurrence of approximately 3,000,000 km² (AC22 Doc. 10.2, 2006)2. *P. erithacus* distribution extends from Guinea-Bissau east through the moist lowland forests of West Africa to Cameroon, and just east of the Albertine Rift in Uganda and Kenya and south to northern Angola. Populations are thought to be declining due to the wild bird trade in Burundi, Cameroon, Ghana, Guinea, Guinea-Bissau, Kenya, Liberia, Nigeria, Rwanda, São Tomé and Príncipe, Sierra Leone, Togo, Uganda and parts of Congo and the Democratic Republic of the Congo (BirdLife International, 2008).

Two subspecies are currently recognised, *P. e. erithacus* and *P. e. timneh*, the latter occurring in western parts of the range in Côte d'Ivoire, Guinea, Liberia and Sierra Leone, the former elsewhere.

Review of Significant Trade

Psittacus erithacus has been included in the Review of Significant Trade three times, in the 1980s (published in 1988), 2004 and 2011.

It was first included in the Review in 1988. At this time 10 of the 23 Range States were not yet Parties to CITES. The review provided an oversight of the trade and information on the Range States. It concluded that trade was a "possible problem" for the species (Inskipp et al., 1988). In 1992 recommendations arising from the 1988 Review were made for Cameroon, Ghana, Guinea, Liberia and Togo.

The species was again selected for the Review in 2004. At AC 22 (2006) Cameroon, Côte d'Ivoire, Guinea, Liberia and Sierra Leone were classified as 'Urgent concern' and Republic of Congo, Democratic Republic of the Congo and Equatorial Guinea as 'Possible concern'.

Due to lack of full compliance with the recommendations, in 2008 the Standing Committee concluded that the Secretariat should indicate that the quotas for Cameroon, Côte d'Ivoire, Guinea, Liberia and Sierra Leone be zero (SC57 Doc 29.1, 2008), these were implemented at the time for all but Cameroon. In 2008 Cameroon's export quota was given as "in prep"; it has been zero since 2009.

At AC25 In July 2011, the Animals Committee agreed that the 2006 Review for *Psittacus erithacus* could be considered completed (as stated in document AC 25 Doc 9.2), although the zero export quota for wild live specimens of *P. erithacus* from Cameroon, Côte d'Ivoire, Guinea, Liberia and Sierra Leone would remain in place until the recommendations of the Animals Committee had been complied with. For the Congo and the DRC until the recommendations are complied with, the export quotas would be maintained at 4,000 and 5,000 respectively (SC57 Doc. 29.1 (Rev. 2), 2008). For Equatorial Guinea, trade would be suspended until compliance with Article IV, paragraph 2 (a) and 3, for this species is demonstrated and until full and detailed information is submitted to the Secretariat regarding compliance with the recommendations of the Animals Committee (SC57 Doc. 29.1 (Rev. 2), 2008).

In 2011 at AC 25 *Psittacus erithacus* was included in the Review for the third time but only for range States not recently subject to earlier Review recommendations still in effect, that is excluding Cameroon, the Congo, Côte d'Ivoire, the Democratic Republic of the Congo, Equatorial Guinea, Guinea, Liberia and Sierra Leone.

Countries subject to Recommendations

[2] CITES documents including summary records, working group reports and information documents have been cited with the meeting number and document number followed by the date. Most can be found on the CITES website. They are not included in the reference list.

Cameroon

Review Recommendations

In 1992 one of the secondary recommendations of the Review was for Cameroon to carry out a status survey to demonstrate scientific basis of export quotas.

In 2006, the following recommendations applied, Cameroon having been classified as of Urgent Concern:

- Establish a moratorium on exports effective from 1 Jan 2007.
- In 12 months, Cameroon should develop a scientific method for surveying population status and develop a Management Plan, including sustainable quotas.
- In 24 months, Cameroon should have conducted a field survey to establish population status and have implemented a National Management Plan and participated in development of a Regional Management Plan

Due to lack of full compliance with the recommendations, in 2008 the Standing Committee concluded that the Secretariat should indicate that the quota for Cameroon be zero (SC57 Doc 29.1, 2008). In 2008 Cameroon's export quota was given as "in prep"; it has been zero since 2009.

Status, trade and management

A survey was conducted on the status, distribution and utilisation of *P. erithacus* in Cameroon in 1998, as a result of Review recommendations agreed in 1992. This study found the population in Cameroon to be widespread and estimated that it might number 300,000-500,000 individuals (Fotso, 1998a).

A more recent study (Ngenyi, 2002), conducted for WWF, investigated status and commercial exploitation of African grey parrots in a restricted area of Cameroon - two forest clearings (Djangui Bais and Lobeke Bolou) of Lobeke, an area which is thought to be where the majority (80%) of Cameroon's P. erithcaus have been harvested (Ngenyi, 2003). The forest counts estimated number of individuals to be 600 to 927 across both clearings and the average harvest level as 357, which is between 39% and 60% of all birds counted (Ngenyi, 2003).

A further study, based at the University of Dschang and funded by Loro Park Foundation and MINFOF is currently under review. This study investigated trade levels, population trends and habitat needs of *P. erithacus*. The estimated population size was around 250,000-270,000 (factoring in error and illegal external trade).

CITES trade data indicate that trade increased during the 1980s and then remained fairly stable until 1996. The trade was subject to suspension from 23 November 1993 to 21 April 1994 (Notification 775 in 1993) due the failure to implement the secondary recommendation may have resulted in a slight decrease in trade in 1994. In November 1996 concerns over issuance of permits over the quota led the Secretariat recommend to Parties to reject all permits from Cameroon for export of specimens of *Psittacus erithacus* (Notification No 945) which was continued until 31 December 1997 (Notification 993) because export of more than 23,000 grey parrots in 1996 covered the quota of 12,000 for 1996 and 1997. Some trade was reported by both Cameroon and importers in 1997.

Reported trade increased again after 1998 until 2005.

In 2008, 300 captive bred birds were reported to be exported from Cameroon, the first of any captive bred specimens, though 100 specimens were imported to Cameroon from South Africa in 2003 with source code F (and there is no record of them being exported out of the country since), although the purposes code was T rather than B.

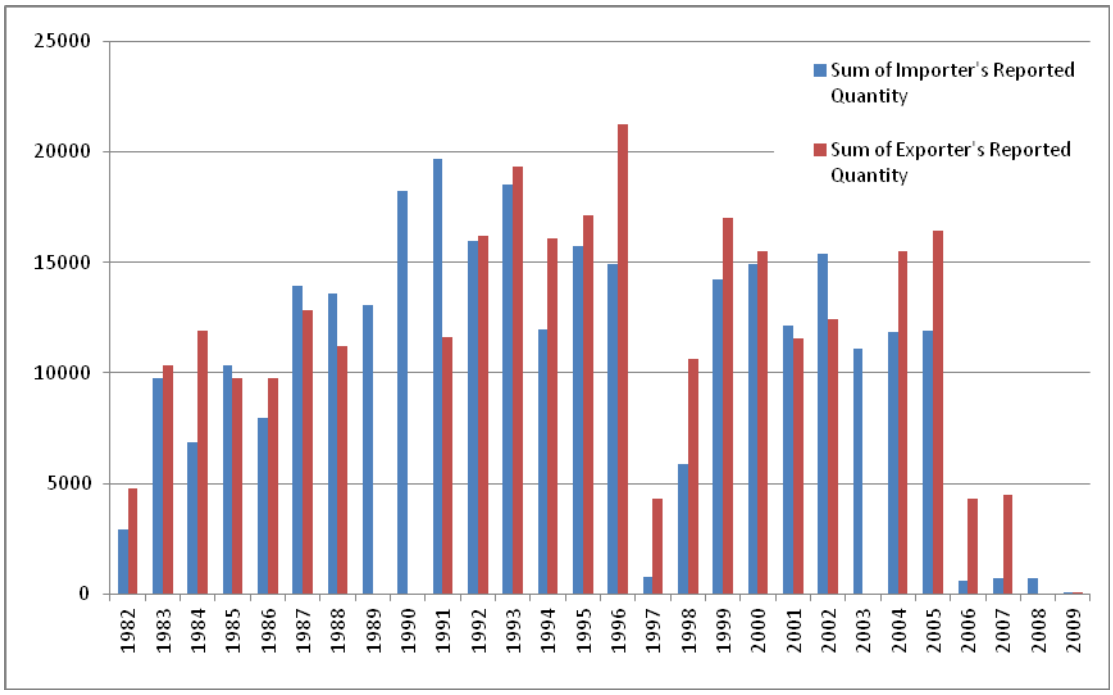
Export quotas have been the main management measure in place. There have been many problems over the years with the quota system for this species in Cameroon. In Notification 945 (Nov. 1996), the Secretariat verified that export permits had been issued for at least 2,000 specimens over quota and Parties were advised to reject all permits thereafter from Cameroon for export of the species. At SC38 the Standing Committee again recommended that Parties not accept any Cameroonian export permit for specimens of *P. erithacus* until 31 December 1997 (Notification 993). At the meeting information was presented (in document SC38 Doc 5, 1997) indicating there was reason to believe that a large number of grey parrots were being exported illegally from Cameroon (and Gabon) using permits issued by neighbouring countries.

The suspension was lifted in March 1998 (Notification 1998/05). The quota posted on the CITES website for 1998 was for 12000 live specimens; it remained at this level until 2006 when the quota was said to be "in prep", as was it for 2007 and 2008. It has been zero since 2009. CITES trade data indicate that the quota was

significantly exceeded in most years between 1999 and 2004. In 2006, part of the reason Cameroon was identified as of Urgent Concern was the exceeding of export quotas.

Lack of compliance with 2006 Review recommendations led the Standing Committee to recommend zero export quotas for 2008 for Cameroon, which remains in place to date. However it is likely that the reduction in trade in after 2005 will have also been effected by the EU market closure.

Trade live specimens of *P. erithacus* from Cameroon as recorded by exporter and importers (includes re-exports and all source codes).



In 1994, the species was in "class B" whereby it was afforded some protection but could be hunted, captured or killed subject to the granting of a permit, obtainable on payment of a fee. It was suggested that enforcement of regulations at the time was weak and that fraud was common among traders in Cameroon (Fotso, 1998).

P. erithacus is now listed as a "class A" species in the national legislation and is fully protected under Arreté n° 0648/MINFOF of 18/12/2006. This means that any capture or harvest of the species is only allowed for the purpose of development or as part of scientific research, protection of persons or their property.

In response to the recommendation in the 2006 Review, the Management Authority of Cameroon (MINFOF) have supported a study on the species based at the University of Dschang (compiled by Dr Tamungang). This study is currently being validated by the Government of Cameroon (Tamungang in litt. to TRAFFIC, 2011). Various others measures were also proposed (see document SC55 Doc. 17, 2007).

According to Tamungang (in litt. to TRAFFIC, 2011), efforts to protect the bird at a national level appear to have increased, in-part demonstrated by the prosecution of parrot poachers, the arrest of an illegal Ghanaian parrot trafficker in 2008 and the seizure of 3000-3500 illegally captured *P. erithacus* in 2009-2010

Impacts of the Review:
The survey of the species carried out in 1998 was undoubtedly a response to the first Review. The change in legal status of the species in 2006 appears likely to have been a direct response to the second Review, as do reported efforts to improve enforcement in recent years.

Congo

Review Recommendations
No recommendations made in 1992 applied. The Congo was identified as of Possible Concern in 2006 with the following recommendations applying:

- By 1 Jan 2007, Congo must establish a 4000 specimen export quota

- In 12 months, Congo should develop a scientific method for surveying population status and develop a Management Plan, including sustainable quotas
- In 24 months, Congo should have conducted a field survey to establish population status and have implemented a National Management Plan and participated in development of a Regional Management Plan

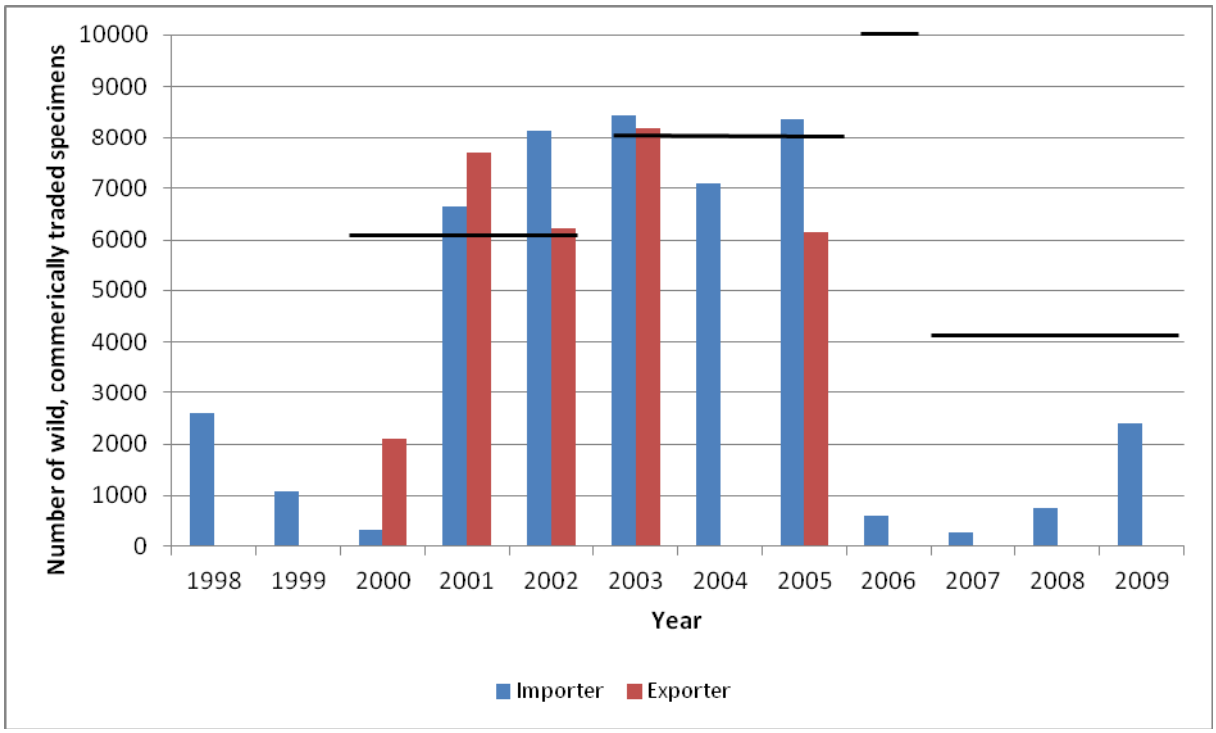
Status, trade and management
Information on distribution and status in Congo is scarce. Inskipp et al. (1988) suggested numbers were likely to be declining although UNEP-WCMC (2004) reported that was still a common breeding resident throughout the country. The species is reported to occur in various protected areas, including Nouabale Ndoki National Park, which covers an area of over 4000km², Odzala-Kokoua and Conkouati-Douli National Parks and Likouala-aux-herbes community reserves, and has also been observed in urban areas (Republic of Congo Management Authority in litt. to the CITES Secretariat, 2006).

Before 1998 there was very little trade reported from Congo. Since then trade has increased significantly, with importers reporting import of nearly 47,000 specimens in the period 1998-2007. Congo has reported somewhat fewer exports (just over 30,000) in the same period. The main importers have been the Netherlands, South Africa, Belgium, Portugal and United Arab Emirates. The European Union market closed in 2005. Reported trade to South Africa has also ceased. Serbia started importing in 2009. The Congo is currently the second largest exporter of live, wild *P. erithacus* if importer reports are correct; Congo has not reported exports of this species since 2006.

Export quotas were set at 6,000 specimens from 2000 to 2002, this quota was exceeded in 2001 and 2002 (figure 4). In 2003 to 2005, the quota was increased to 8,000 specimens, which according to importers reports was exceeded in 2003 and 2005 though not by a large number. Trade statistics were not submitted in 2004 by the Congo which explains the lack of data shown in figure 4 (UNEP-WCMC, in litt. to TRAFFIC, 2011). The quota increased further to 10,000 specimens in 2006 yet, according to the CITES trade data, trade was very low. Although the number of exports of *P. erithacus* from the Congo have declined since the quota was reduced,

As recommended, since 2007, the export quota has been reduced to 4,000 specimens and according to CITES trade data, has not been exceeded.

Direct trade in live, wild sourced *P. erithacus* from Congo. Annual export quotas are indicated by the solid line on the graph.



The Congolese Management Authority stated that specimens can only be captured from the wild once a permit has been obtained from the central administration of water and forests (Congolese Management Authority in litt. to the CITES Secretariat, 2006). Little other information on management is available.

Impacts of the Review
It is not apparent that the Congolese Management Authority has succeeded in carrying out a population survey or implemented management plans. They have, however, complied with the recommendation to reduce the annual export quota to 4000 specimens per year and licenced exports appear to have remained under that level.

Côte d'Ivoire

Review Recommendations
In 2006 Côte d'Ivoire was identified as of 'urgent concern' with the following recommendations applying.

- Establish a moratorium on exports effective from 1 Jan 2007.
- In 12 months, Côte d'Ivoire should develop a scientific method for surveying population status and develop a Management Plan, including sustainable quotas.
- In 24 months, Côte d'Ivoire should have conducted a field survey to establish population status and have implemented a National Management Plan and participated in development of a Regional Management Plan.

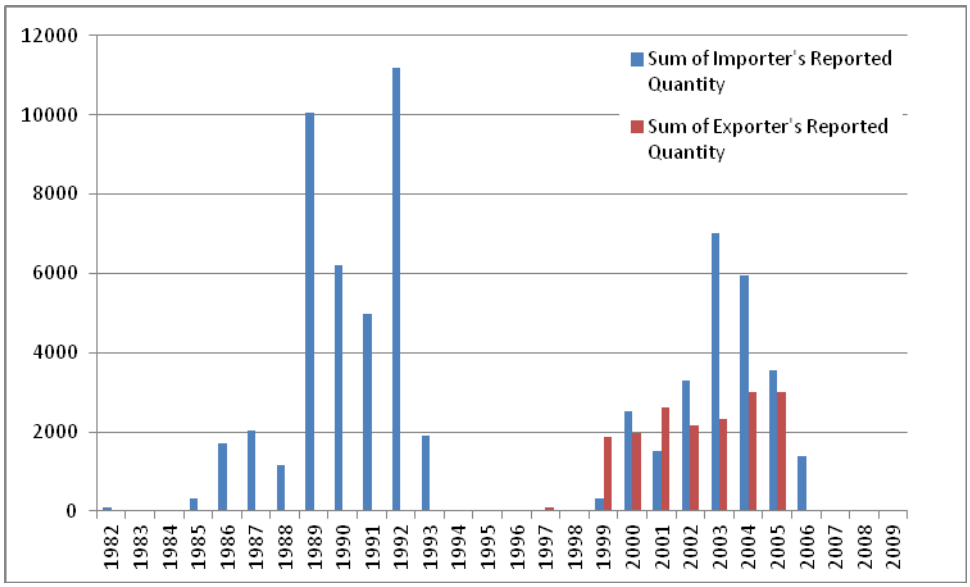
Due to lack of full compliance with the recommendations, in 2008 the Standing Committee concluded that the Secretariat should indicate that the quota for Côte d'Ivoire be zero (SC57 Doc 29.1, 2008). This quota has remained in effect.

Status, trade and management

Resident in south of the country, where reported in the 1980s as common (Benson et al., 1988, Thiollay, 1985). Dändliker (1992a) estimated the population at roughly 65,000-160,000. Another study (Yaokokoré-Béïbro, 2004) suggested a population of some 250,000 birds although the reliability of this has been questioned (Rainey in litt. 2006).

Large numbers were reported as imported from Côte d'Ivoire between 1989 and 1992 but almost no trade was reported between 1994, when a trade suspension was recommended (Notification 764), and 1999 when trade resumed, increasing to a peak (according to importers) of 7000 in 2003.

Trade in live *Psittacus erithacus* from Côte d'Ivoire



P. e. timneh: Since 1998, export quotas for specimens of *P. e. timneh* were 2000 live individuals per year until 2006, excluding the years 2000 and 2004 when no export quotas were published. CITES trade data shows this quota was exceeded in 2002 and, according to importers, in 2003.

P. e. erithacus: In 1999 Côte d'Ivoire adopted a zero quota for *P. e. erithacus*. In 2001, a quota of 500 specimens was set. From 2002 to 2006 a quota of 1000 was established with no quota posted on the CITES website in 2004. In 2001, the quota of 500 specimens was exceeded according to importers and again in 2003 and 2005.

Since 2001, there has been export of specimens of *P. erithacus* from Côte d'Ivoire reported as captive-bred, the majority imported to Singapore (one exceptionally large export of 1,400 specimens in 2006) and all reported by the importer, none by Côte d'Ivoire itself. Since 2005, no export for commercial purposes of specimens recorded as of wild origin has been recorded from Côte d'Ivoire.
No quota was posted on the CITES website for 2004.

There have been a number of suggestions that some trade from Côte d'Ivoire may have originated from Ghana and Guinea (Dandliker, 1992a, 1992b; Secretariat Notification 746). In April 1992, the Secretariat recommended that Côte d'Ivoire stop exports of *P. e. erithacus* immediately and that populations be surveyed and based on this, management plans be made. This was as a result of a suspicion that population estimates were exaggerated and that the large number of birds being exported might have been smuggled from Ghana, which at the time had a ban on exports of the species. In 1993 (Notification 746), the Secretariat strongly recommended that Parties not accept any comparable documentation from Côte d'Ivoire for trade in specimens of *Psittacus erithacus*. The recommendation was subsequently withdrawn in late 1999 (DeMeulenaer, in litt. 2005).

A zero quota has been in place since the Standing Committee's recommendation in 2008.

According to the Management Authority for Côte d'Ivoire (in litt.,2004) under national legislation, hunting and trapping are not permitted in classified forests and protected areas, where management capacity and control have recently been reinforced by local communities.

Impacts of the Review
The Review appears to have had little impact on management of the species in Côte d'Ivoire. The current suspension of trade is a direct result of the 2006 Review, although it is not clear whether this has had any impact on the status of the species in Côte d'Ivoire.

Democratic Republic of the Congo (DRC)

Review Recommendations
The Democratic Republic of the Congo was identified as of Possible Concern in 2006, with the following Recommendations applying:

- By 1 Jan 2007, DRC must establish a 5000 specimen export quota
- In 12 months, DRC should develop a scientific method for surveying population status and develop a Management Plan, including sustainable quotas.
- In 24 months, DRC should have conducted a field survey to establish population status and have implemented a National Management Plan and participated in development of a Regional Management Plan.

Status, trade and management
Breeding resident except in the south (Benson *et al*., 1988; Chapin 1939; Lippens and Wille, 1976). Formerly in large flocks (up to 200) around Kinshasa, but decline by 1970s, possibly attributable to trapping (Lippens and Wille, 1976). Fotso (1998a) carried out a study in part of the DRC and found that the population of grey parrots present was very large although no actual population estimates were provided. The species was still present in some numbers in 2005 (Van de Weghe *in litt.,* 2005), commonly seen in Kinshasa in small flocks (De Meulenaer *in litt.*, 2006).

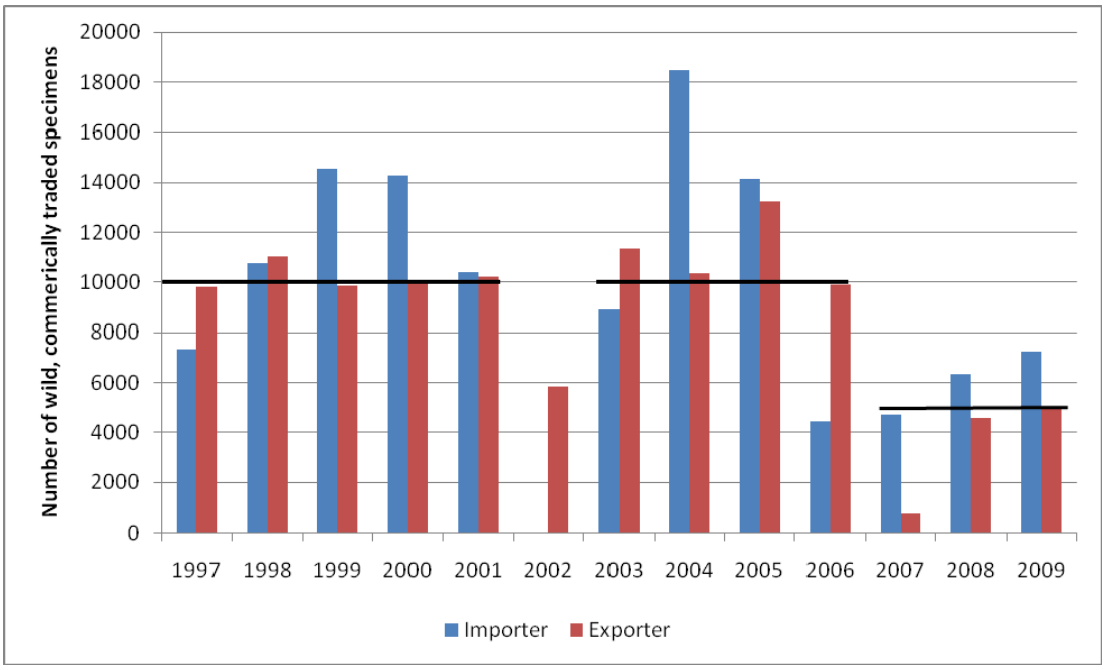
Export quotas for the DRC were set from 1997 to 2001 at 10,000 live specimens which according to importers were exceeded in four of the five years. In 2002, there was no established quota and no trade was reported by importers, although approximately 6,000 specimens were reported as exported by the DRC. In 2003 to 2006 the quota was back to 10,000 specimens, which according to importers was exceeded in two of these years. In 2007, the DRC complied with the recommendations and set the export quota at 5,000 specimens. However, quotas have been exceeded by 26% and 45% in 2008 and 2009 respectively (see figure 5).

In February 2001, the CITES Secretariat reported that there was evidence of large-scale abuse

(including altering quantities authorised for export) of export permits issued in DRC. This appeared to have taken place on a regular basis since 1998 or earlier, the majority relating to exports of parrot species. The Secretariat requested that permits therefore not be accepted until they had confirmed their validity (CITES Notification No. 2001/002). Owing to continued evidence of fraudulent use of export permits issued by the Management Authority, the Standing Committee recommended in July 2001 that all trade in CITES-listed species with DRC be suspended. This recommendation was to stand until the Management Authority put in place measures to eliminate, as far as reasonably practical, the abuse or misuse of permits and certificates issued; and implemented adequate export controls, particularly for live specimens (CITES Notification No. 2001/039). This recommendation was withdrawn in December 2002 following two verification visits to the country by the Secretariat and extensive correspondence (CITES Notification No. 2002/65). However, in May 2003 the Secretariat once again notified the Parties of problems with export permits from the DRC, with a request that none be accepted before the Secretariat had confirmed their validity (CITES Notification No. 2003/040). The Management Authority also voluntarily stopped issuing further export permits (CITES Notification No. 2003/062). Permit issuance resumed in October 2003. This included the issuance of export permits for birds already held in captivity under export quotas for 2002 (up to 4,000 birds) and 2003 (up to 10,000 birds) with the provision that no additional wild specimens would be allowed to be harvested until 2004 (CITES Notification No. 2003/062).

In 2005, the Management Authority informed the Secretariat that they had been in correspondence with an airline company which was assisting in verifying CITES permits and the numbers of specimens in trade (DRC management Authority *in litt.* to the CITES Secretariat, 2005).

Direct trade in live, wild sourced *P. erithacus* the Democratic Republic of the Congo. Annual export quotas are indicated by the solid line on the graph.



The Management Authority has specified there is a law that regulates hunting in the DRC (n° 82-002 du 28 mai 1982). Fotso (1998a) reported that permits are granted by the Ministry of Environment specifying the number of birds permitted to be captured. Additional legislation (Arrête no 014/CAB/MIN/ENV/2004) was enacted in 2004 that specified a collection season for the species (DRC Management Authority *in litt.* to the CITES Secretariat, 2005).

Enforcement has in the past been reported to be poor (Fotso, 1998) although the Management Authority stated in 2011 that there had been an improvement in recent years (*in litt.* to TRAFFIC International, August 2011).

Impacts of the Review

Although the DRC complied with the recommendations to reduce the export quota to 5,000 specimens per year, it is not apparent that any of the other recommendations have been complied with, notably to conduct a status survey and develop and implement management plans.

Equatorial Guinea

Review Recommendations

In 2006 Equatorial Guinea was identified as of Possible Concern with the following Recommendations applying:

- *In 6 months, Equatorial Guinea must provide information on how it was known that levels of export were not detrimental to the survival of the species and provide information on the legal status of the species*
- *In 12 months, Equatorial Guinea should develop a scientific method for surveying population status and develop a Management Plan, including sustainable quotas.*
- *In 24 months, Equatorial Guinea should have conducted a field survey to establish population status and an export quota and have implemented a National Management Plan and participated in development of a Regional Management Plan.*

Due to lack of response from Equatorial Guinea, in 2008 the Standing Committee recommended that Parties not accept permits for this species from Equatorial Guinea. This recommendation still stands (Notification No 2011/035).

Status, trade and management

The species is found in Mbini and on Bioko of Equatorial Guinea and the population in 1987 was estimated by the Equatorial Guinea Commission as "no less than 2,500,000" (Obama, 1987, from AC 22, Doc 10.2, 2006), a very high estimate. However, when contacted, the Scientific Authority of Equatorial Guinea stated that no population surveys have been conducted on the species, though they estimate that there may have been a slight increase in the population size (Scientific Authority of Equatorial Guinea, *in litt.* to TRAFFIC, 2011).

Commercial trade of *P. erithacus* appears to have always been sporadic. There was little trade before 2003. In the period 2003-2005 Equatorial Guinea reported exporting ca. 1200 birds, with importers reporting 800. No trade, other than two specimens for personal purposes has been recorded in the CITES trade database since 2005. Equatorial Guinea first set an export quota in 1998 but no quotas have been posted on the CITES website since.

Due to lack of response from Equatorial Guinea regarding implementation of the 2006 Review recommendations, trade was suspended in 2008 (Notification 052, 2008).

The Scientific Authority (*in litt.* to TRAFFIC International) reported in 2011 trade in this species no longer occurs.

No further information was found regarding protection or management measures and national legislation for this species.

Impacts of the Review

According to Equatorial Guinea trade no longer occurs. It is not clear if this is a result of the Review process or not.

Ghana

Review Recommendations

Recommendations were made for Ghana in 1992.

> *Primary recommendation – Ghana should maintain the export ban until quotas are established and based on reliable information.*
>
> *Secondary recommendation – Ghana should undertake a population survey*

By the second Review Ghana has banned the trade in *Psittacus erithacus* and therefore was excluded from the review.

Status, trade and management

A population study was conducted in 1992 as a result of the recommendations. The population was estimated at 30,000 to 80,000, with a density of 0.9-2.2 parrots per km² in evergreen forests and 0.15-0.45 parrots per km² in semi deciduous forests (Dandliker, 1992a). No more recent population estimates appear to be available. It has been reported that the general long-term trend of the species is negative (Dandliker, 1992a) but the lack of recent data makes it difficult assess population changes.

In 1995, an export quota of 5,000 was reported (based on the 1992 Dandliker survey); despite this only 6 specimens were reported to be exported in 1995. Overall very little trade in this species has been recorded from Ghana since 1990, with a maximum of 10 for commercial purposes and 12 for personal purposes (wild). By 2005 Ghana had a ban on trade in place.

In 2004, ongoing illegal exploitation of *P. erithacus* populations in Ghana was reported, and unconfirmed reports of illegal export to neighbouring countries noted (CITES Management Authority of Ghana, 2004, reported in document AC22 Doc.10.2, 2006). In 1993 (Notification 746), it was noted that population estimates for Cote d'Ivoire of *P. erithacus* were believed to be exaggerated and that the large number of birds exported may have been smuggled from Ghana.

Despite possible problems with illegal trade, when the species was reviewed for a third time in 2006, Ghana was excluded from the review due to Ghana not allowing known exports (AC 21 WG2 Doc.1 (Rev.1), 2005).

Impacts of the Review

As a result of the 1992 review, a population survey was carried out and Ghana was asked to maintain its internal export ban until quotas were established and based on reliable information. This ban is still in place, and can be considered a long-term impact of the first Review.

Guinea

Review Recommendations

In 1992 Guinea was given the following recommendations.

- *Primary recommendation - an export quota should be established*
- *Secondary recommendation – a population survey should be undertaken*

In 2006 Guinea was identified as of Urgent Concern, with the following recommendations applying.

- *Establish a moratorium on exports effective from 1 Jan 2007.*
- *In 12 months - Guinea should develop a scientific method for surveying population status and develop a Management Plan, including sustainable quotas*
- *In 24 months –Guinea should have conducted a field survey to establish population status and have implemented a National Management Plan and participated in development of a Regional Management Plan.*

Due to lack of full compliance with the recommendations, in 2008 the Standing Committee concluded that the Secretariat should indicate that the quota for Guinea be zero (SC57 Doc 29.1, 2008). This still stands.

Status, trade and management

Resident in the south of the country, where previously common (Benson *et al*., 1988, Morel and Morel, 1988). In compliance with the recommendation made in 1992, Guinea undertook a population survey commissioned in May 1992. Guinea was estimated to hold between 5,000 and 10,000 individuals of *P. e. timmneh,* with densities of 0.3-0.5 parrots per km² in good habitat (Dandliker, 1992b). Clemmons (2002) argued that this estimate (as those extrapolated from this) was unreliable as it was based on only one roost count in Guinea. The species was said in 2002 to be seriously threatened by a combination of harvesting and habitat loss in Guinea (Clemmons, 2002). Rainey (*in litt.,* 2006) suggested that habitat loss was likely now posing the biggest threat with and remaining primary forest cover in Guinea is just 0.3% of total land area (FAO, 2005).

Since 1986, importers started to report large numbers of *P. erithacus* as coming directly from Guinea. Trade levels ranged from approximately 4,000 to 23,000 specimens, with between 4000 and 6000 in most years. Where export involved specimens of *P. e. erithacus* it was suggested that these may have originated in Côte

d'Ivoire (Dandliker, 1992a). Dandliker (1992b) also reported illegal imports of *P. erithacus* from Guinea to Senegal.

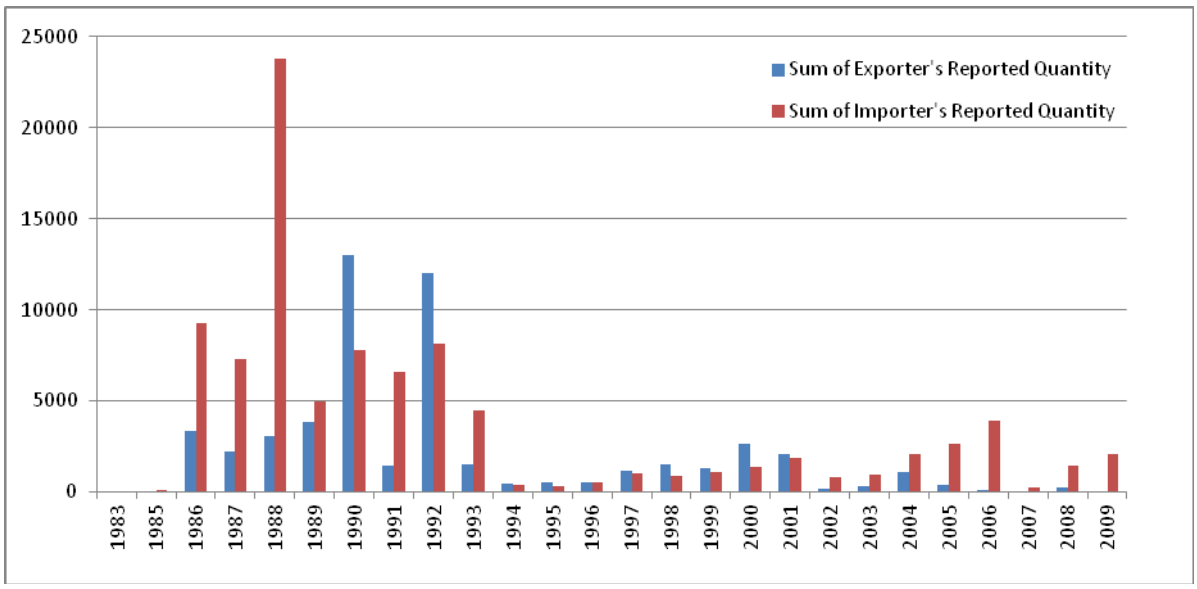
In 1992, the Standing Committee at SC29 recommended that imports of *Psittacus erithacus* from Guinea be suspended until Guinea implemented the recommendations of the Animals Committee. This suspension was lifted on 21 April 1994 as a result of implementation of the recommendations, including establishment of an export quota of 450 specimens per year reportedly based on a population survey (Notification 797). Since then Guinea established annual export quotas of 450 live birds in 1997 to 2007 except for 2002 and 2003 when the quota was increased to 750. Under Standing Committee recommendation, a zero export quota has been in place from 2008 onwards.

Recorded trade decreased greatly from 1994 probably as a result of the export quota established as part of the recommendations. However, according to both import and export data the quotas have been regularly exceeded.

Despite a zero quota being established in 2008, trade was recorded by importers in both 2008 and 2009 of wild taken specimens for commercial purposes, totalling 560 in 2008 and 1,350 in 2009, the primary importers being Turkey and Serbia and one relatively large (500) import to South Africa. However, Guinea only reported exports of 260 live birds in 2008 and no trade was reported in 2009.

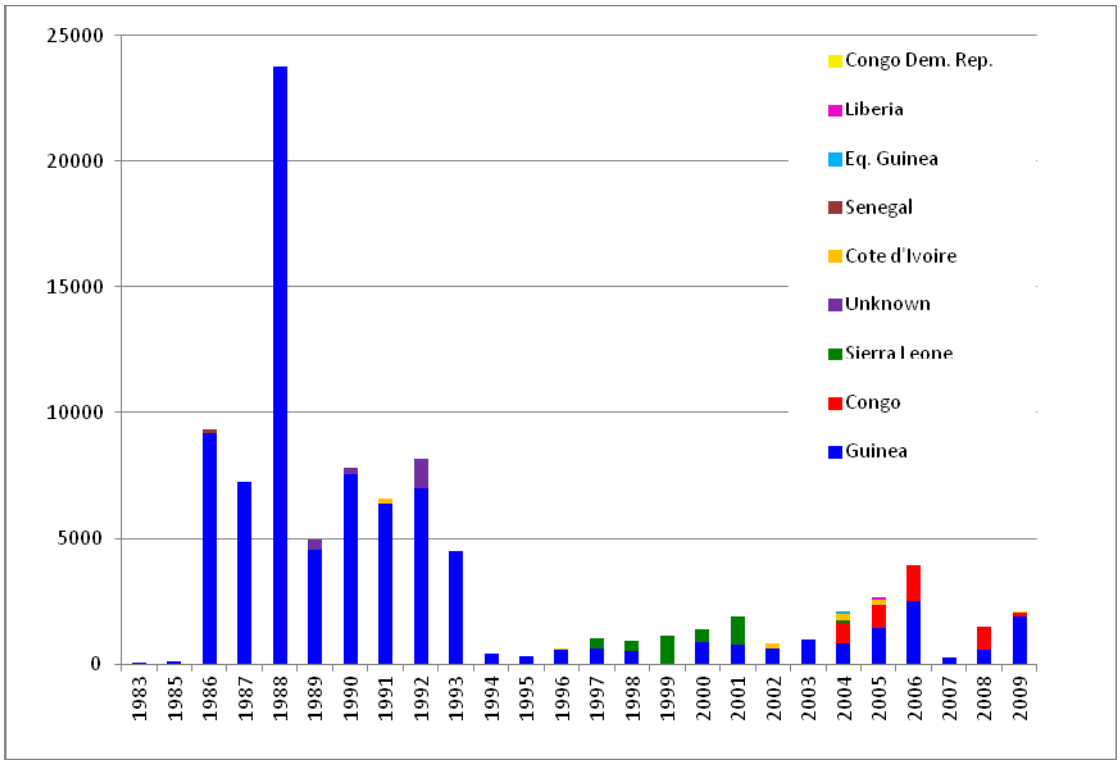
Since 2003 around 6300 specimens in trade have been reported as captive-bred imports from Guinea, mostly to Singapore and mostly since 2006. There are not known to be any commercial captive-breeding facilities for the species in Guinea.

Trade in live *P. erithacus from Guinea (all sources, including re-exports).**



* *P. erithacus* recorded to subspecies (*P. e timneh*) and species level in CITES trade database, all records combined.

Imports of live birds reported from Guinea with reported origin of specimens if reported as not originating from Guinea.



Little progress has been made in implementation of the Review recommendations. Despite the zero quota, trade in wild specimens for commercial purposes from Guinea has seemingly continued albeit at low levels.

Impacts of the Review

Reported trade from Guinea decreased substantially as a result of the Review when quotas were established. Although a zero quota has been in place since 2007 because of the Review, it would appear based, on reported imports from Guinea, that some trade of wild birds originating in Guinea has continued. No recent population is available to indicate whether there have been any impacts on the population due to implementation of the Review.

Liberia

Review Recommendations

Subject to the following recommendations in 1992:

- *Establish a moratorium on exports effective from 1 Jan 2007.*
- *Primary recommendation - Liberia should advise the Secretariat of the current status of its draft wildlife conservation regulations.*
- *Secondary recommendation, if trade is to continue, Liberia should conduct a population survey.*

In 2006 Liberia was identified as of Urgent Concern with the following recommendations applying:

- *In 12 months, Liberia should develop a scientific method for surveying population status and develop a Management Plan, including sustainable quotas.*
- *In 24 months, Liberia should have conducted a field survey to establish population status and have implemented a National Management Plan and participated in development of a Regional Management Plan.*

Due to lack of response from Liberia regarding these recommendations, in 2008 the Standing Committee concluded that the Secretariat should indicate that the quota for Liberia be zero (SC57 Doc 29.1, 2008). This quota still stands.

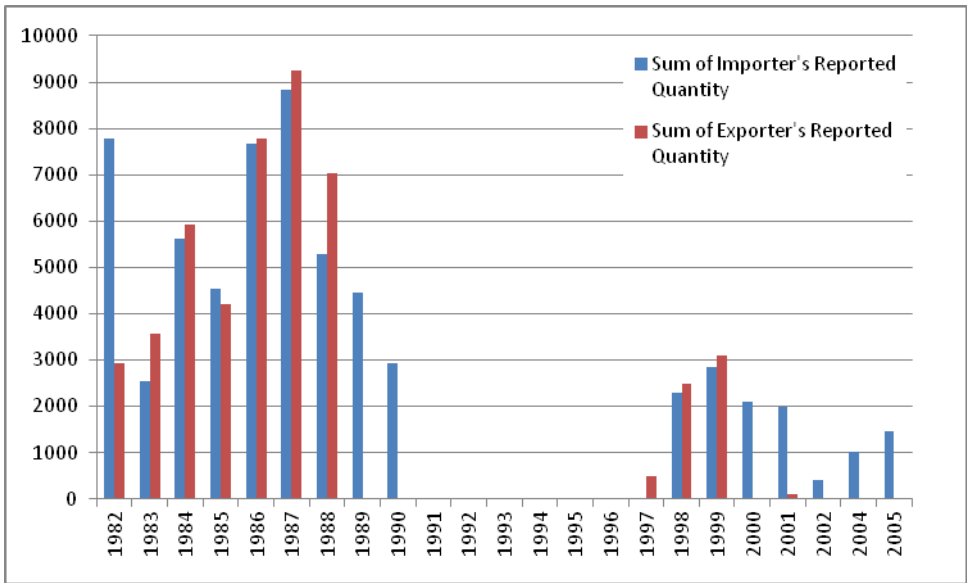
Status, trade and management

Bannerman (1951) judged that the species occurred commonly over most parts of the country. Gatter (1997) described the species as “not uncommon to locally common”, but rare in the north and north-west. Indeed, in 1988-1990, only feral birds were observed other than in Sapo National Park, a decline believed to be due to the wild bird trade (Collar, 1997). The population of *P. e. timneh* was estimated at between 50,000 and 100,000 by Dandliker (1992b) based entirely on extrapolation of estimates of forest cover and possible breeding densities observed in West African forests. Gatter (1997) estimated two breeding pairs per km² in the logged forest north of Zwedru in Liberia.

Liberia established export quotas of 2500 for 1999 and 2000, increasing to 3000 in 2001.

Large amounts of live birds were reported in trade from Liberia before the first Review although this stopped before recommendations were made in 1992. Trade reportedly resumed in 1997 with several thousand wild-caught specimens reported in trade between 1997 and 2004. No wild-caught specimens from Liberia have been reported in trade since then, but Singapore reported the import of over 2000 birds reported as captive-bred from Liberia in 2004-2005. There are not known to be any commercial captive-breeding operations for the species in the country.

Trade in live *P. erithacus* from Liberia



No information is available on national protection or management measures.

In 2008 Liberia reported that it was making efforts to comply with the Standing Committee recommendations by making provisions in the forestry reform law enacted in 2006 and by enacting a new conservation and management law then being drafted for implementing CITES (Management Authority of Liberia *in litt.* to the CITES Secretariat, 2008). It is not known what progress has been made with this.

Impacts of the Review

The cessation of recorded exports in 1990 is likely to be unrelated to the first Review, and much more likely a result of the civil war which ran from 1989 to 1996. The establishment of export quotas in 1997 was likely to have been a belated response to the 1992 Review recommendations. An imposed zero quota has been in place since 2008 as a result of the 2006 Review. It is not evident that other management measures have been implemented and there are no recent population studies to determine the impact of the quotas, or any other factors on the population.

Sierra Leone

Review Recommendations
Sierra Leone was identified as of Urgent Concern in 2006 with the following recommendations.

- *Establish a moratorium on exports effective from 1 Jan 2007.*
- *In 12 months, Sierra Leone should develop a scientific method for surveying population status and develop a Management Plan, including sustainable quotas.*
- *In 24 months, Sierra Leone should have conducted a field survey to establish population status and have implemented a National Management Plan and participated in development of a Regional Management Plan.*

Due to lack of full compliance with the recommendations, in 2008 the Standing Committee concluded that the Secretariat should indicate that the quota for Sierra Leone be zero (SC57 Doc 29.1, 2008). This quota still stands.

Status, trade and management

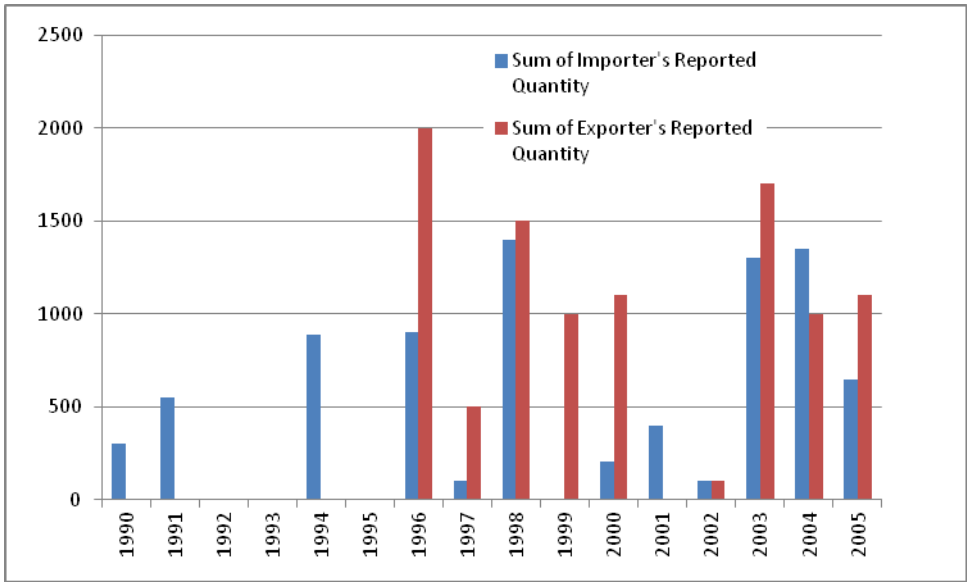
Generally uncommon resident, with large reported decline since the 1930s and

1940s, now confined to mangrove belts and forests of the east (Bannerman, 1921, 1953; Benson *et*

al., 1988; Dowsett and Dowsett-Lemaire, 1993; UNEP-WCMC, 2004).The population of *P. e timneh* in Sierra Leone was estimated by Dandliker (1992a) as 11,000-18,000. It was reported in 2006 that the Management Authority regards the population as 'healthy and flourishing' reflecting a decline in trapping and habitat disturbance (AC22 Doc 10.2, 2006), though BirdLife International (2008) regard the population as declining and decline in total forest area has been rapid in Sierra Leone (FAO, 2005).

Little trade was reported from Sierra Leone before 1990. Trade since then has been variable. Trade ceased in 2005, before the recommendation of the second Review.

Trade in live *P. erithacus* from Sierra Leone



The quota set for *P. e timneh* was 1000 specimens between 1997 and 1999; this quota was exceeded in 1998. In the years 2000 and 2001 the quota was set at 2000 specimens and between 2002 and 2006, the quota was reduced back to 1000 specimens, this quota was exceeded in 2003, 2004 (according to importers only) and 2005 (according to exporters only).

In 2005 it was reported that harvest for export was controlled via capture permits, which are only issued to approved exporters, and are based on the [export] quota. Capture permits were not issued for domestic use of the species, which does not occur. Small scale illegal harvest for subsequent illegal export via the seaport was reported. Export permit issuance was based on the export quota. CITES annual report data are based on permits issued rather than actual exports. Shipments were routed via flights available from Guinea or Côte d'Ivoire, as international flights were not readily available in Sierra Leone**.** In 2005 it ws reported that

increased efforts have been made to reduce smuggling via the sea port and other entry and exit points (CITES Management Authority of Sierra Leone *in litt.,* 2005).

Impacts of the Review
The 2006 Review has led to an imposed cessation of exports from Sierra Leone, but it is not clear that progress has been made on other aspects of management of the species in the country.

Togo

Review Recommendations

Togo was subject to the following recommendations in 1992:

- *Primary recommendation – Togo should institute a moratorium on exports until evidence is provided to show species occurs in sustainable numbers.*
- *Secondary recommendation – a population survey should be undertaken*

Status, trade and management

Although listed as a country of occurrence in 2008 in the IUCN Red List assessment and noted as a country which has undergone population declines of *P. erithacus*, the status of the species is very much under question (listed as "outstanding query over status" on the UNEP WCMC Species Database). When the CITES Secretariat requested a moratorium on exports, the Management Authority of Togo responded that based on a survey, there was not a viable population of *P. erithacus* within Togo and therefore no more export permits would be issued. The species has not been recorded as sighted since 1979 (Cheke and Walsh, 1996). No primary forest areas are present in Togo and overall wooded areas and forests are declining rapidly, with 300,000ha lost between 1990 and 2005 (FAO, 2005) which may have affected the species.

Between 1982 and 1992, almost 37000 specimens per year were reported by importers as traded from Togo. This reduced to 883 in 1993 and 103 in 1995 according to importers and 115 and 15 in the same years according to Togo. There has been little trade reported since then. Togo also reported the import of live birds numbering nearly 900 up to 1992 mainly from Cameroon, Guinea and DRC.

A survey was conducted in 1992 which concluded that there was no viable population of *Psittacus erithacus* in Togo, although some specimens have subsequently been recorded as exported from Togo.

In 1992 a study by Dandliker suggested specimens of *P. erithacus* being exported from Togo were smuggled into Togo from Ghana and then exported internationally. Togo has been said to have a "very permeable boarder" (Dandliker, 1992).

Impacts of the Review

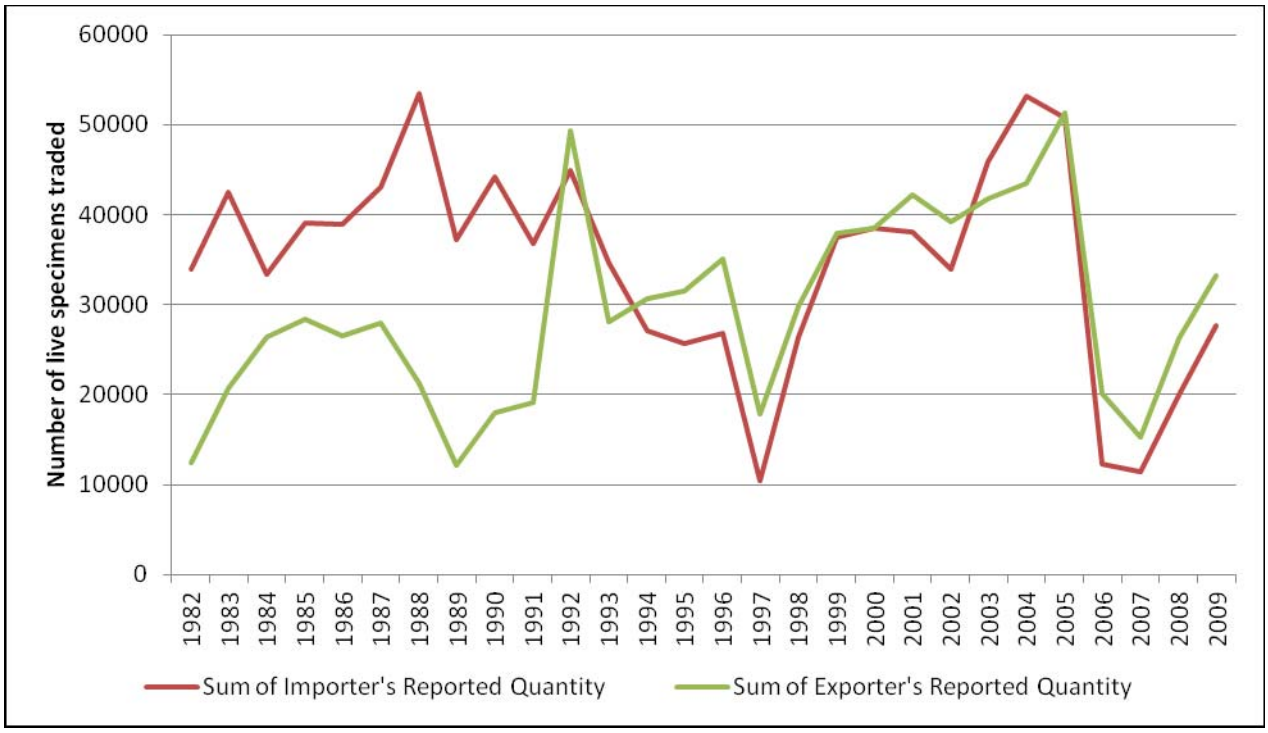
The 1980s Review appears to have led to a clarification of the status of the species in Togo, by confirming that the country did not have a viable population.

Overall trade patterns and impacts of the review process

First Review

In 1985-1993 trade as reported by importers averaged around 35,000 birds annually, all reported as wild birds. A number of exporting countries were not party to CITES for all this period, including: Burundi, Côte d'Ivoire, Equatorial Guinea, Gabon, Guinea Bissau, Mali, Sao Tomé and Principe, Sierra Leone and Uganda. Qunatities reported by exporters were thus considerably lower than those reported by importers (approximately 20,000 per year) (see figure 7). The five major exporting countries of live specimens (according to importer reports) during this period were Cameroon, Guinea, Côte d'Ivoire, Liberia and Ghana whilst the five largest importing countries were the United States, Germany, Belgium and South Africa. In the early 1980s a significant proportion of birds were reported as originating in Mali.

Trade in *Psittacus erithacus* from 1982 to 2009 from range States, excluding re-exports and including all purpose and source codes.



From 1994 to 1998 this dropped to around 25,000 birds annually (fewer than 10,000 in 1998), virtually all reported as wild birds. The five major exporting countries of live specimens during this five year period (excluding re-exports) were Cameroon (almost 50% of all exports), DRC (36% of all exports), Guinea, Côte d'Ivoire and Sierra Leone. The five major importing countries were: Belgium, Netherlands, France, South Africa and Germany. In terms of importing countries, the most significant change was that the USA was no longer a key player in the trade of *P. erithacus.*

In October 1992 the Wild Bird Conservation Act was implemented in the United States of America. This Act was designed to ensure that international trade in species of exotic birds is biologically sustainable. As such, the U.S. Fish and Wildlife Service only issues permits for the import of listed birds for scientific research, zoological breeding or display or personal pet purpose when the applicant meets certain criteria. One such criterion is if wild-caught birds were produced in accordance with Service approved management plans for sustainable use of the species (FWS). As a result the number of wild taken birds being imported to the USA decreased dramatically after 1992. The total number of direct imports from range States of wild (or unknown) *P. erithacus* recorded since the 1992 Act (1993-2002) totals just over 8,000 according to importers reports and fewer than 2,000 according to exporters reports which equates to just 3% or 0.6% of total trade. Whereas prior to this (1983-1991) trade according to importer totalled 136,383 and according to the USA 80,419 which amounts to 37-39% of all trade in those ten years. The restriction on import of wild birds into the United States thus appears to have contributed significantly to the decline in trade seen in the second half of the 1990s.

Second Review

In the years 2003-2005, according to importers' reports, some 150,000 birds were traded, or 50,000 per year, with over 80% of these reported as wild caught for commercial purposes. At this time, European countries dominated the commercial trade in terms of imports, with the Netherlands, Portugal and Belgium being particularly important. South Africa also imported large numbers of *P. erithacus*. By far the largest exporting countries were: DRC (28%), Cameroon (23%), the Congo (16%) and Côte d'Ivoire (11%); making up 92% of all commercial, wild exports (percentages according to importer figures).

Between 2007 and 2009, according to importers reports, a total of just under 60,000 live specimens of *P. erithacus* have been traded according to importers' reports (75,000 according to exporters), an average of 20,000 (or 25,000) annually, representing a large drop in number of birds traded. Of the total birds traded over three years, only 42% were recorded as wild caught and for commercial purposes (importers' reports).

From 2007 to 2009, very few countries exported significant number of *P. erithacus*; by far the largest exporter of live, wild caught birds for trade was the DRC which exported around 70% of all live, wild caught birds, direct exports over the three years. Other countries exporting over 1,000 wild birds for commercial trade in this period included Congo, Guinea and Cameroon. Largest importers were South Africa (34%), Serbia (29%) and Singapore (21%), according to importers reports; and Serbia (25%), Lebanon (21%), Pakistan (9%) and Bahrain (7%) according to exporters reports.

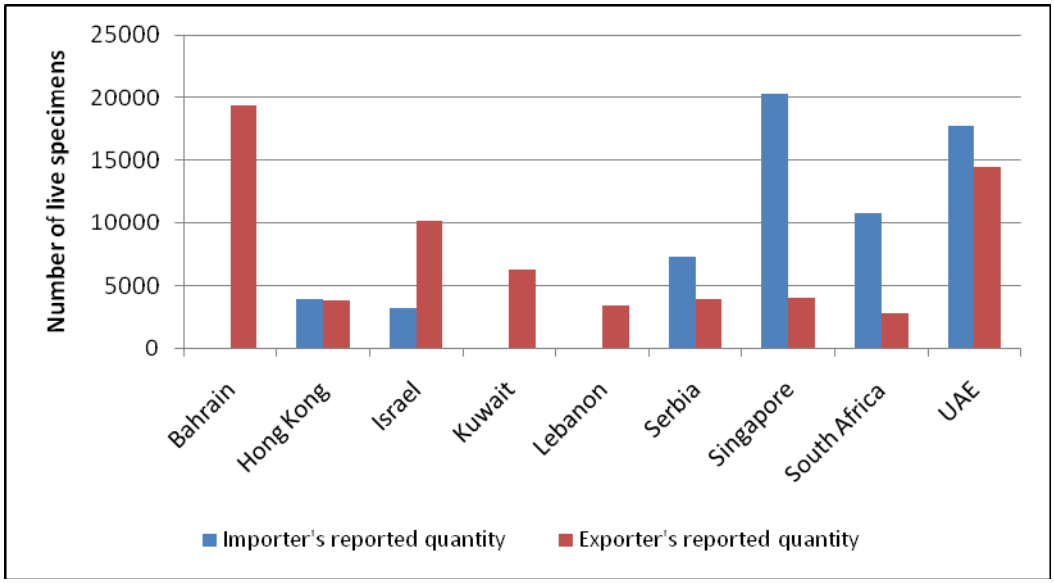
The EU bird trade ban has had a significant impact on recent levels of trade for live birds (including *P. erithacus*), which cannot be easily separated from other factors, including the Review. The bird trade ban was implemented in response to Avian Influenza outbreaks. The European Commission suspended imports of live birds first from selected countries in Southeast Asia (in February 2004) and then from all countries belonging to the OIE Regional Commissions of Africa, Americas, Asia, Far East and Oceania, Europe, and Middle East (*Commission Decision 2005/760/EC* adopted on 27 October 2005). This was originally a temporary measure but in 2007 was extended indefinitely (*Commission Regulation (EC) No. 318/200*). There are some exceptions to this, including for pet birds, whereby purpose code P can be allowed where additional requirements are met. There are also restrictions for live captive-bred specimens which are only allowed if they are from breeding facilities operating in full compliance with the standards required by *Commission Regulation (EC) No. 318/2007* and marked accordingly. No African countries were authorised to import captive-bred specimens to the EU. In the period 2001-2004, imports into the EU accounted for around 80% of all trade in *Psittacus erithacus* recorded in the CITES trade database. Imports continued at a relatively high level in 2005, (the ban did not come into force until late 2005).

In the period 2006-2009 inclusive, according to importers' data imports into the EU have been negligible, with the exception of one shipment of 400 birds to France from Cameroon and one of 200 birds to Belgium from DRC in 2006. In 2006 and 2007 Cameroon and DRC reported an additional 9000 birds exported to the EU. It is likely that at least some, perhaps all, of these are a reflection of permits issued rather than birds exported.

Since the EU trade ban, Singapore, United Arab Emirates (UAE), South Africa and Serbia have been importing the largest numbers of live *P. erithacus* according to importers' reports and Bahrain, UAE and Israel according to exporters' reports. In particular Singapore is now importing much larger shipments of birds than previously, mainly from Guinea and the DRC. They have also reported importing significant numbers of captive-bred specimens, including from range States, most recently Guinea and Central African Republic.

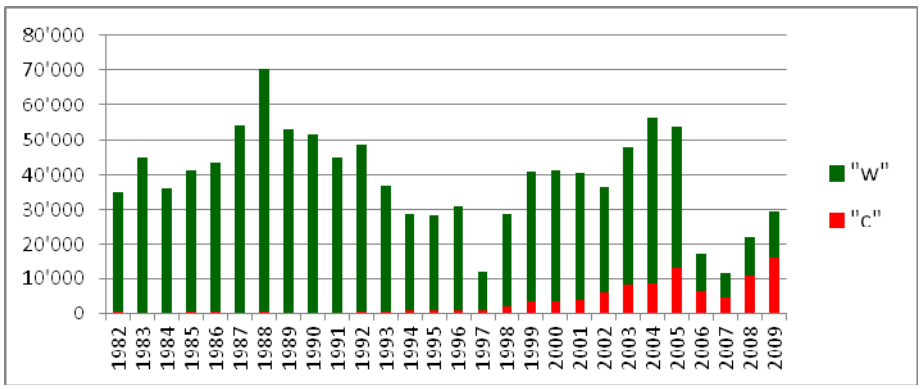
According to the CITES Management Authority of Serbia (Serbian CITES Management Authority *in litt.* to TRAFFIC, 2011), birds began to be imported to Serbia in large quantities after the EU wild bird ban, the majority of which were later smuggled illegally to EU countries for sale. Approximately one year ago, the veterinary rules in Serbia changed so that CITES listed birds had to be captive bred, as such wild birds are no longer being granted CITES permits. This has reduced the number of wild birds coming through Serbia (Serbian CITES Management Authority *in litt.* to TRAFFIC, 2011) and this is likely to impact the trade in *P. erithacus* which will show in new CITES trade data, either through shifting trade to another country or decreasing trade levels.

Top importing countries (all source and purpose codes, excluding re-exports) between 2006 and 2009 according to importer and exporter reports



Since the mid-2000s large and increasing numbers of captive-bred birds have been reported in trade (see figure y). No range State is currently known to have large-scale captive breeding facilities for the species

Trade in wild and captive bred individuals of *Psittacus erithacus* as recorded by importers.



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.

The problems of financing work under the Review for this species was explicitly acknowledged in Decisions 14.83 and 14.84 adopted at CoP14 in 2008 which called upon the the Secretariat, subject to external funding, to develop regional management plans for the conservation of and trade in *P. erithacus erithacus* and *P. erithacus timneh*, in collaboration with the range States, relevant experts, non-governmental organizations and other stakeholders. The Secretariat was also asked to seek funds for and organize

workshops in West and Central Africa to assist range States in the development and implementation of these plans. It does not appear that a great deal of progress has been made with this.

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.

Impact on other species

The great majority of the family Psitticidae are listed in CITES Appendix II and have been since 1981. A number of parrot species are popular as pets yet the primary reason for the popularity of the *P. erithacus* as a pet is its intelligence and ability to mimic the human voice. Although other parrots are known to be able to do this, no other bird is known to have such a large repertoire of words.

P. erithacus is the most popular wild sourced live bird species in trade, followed by *Myiopsitta monachus* and *Poicephalus senegalus*. *Myiopsitta monachus* is a brightly coloured parakeet from South America which is much smaller in size than the African grey parrot and has a shorter lifespan. However, it does have the ability to learn words though this skill remains unparalleled in the African grey parrot. *Poicephalus senegalus* is found in West Africa and some of its range overlaps with that of *Psittacus erithacus* though it does not display speech mimicking behaviours. Exports of *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.

Due to the EU bird trade ban, the popularity of birds successfully and economically bred in captivity may be on the increase for EU countries. The practice of keeping birds as pets is thought to be increasing in Asian and Middle Eastern countries.

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3. *Cuora amboinensis*

***Cuora amboinensis* - 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. It was first included in Appendix II in 2000, along with all other species in the genus *Cuora*.

Range States and overall status
Bangladesh, Brunei Darussalam, Cambodia, India, Indonesia, Lao PDR, Malaysia, Myanmar, Philippines, Singapore and Viet Nam. The CITES species database also lists this species as possibly occurring in China although this has not been corroborated.

The species is listed as Vulnerable in the IUCN Red List (Asian Turtle Trade Working Group, 2000). Prior to this, the species was listed as Lower Risk/near threatened in 1996. The species is currently being reassessed. In Bangladesh, Cambodia, Lao PDR and Viet Nam it is considered Endangered; India, Indonesia, Malaysia and Thailand it is considered Vulnerable; Singapore where the population is considered stable and no information is available for Myanmar (Asian Turtle Trade Working Group, 2000).

Review of Significant Trade
In addition to the listing of the genus at CoP 11, Decision 11.93 was adopted which directed the Animals Committee to " consider the trade in specimens of CITES-listed freshwater turtles and tortoises in the context of the Review of Significant Trade, pursuant to Resolution Conf. 8.9 (Rev.)." Later that year at AC16 *Cuora amboinensis* was selected for the Review of Significant Trade.

In 2001, range States were notified that the species was being considered for inclusion in the Review and invited to comment. The Management Authority of Malaysia responded to encourage the inclusion of the species and provided details of the current situation.

At AC 17 (August 2001) Parties were informed that a consultant had been appointed to compile a report on trade of the species from range States. In March 2002, a technical workshop on the conservation of and trade in freshwater turtles and tortoises in Asia was held in Kunming, China at which conservation priorities were established and actions considered. In addition findings and recommendations were formulated which were submitted to the Animals Committee prior at AC 18 (AC 18 Inf 12, 2002[3]).

This Review report was considered at AC18 (April 2002) and the species was categorized as "Category 1" (i.e. a "species for which the available information indicates that the provisions of Article IV of the Convention are not being implemented" (see Decision 11.106) equivalent to 'urgent concern') on the basis of apparently high levels of unreported trade from a number of range States coupled with an apparent decline in the availability of individuals as evidenced by increasing prices. Particular concern was noted over the main exporters, Malaysia and Indonesia, and the basis of quotas set. The AC did not make formal recommendations at this time; rather they posed the following questions to Malaysia and Indonesia.

1. Indonesia appears to have allocated part of its quota to the province of Papua, however the species does not appear to occur in this province, what is the explanation for this?
2. What is the basis for Indonesia to establish quotas in compliance with Article IV?
3. What is the relationship between the MA and SA and the Fisheries Department of Indonesia in establishing quotas?
4. Malaysia should clarify its policy on the export of tortoises and freshwater turtles.
5. Peninsular Malaysia has an export quota for 50,000 live specimens but there is no quota or information for exports from Sabah and Sarawak, and yet Malaysia's annual reports combine data from all three areas. Malaysia should clarify how the cumulative exports can be totaled and thus how quota adherence can be assessed and assured in such a situation.
6. Malaysia should clarify how Sabah and Sarawak make non-detriment findings and why they have no quotas.
7. The source of specimens to fulfill Malaysia's export quota should be clarified, as there is concern that this may include unreported exports from nearby Sumatra.
8. Singapore and Viet Nam should clarify their position with respect to their enforcement of international trade controls in relation to transit trade and re-exports.

In addition, the AC noted that China's ban on the import of freshwater turtles for commercial purposes from range States in the region did not include a ban on imports from Viet Nam. Concerns have been expressed regarding apparently high levels of cross-border trade between Viet Nam and China. However, this trade is informal and not generally recorded in official records. Because China had never received any official applications to accept imports from Viet Nam, China did not include Viet Nam in the import ban (AC18 Summary Record, 2002).

Viet Nam was also contacted (in 2002) by the CITES Secretariat stating that the Animals Committee had placed *Cuora amboinensis* from Viet Nam in Category 2 (i.e. species for which it is not clear whether or not the provisions of Article IV of the Convention are being implemented) and requested Viet Nam to inform them of the volume of exports authorized in 2000, 2001 and 2002.

In 2003 AC19 reviewed the information that had been provided following the requests formulated at AC18. The working group suggested that Malaysia and Indonesia should be brought to the attention of the Standing Committee as Article IV was not being complied with and Viet Nam should be brought to the attention of the Standing Committee as no response had been received.

Information on the species was supplied at CoP13 by Indonesia and Malaysia (see document CoP13 Doc. 33, 2004), which was considered at AC21 in 2005. Formal recommendations were then finalized and communicated to these range States in August 2005. In 2006 it was determined that both countries had complied with the recommendations and in November of that year they were informed that no further action was required and that they were removed from the Review.

[3] CITES documents including summary records, working group reports and information documents have been cited with the meeting number and document number followed by the date. Most can be found on the CITES website. They are not included in the reference list.

Range States subject to Recommendations

Indonesia
Subject to the following recommendations in 2005.
Within 90 days the Indonesian Management Authority should:

a) *review the annual export quota for* Cuora amboinensis *and explain to the Secretariat how the quota complies with the provisions of Article IV, paragraphs 2 a and 3; and*
b) *commit to undertake a status assessment and field study of* C. amboinensis *to be completed within 24 months, to develop and implement an adaptive management programmes for* C. amboinensis *on the basis of the results of this study and to report back to the CITES Secretariat at the end of this period.*

Status, trade and management
The Asian Turtle Trade Working Group (2000) considered the species vulnerable in Indonesia, although Samedi and Iskandar (2000) considered all four subspecies occurring in the country to be common. Fritz and Gaulke (1997) regarded *C. amboienensis* asppeared to be Indonesia's most common freshwater turtle species and it was found to be one of the most numerous species to be received by exporters in Medan and Tembilahan (Shepherd, 2000).

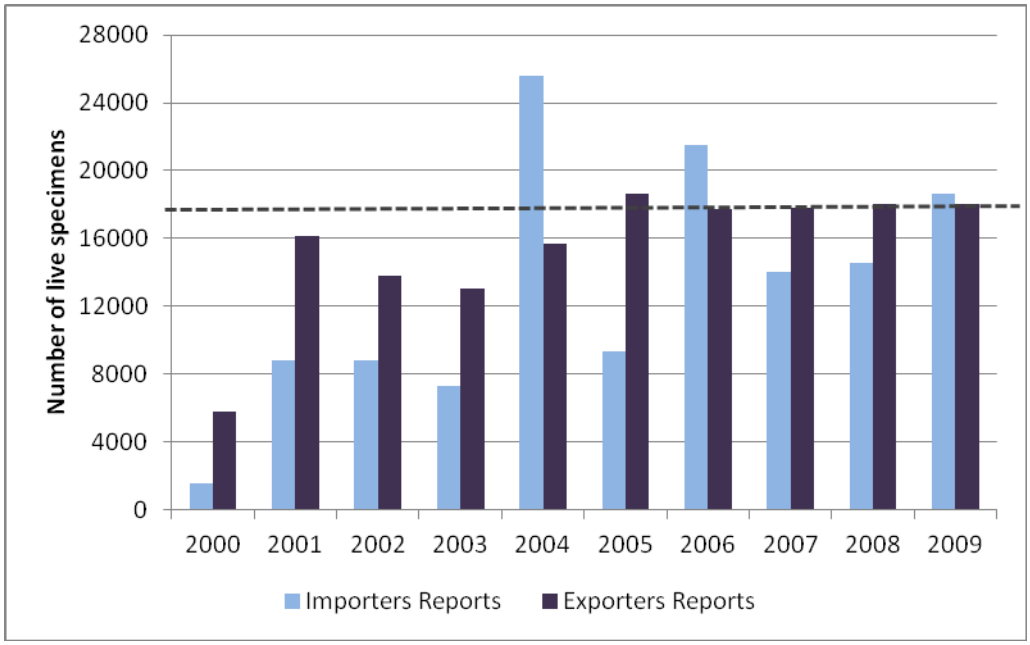
According to the Indonesia Management Authority in 2005, *C. amboienensis* had a stable population in Indonesia and was the most common freshwater turtle species, widespread in the western part of the country and abundant in most areas, occurring in natural or man-made wetlands, including rice fields and fish ponds. No population survey had been carried out but on the basis of the size and number of specimens being harvested it was inferred that the population had not declined (Indonesian CITES Management Authority *in litt.* to the CITES Secretariat, November, 2005).

The status and management of *C. amboinensis* in Indonesia has been investigated by Schoppe (2008c, 2009) and Shepherd (2007). Schoppe's (2009) study indicated a long-term decline in abundance of the species as a result of overexploitation as indicated by results of surveys and interviews, possibly even resulting in local extinctions. While local people still considered the species common, 70% noted population declines and registered pet traders indicated that it was harder to obtain specimens of the species compared to 5-10 years ago. As part of the study carried out here and in Malaysia (qv), Schoppe compared population density and structure of *C. amboinensis* in a protected area (in Indonesia) where no collection was known to take place with a site in Malaysia where commercial collection of the species had taken place until recently. The population density in the former was over 60 times that in the latter. The population in the site where collection took place was heavily skewed towards juveniles, with very few individuals of reproductive sized located. Both areas were small, and it is not possible to make any quantitative extrapolation. However, the results support the observations made by local people that the species has become heavily depleted in many areas where it has been collected.

According to the Indonesian Management Authority, catch and export quotas were reduced from approximately 500,000 animals per year (or around 500 tons) before its inclusion in Appendix II to 90,000 specimens in 1999 (Indonesian CITES Management Authority *in litt.* to the CITES Secretariat, November, 2005) and then to 6000 in 2000 . According to the quotas on the CITES website from 2001 onward the official export quota (reported by CITES) for wild collected freshwater turtles from Indonesia has remained at 18,000 specimens; since 2000 the export quota was specific to live specimens only (no dead specimens) and as of 2011 the quota has been divided into live specimens for consumption (10350) and live specimens for pets (7650), totaling 18,000.

Since the species listing, according to the CITES trade data, reported trade from Indonesia appears to have largely remained within quota (see figure), except (according to importers' data) in 2004 and 2006 when the export quota was exceeded by more than 7,500 and almost 3,500 respectively. However, there are some discrepancies between the exporter and importer trade data reports, most notably in 2004 when importers reported significantly more trade than did Indonesia. This is largely a result of Malaysia reporting the import of 20,500 live specimens from Indonesia for commercial purposes which was not recorded by Indonesia.

Reported trade of live *C. amboinenesis* from Indonesia (all source and purpose codes). Export quota shown with dashed line.



While legal trade as reported in the CITES trade database is at a relatively low level, Schoppe (2009) provided evidence to indicate that illegal trade, almost all of it for food and traditional Chinese medicine, was far greater than legal trade. On the basis of field investigations she concluded that illegal trade was at least 10 times, and more likely 100 times, the magnitude of legal trade, suggesting that actual exports were at minimum several hundred thousand specimens a year, that is at least as great as that taking place before the species was included in Appendix II.

According to the Indonesian Management Authority, prior to the listing of the species in CITES Appendix II, it was managed as a fishery resource under the jurisdiction of the Fisheries Department. According to Shoppe (2008c), since the species listing, a national management plan has been in-place in accordance with the CITES listing.

Although management structures are in place in Indonesia, enforcement has been said to be poor, CITES permits have been forged, training for enforcement officials has been lacking and confusion has been increased by the fact that different freshwater turtles fall under the management jurisdiction of the Ministry of Forestry of the Republic of Indonesia and others, under the Indonesian Department of Marine Affairs and Fisheries (Schoppe, 2009). Exploitation also occurs in protected areas and sellers of specimens for local use have been found to purchase specimens from unlicenced collectors and are not licenced themselves to sell the specimens (Schoppe, 2008 c; 2009).

Although the Ministerial Decree 447 means export of dead specimens is not permitted, Schoppe (2009) suggested exports of dead specimens and parts and derivatives from Indonesia had increased since the species became listed in CITES, though at the time of the study, some members of the CITES MA were apparently not aware of this.

Shepherd & Nijman (2007) reported that in Indonesia, it is unlikely that specimens are being captive bred and more likely species are being laundered and then sold as captive bred, although the numbers reported as captive bred are small.

Schoppe concluded that although substantive legislative framework was in place, enforcement of these laws appeared to be particularly weak (Schoppe, 2009).

In responding to the Review recommendations, the Indonesian Management Authority responded stating that information on distribution, habitat availability and population status is taken into consideration for the making of a non-detriment finding. They stated that the species is the most widespread freshwater turtle species for which there is ample habitat in Indonesia. They also stated that no population studies had been carried out but ‘based on the current utilization’ (i.e. the number and size of specimens being caught), they believed the population to be stable and that the quota of 18,000 to be conservative when the quota in 1998

was 90,000 specimens (Indonesian CITES Management Authority *in litt.* to the CITES Secretariat, November 2005).

Impacts of the Review
The Review appears to have had little impact on the management of the species in Indonesia. The establishmen of a relatively low export quota predates the Review recommendations. The status assessment and field study on the species undertaken by TRAFFIC (Schoppe, 2009) has been cited as a response to the Review, although was undertaken independently. Current trade levels appear similar to those before the Review (and indeed before the species was included in Appendix II), only the trade is now illegal.

Malaysia
Subject to the following recommendations in 2005.
Within 90 days the Management Authority of Malaysia should:

a) *provide information to the Secretariat of its implementation of Article IV, paragraphs 2 (a) and 3 for trade in* Cuora amboinensis *in Peninsular Malaysia, Sarawak and Sabah; and*
b) *commit to undertake a status assessment and field study of the species in Peninsular Malaysia, Sabah and Sarawak to be completed within 24 months, and to develop and implement an adaptive management programme for the species on the basis of the results of this study and to report back to the CITES Secretariat at the end of this period.*

Status, trade and management
Found in Peninsular Malaysia, Sarawak and Sabah, and the most widespread of Peninsular Malaysian turtle species (Jenkins, 1995). *C. amboinensis* appeared to be abundant in most states that still have swamps and man-made wetland habitats such as rice fields, irrigation canals and ponds.

The Management Authority of Malaysia (*in litt.*. to the CITES Secretariat, 22 October 2001) stated that domestic consumption was not a threat to the species, whereas collection for commercial trade is having an impact, interviews with local collectors confirm this as they indicated that the species is not as abundant as in the past.

In 2006 Schoppe (2008) found signs of overexploitation or local extinction in every state in Peninsular Malaysia. Collectors reported that while 10 years ago they could collect 6-10 individuals per day, they were now only able to collect an average of two. The study concluded that should unlimited exploitation continue that local extinction of the species was a logical consequence.

As part of the study carried out here and in Indonesia (qv), Schoppe (2008) compared population density and structure of *C. amboinensis* in a protected area (in Indonesia) where no collection was known to take place with a site in Peninsular Malaysia where commercial collection of the species had taken place until recently. The population density in the former was over 60 times that in the latter. The population in the site where collection took place was heavily skewed towards immatures, with very few individuals of reproductive sized located. Both areas were small, and it is not possible to make any quantitative extrapolation. However, the results support the observations made by local people that the species has become heavily depleted in many areas where it has been collected.

According to Malaysia (SC54 Doc 42, 2006) several hundred thousand individuals were exported annually before the species was included in Appendix II. In 2000, a total of more than 250,000 specimens of *C. amboienensis* were reported by Malaysia as exported to China. However, China reported imports of just 39,300 in that year. This discrepancy may have been a reporting error or due to reporting on the number of permits issued rather than the actual number exported (UNEP-WCMC *in litt.* to TRAFFIC, 2011).

There are several other large data discrepancies in the trade data between exporters and importers reports concerning Malaysia. In 2003 when Malaysia had established its administrative quota of 15,000 live specimens, it reported exporting approximately 14,000 specimens (plus 600kg of carapace), yet importing countries (primarily China and Hong Kong SAR) reported importing more than 130,000 specimens from Malaysia. Hong Kong SAR reported an import of almost 69,000 live specimens more than was reportedly exported from Malaysia and China reported importing 48,000 specimens, more than reported by Malaysia. In 2004, when only wild caught specimens from existing stocks that has been collected and inventoried in 2003 were permitted to be traded, more than 68,000 live, wild specimens were recorded by importers as imported directly from Malaysia yet just over 13,000 were reported from Malaysia. China reported imports of more than 160,000 specimens where Malaysia reported no exports of *C. amboinensis* to China that year. Hong Kong SAR, where the species is thought to be consumed in relatively large quantities, also reported thousands more specimens than Malaysia (Hong Kong management Authority *in litt.* to TRAFFIC,

November, 2011). In 2005, when Malaysia had established an export ban, China reported importing 33,969 live specimens (see figure).

Malaysia reported the export of 8300 captive bred specimens to China and Hong Kong SAR in 2000 but none has been reported since then.

Schoppe (2008) suggested a conservative estimate of the illegal trade from Malaysia amounted to roughly 22,000 specimens of *C. amboinensis* and reported evidence of seizures of large numbers of turtles. Schoppe (2008) found that illegal trade was present in all states of Peninsular Malaysia with 70-80% of all illegally traded *C. amboinensis* exported to China (and Hong Kong SAR) (frequently passing through Thailand on route due to the ease of crossing the border) and the remainder to Singapore. China, however, has made moves to improve this situation such as producing an identification manual for common turtles and tortoises in 2002, providing training in CITES and capacity building of enforcement officers (China Management Authority *in litt.* to TRAFFIC, November 2011).

Direct trade of live *C. amboinensis* from Malaysia for all source and purpose codes.

For Peninsular Malaysia export of CITES Appendix II listed species has been regulated through an amendment in 1991 of the 1972 Wildlife Act which adds those species to schedules of protected animals whose export should be regulated. The Wildlife Conservation Enactment of Sabah (1997) and the Wildlife Protection Ordinance in Sarawak (1998) include CITES Appendix II listed species as protected species which prevents hunting, killing and trading without a licence.

The Management Authority of Malaysia communicated that tortoises and turtles are listed under 'State list' and it is therefore the responsibility of the respective states of governments to make and enforce legislation to protect species. They stated that a number of laws exist which are designed to protect and conserve tortoises and turtles. Furthermore, the Management Authority stated that the Department of Wildlife and National Parks (DWNP) was working on amending its Wildlife Protection Act 1972 (Malaysian Management Authority *in litt.* to the CITES Secretariat, February 2006). Schoppe (2008) reported that there was no legislation pertaining to local management of the species in any of the 11 Malaysian states.

Malaysia established export quotas in 2001 and 2002 at 50,000 specimens. In 2003, national export quotas (communicated to the CITES Secretariat) were replaced by administrative quotas (PERHILITAN'S internal quotas) and set at 15,000. In 2004, the administrative quota remained the same but only wild caught specimens from existing stocks that had been collected and inventoried in 2003 were allowed to be exported, while harvest of new specimens from the wild for export was banned. This seemingly resulted in a decreased number of exports in 2004.

In 2005, a zero export quota was established for wild-caught specimens, only to be reviewed after Malaysia had developed clear methodologies for making non-detriment findings. In 2007, these zero export quotas were transferred to official export quotas as communicated to the CITES Secretariat.

The Malaysian Management Authority have made efforts by the to improve the control of illegal trade, for example, working with China to dispose of more than 5,000 illegally imported specimens in compliance with Resolution Conf. 10.7 and recently investigating reported trade in *Cuora amboinensis* from the Solomon Islands (a non-range State and at that point not a Party), resulting in a temporary trade ban with this country when it failed to respond to Malaysia's requests for information. It also worked closely with the Management Authority of Hong Kong SAR in monitoring trade in tortoises, and exchanged import and export data to look for discrepancies in permits used by traders.

It was determined that captive breeding was not economically viable and despite records of captive bred specimens (in 2000) being traded, no captive breeding facilities were thought to be present at the time of the study by Schoppe (2008a & b).

Schoppe (2008a & b) found little evidence of illegal harvest and trade in the species in East Malaysia (Sabah and Sarawak) but found evidence of ongoing illegal collection for export in all 11 States in West (Peninsular) Malaysia.

In responding to the Review recommendations, Management Authority of Malaysia replied to the CITES Secretariat stating that no population estimates (other than that by Dr Shaba, WWF) were available for *C. amboinensis* in Malaysia, but that the species may have declined in some heavily harvested areas as indicated through interviews with collectors. However, from monitoring collection centers, it appeared that the species was still abundant. They stated that the number of specimens exported had reduced since the species was listed in Appendix II and that the export quota of 50,000 specimens was based on the previous years' records and observed stocks in collection centers. They also indicated that the illegal trade was being well managed and that they were working with Thailand and Malaysia to curb the illegal trade. Lastly, it was stated that, although Sarawak and Sabah operate independently in issuing import and export permits for CITES listed species, they do not have an independent quota and that as such the CITES annual reports are submitted in three parts – Sabah, Sarawak and Peninsular Malaysia (Malaysian Management Authority *in litt.* to the CITES Secretariat, February 2006).

Impacts of the Review
It would appear that reported trade has decreased considerably since before the CITES listing when hundreds of thousands of *Cuora amboinensis* were being exported annually to some tens of thousands estimated to be illegally traded each year now. The Review has clearly had an impact on the management of the species, firstly through a reduction in quotas and then a zero quota until Malaysia had developed clear methodologies for making non-detriment findings.

Viet Nam
Review Recommendations
In 2002 Viet Nam was requested to submit trade figures for *C. amboinensis* in 2000, 2001 and 2002. No response was received**.** At SC 58 (Doc 21.1) 2009, the CITES Secretariat advised that *C. amboinensis* from Viet Nam should be removed from the Review since the implementation of Article IV paragraphs 2 (a) and 3 were not a concern to Viet Nam due to the lack of trade in the species since the year 2000. However, the Standing Committee concluded that the situation "required firmer action". As such, the Standing Committee advised that until the recommendations of the Animals Committee were implemented to the satisfaction of the Secretariat and the AC Chair, all Parties suspend trade of *C. amboinensis* with Viet Nam. The Secretariat notified the Parties (Notification 2009/032) of this decision in July 2009.

At SC61 (2011), the situation was re-visited and the Secretariat concluded that attempts to resolve the issues have not been successful and as such the Secretariat identified external funds to undertake a mission to Viet Nam for this species and *C. galbinifrons* (and to Lao PDR) to address these issues and will report on this at SC62 (SC61 Doc 28, 2011).

Status, trade and management
C. amboinensis inhabits the central part of South Viet Nam. In 2000 the species was reported as limited to remaining natural forests and wetlands within its range. However with agricultural conversion of wetlands and marshes into rice fields, an overall reduction of riparian forest habitat, and hunting pressures, few if any viable populations of *C. amboinensis* were thought likely to exist (Hendrie, 2000). Availability on markets in Viet Nam was also reported in 1999 as decreasing (Lehr 1996, 1997 cited in AC 18 Doc 7.1, 2002), which may indicate declining populations in the wild.

Viet Nam has assessed *C. amboinensis* as vulnerable in the Red Book for Viet Nam (1992) (Vietnamese Management Authority *in litt.* to TRAFFIC, August 2011).

In 2000, the United States reported importing 27 specimens of wild origin from Viet Nam. The majority of exports have been reported as re-exports from Viet Nam (see table).

Reported trade in *Cuora amboinensis* from Viet Nam.

Year	Imp.	Exp.	Origin	Importer's Reported Quantity	Exporter's Reported Quantity	Units	Term	Purpose	source
2000	United States	Viet Nam		27			live	T	W
2003	China	Viet Nam	Malaysia		300		live	T	W
2004	United States	Viet Nam		1			specimens	S	W
2005	China	Viet Nam	Lao PDR		21000		live	T	W
2006	China	Viet Nam	Myanmar		2500		live	T	R
2009	China	Viet Nam	Lao PDR		3500		live	T	R

Reported trade in *Cuora amboinensis* to Viet Nam.

Year	Imp.	Exp.	Origin	Importer's Reported Quantity	Exporter's Reported Quantity	Units	Term	Purpose	source
2001	Viet Nam	Indonesia			1000		live	T	W
2003	Viet Nam	Malaysia			1400		live	T	W
2005	Viet Nam	Lao PDR		1000			Live	T	W
2009	Viet Nam	Lao PDR			5000		Live	T	C

The species is not specifically protected by law in Viet Nam. However, since 2004 the CITES Management Authority has not issued any export permits for wild specimens of any *Cuora* species, following Decree No 82/2004/ND-CP. The Management Authority (*in litt.* to TRAFFIC International, August, 2011) stated that it did not intend to issue export permits for the species until a non-detriment finding could be made, or until successful captive breeding had been demonstrated. It was hoped to carry out a survey of the species in 2012, subject to the availability of funding.

Impacts of the Review

Most trade reported as exported from Viet Nam has been re-exports originating elsewhere. It is likely that the decision of the Management Authority not to issue export permits for the species until a non-detriment finding can be made is at least in part an outcome of the Review.

Range States not subject to Review recommendations

Lao PDR

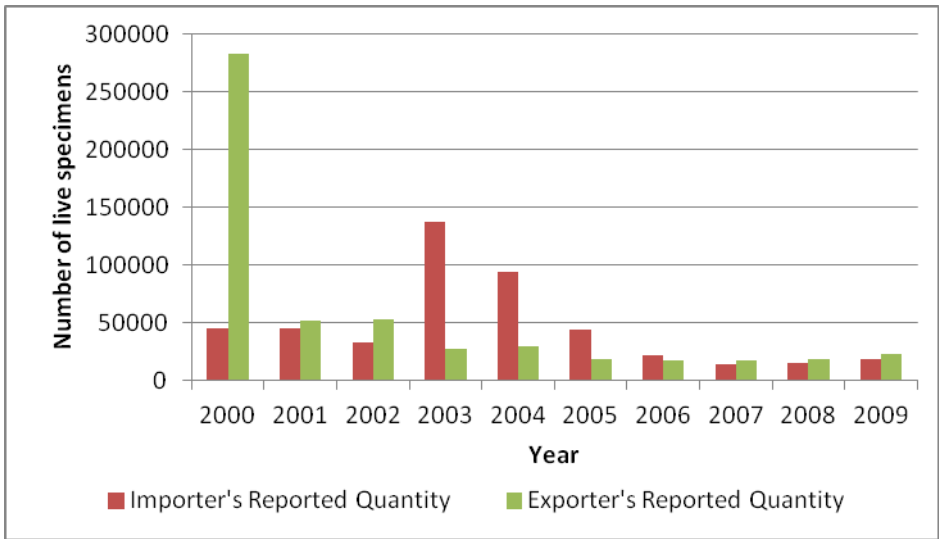
Lao PDR, which was not subject to recommendations from the Review, is the only other country which has reportedly exported specimens in any significant quantity in recent years. In 2005 Viet Nam reported importing 1000 live, wild taken specimens from Lao PDR. This was not reported by Lao PDR and the Management Authority of Viet Nam has since suggested that all imported *Cuora* from Lao PDR are captive-bred (Viet Nam Management Authority *in litt.* to TRAFFIC, 2011). In 2009, Lao PDR reported that they exported 5000 captive-bred specimens to Viet Nam, but Viet Nam did not report this occurrence. However, Schoppe (2009) noted the difficulty in captive-breeding *Cuora,* and the length of time required for captive-bred specimens to reach maketable size. No information was available on commercial captive breeding operations for chelonians in Lao PDR. Viet Nam also reported re-exporting 21,000 wild taken specimens in 2005 originally from Lao PDR to China and in 2009 3500 ranched specimens originally from Lao PDR to China. China did not report either of these imports and Viet Nam reported these re-exports on the basis of permits issued rather than on the basis of actual trade.

Trade patterns and impacts of the Review process 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, SAR. Only three countries – Indonesia, Malaysia and Viet Nam – have reported significant levels of exports since the species was listed in Appendix II. 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 around (20,000-30,000). 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 PDR.

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 process (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.

Total direct trade of live *C. amboinensis* all source and purpose codes.



Other than live trade, there has also been some trade in other products, including in carapaces, 'derivatives' and specimens but recorded trade of these is generally low, mostly limited to carapaces from Malaysia. Other trade is of specimens for scientific purposes and one consignment of 24kg of derivatives from China to the United States in 2007.

Between 2000 and 2002, China imported 50-90% of all traded *C. amboinensis*, by far the largest importer. They reported importing large numbers of live specimens (totaling 195,169) and according to exporters' reports, 331,442 live specimens between 2000 and 2005; 99% of which was exported to China between 2000 and 2003. However, trade in recent years has declined significantly as a result of China implementing a suspension on the commercial export of tortoises and freshwater turtles (except for two widely farmed species) in June 2000, and in 2001 they implemented import restrictions on turtle imports. In July 2002 China imposed an import ban on turtles less than 10 cm carapace length, and in 2003 trade was restricted to the import and export of live and butchered specimens of *Pelodiscus sinensis*, *Trachemys scripta elegans*, and *Macrochelys temminckii*. Then in conjunction with CoP13, China placed all native freshwater turtle species that were not already included in Appendices I or II in Appendix III, effective 17 February 2005, and withdrew

the Appendix III listing for *Pelodiscus sinensis* effective 23 June 2005. (CoP13 Doc.33, 2004). Farming of freshwater turtles (very largely *Pelodiscus sinensis*) in China has also expanded significantly in recent years (SC61 Doc. 47 (Rev.2), 2011) and may therefore be reducing the demand for harvest of wild taken specimens.

Since 2003, Hong Kong SAR has been importing significant numbers of live specimens of *C. amboinensis* and became the dominant importer since (and including) 2007, see figures. Between 2003 and 2006, Hong Kong SAR has imported roughly between 50 and 95% of all live specimens in international trade. Hong Kong SAR makes up significantly more of the trade according to importers than exporters reports.

In 2004, Malaysia reported importing 20,500 live specimens from Indonesia. As mentioned previously, Indonesia did not report this export.

Some captive bred and F1 generation specimens have been reportedly in trade but a number of reports have suggested that captive breeding is unlikely and economical unfeasible (Schoppe 2008; 2009; Shepherd, 2007). All of the larger consignments of live specimens recorded as source code C have originated from range States (Indonesia, Malaysia and Lao PDR) and no evidence has been provided that these countries are breeding captive bred specimens successfully.

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 process is another manifestation. Imports of *C. amboinensis* since 2004 have shifted to Hong Kong, SAR and remained largely unchanged in quantity.

Costs and benefits associated with management of and trade in the species
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 a comprehensive 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.

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. 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.

Pelodiscus sinensis is regularly consumed for meat and is farmed for this purpose. Few data are available but it appears that the majority of specimens and products are captive bred.

It was noted at the Kunming workshop that when *Cuora* spp was listed on App II, traders shifted to other species (AC18 Inf. 12, 2002) but there appears to be little evidence to corroborate this.

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4. ***Stombus gigas***

***Strombus gigas* or Queen Conch** is a marine mollusc occurring in least 36 countries and dependent territories in the wider Caribbean region. Traditionally it has been an important source of protein in many States; more recently large quantities have been harvested for trade, constituting an important socio-economic resource. Shells and pearls are also traded, mostly as a by-product. The species was listed in Appendix II in 1992.

Range States and overall status

Anguilla, Antigua and Barbuda, Aruba, Bahamas, Barbados, Belize, Bermuda, Brazil, British Virgin Islands, Cayman Islands, Colombia, Costa Rica, Cuba, Dominica, Dominican Republic, Grenada, Guadeloupe, Haiti, Honduras, Jamaica, Martinique, Mexico, Montserrat, Netherlands Antilles, Nicaragua, Panama, Puerto Rico, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Trinidad and Tobago, Turks and Caicos Islands, United States of America, United States Virgin Islands, Venezuela.

Review of Significant Trade

The species has been included in the Review twice, in 1995 and 2001.

As a result of the first Review recommendations were made in 1997 for all range States to provide information: on the biological basis for issuing export permits and the nature of non-detriment findings; the steps taken to establish coordination with the Caribbean Fisheries Management Council (CFMC) to develop and implement a regional management strategy for the sustainable harvesting of *S. gigas*; measures for the collection of data on catch-per-unit efforts; permit issuing procedures; and records of trade by weight or number of shells. It was also recommended that France provide information on the controls of trade in *S. gigas* in Guadeloupe and Martinique, and the Netherlands on controls in Saint Maarten (Netherlands Antilles) (see AC22 Inf. 4, 2006)[4].

Most of the range States provided satisfactory responses[5]. However, five range States did not respond at all. Consequently, at its 41st meeting the Standing Committee agreed to recommend that Parties not accept imports of specimens from Antigua and Barbuda, Barbados, Dominica, Saint Lucia and Trinidad and Tobago. Saint Lucia provided information in 2002 and the suspension for St Lucia was withdrawn.

The species was selected for inclusion in the review of significant trade again in 2001. A draft report on range States was compiled and discussed at a workshop in Jamaica in June 2003 organized by the Caribbean Fishery Management Council (CFMC). A number of recommendations were formulated at that workshop and information provided during it was incorporated into the final report (AC19 doc 8.3) discussed at AC19 (August 2003). It was concluded that Dominican Republic, Haiti (a non-Party) and Honduras were of Urgent Concern and Antigua and Barbuda, Barbados, the Bahamas, Belize, Colombia, Cuba, Dominica, Grenada, Nicaragua, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, and Trinidad and Tobago were of Possible Concern. Time-bound recommendations to these range States were formulated (see Annex 1), including for those countries for which suspensions were still in place from the previous review (Antigua and Barbuda, Barbados, Dominica and Trinidad and Tobago). All other range States were considered to be of Least Concern and were excluded from the review.

A workshop in December 2005 reviewed implementation of the 2003 recommendations. All range States subject to recommendations except Grenada and Haiti were then removed from the process. Grenada had not responded to any communications and it was determined that Haiti, already subject to a trade suspension for *Strombus gigas*, had not implemented the recommendations. Trade suspension was recommended for Grenada and suspensions remain in place for both of these range States.

Range State summaries.

Antigua and Barbuda

Review Recommendations

[4] CITES documents including summary records, working group reports and information documents have been cited with the meeting number and document number followed by the date. Most can be found on the CITES website. They are not included in the reference list.

[5] Where the text refers to a response to the Review by a range State, this should be understood to have been communicated by the country's CITES Management or Scientific Authority to the CITES Secretariat.

Recommendations of 1997 applied. No response was provided by Antigua and Barbuda on the implementation of the recommendations from the first Review and subsequently it was recommended in 1999 that Parties suspend imports from Antigua and Barbuda. This suspension was in place by the second review and Antigua and Barbuda was considered of Possible Concern at that time.

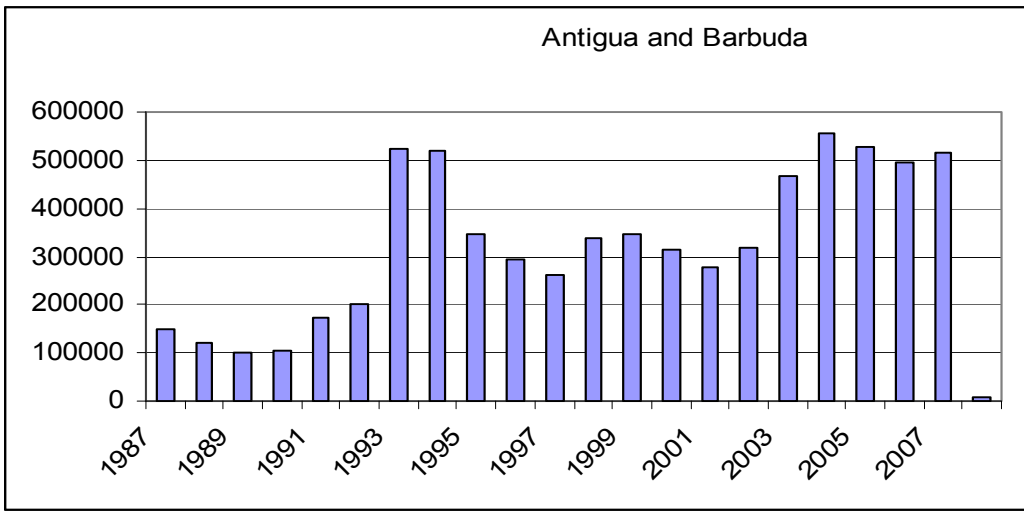
Status, trade and management

In 1981 it was reported that harvest had resulted in depletion of conch populations particularly in shallow water in western Barbuda and that the fishery had moved to the use of SCUBA divers. In 1999, abundance surveys were conducted in the main commercial fishing ground and a morphometric analysis of two stocks was undertaken at the western shelf of Antigua. The abundance survey revealed overall densities of 17.2 ind./ha with juveniles making up almost 80% of the surveyed population. The overall adult density was extremely low (3 ind./ha), indicating consistent and high fishing pressure (AC19 Doc 8.3, 2003).

In 2002 Queen Conch was said to be the second most valuable commercial fishery species in Antigua and Barbuda. At that time in Antigua, Queen Conch was marketed mainly to hotels and restaurants; in Barbuda the species was mostly used for subsistence and the fishery was of lesser importance (AC19 Doc 8.3, 2003). All trade has been reported by importers only. Just six shells had been reported in trade before the trade suspension in 1999. After this low levels of meat and shells for personal purposes were reported as seized by importers. Since the trade suspension was lifted only 50kg of meat have been reported as legal imports from Antigua and Barbuda.

FAO landings data for Stromboid conchs show a decrease in landings in 1995. Landings remained fairly constant even during the period after the CITES import suspension. Landings started to increase again from the 2000 to a peak in 2005. It would appear that the review recommendations had little impact on harvest levels during this period.

FAO landings of Stromboid conchs (kg) reported by Antigua and Barbuda.



The Fisheries Act (1983) and the Fisheries Regulations (1990) form the primary legislative bases for managing the Queen Conch fishery in Antigua and Barbuda. The Fisheries Act No. 14 of 1983 requires all fishing vessels to be licenced. The Fisheries Regulation No. 10 of 1990 prohibits the harvest of Queen Conch with a shell length of less than 18 cm or of shells that do not have a flared lip, however, there is no requirement regarding lip thickness. Only animals weighing more than 225 g (after the removal of the digestive glands) can be harvested. In 1996, a data collection programme was initiated, which included the collection of catch and effort data as well as biological data (mean shell length, tissue weight, etc.) (AC19 Doc 8.3, 2003).

The “Lobster and Conch Resource Assessment Unit” (RAU) of the of the Fisheries Resource Assessment and Management Programme of the Caribbean Community (CFRAMP) undertook various activities relevant to the conservation and management of Queen Conch, including assessment studies in Antigua and Barbuda (AC22 Inf.4, 2006).

Impacts of the Review

It would appear that many of the measures that were reported in response to the second review recommendations were in place or underway at the time of the first review. Some of these were also discussed in the report for the second review indicating that the reviews probably had little impact on management. If information had been supplied in the first review, the very low level of trade would have been apparent and the species would probably have been considered as Least Concern in the second review. Trade has not been of great importance and it appears the review had little impact on harvest level for Antigua and Barbuda.

Aruba

Review Recommendations

Recommendations of 1997 applied.

In 2003 trade was considered of Least Concern.

Status, trade and management

Between 1983 and 1985, the waters of Aruba were stock enhanced with the juvenile *S. gigas* from Marcultura under Proyecto Calco. In 1998 the species was considered rare (AC19 Doc 8.3, 2003). Surveys conducted between 2009 and 2010 estimated that there are approximately 85 thousand conchs in western waters of Aruba of which 20% were adults and 80% juveniles (Ho, 2011).

In 2002 the US reported the import of 5805 kg meat from Aruba. Other trade consisted mainly of shells for personal use. Between 1998 and 2009 Arbua has imported meat (27,762kg reported imports, 26,222kg reported by exporters) of this species.

In Aruba, the *S. gigas* fishery was closed in 1987 under Article 5 of the Marien Milieu Verordening (Marine Environment Act).This was communicated to the Secretariat in response to the first Review. In 2007 the Fisheries section expressed the need to evaluate the current *S. gigas* population of Aruba and at that time local fishermen were asking for the fishery to be reopened based on anecdotal evidence that *S. gigas* was abundant in Aruban waters. However the fishery has remained closed [Ho, 2011].

Ho (2011) notes that although the species is protected in Aruban waters, freshly harvested shells are abundant and evidence of ongoing illegal harvest, although there is no indication of illegal trade.

The current aim of management and of the study conducted by Ho (2011) for the Department of Agriculture, Husbandry and Fisheries of Aruba is to reopen the fishery when stocks are stable and large enough to allow a sustainable harvest.

Impacts of the Review

It is unlikely that the review has had an impact on the management of this species.

Barbados

Review Recommendations

Recommendations of 1997 applied. No response was provided by Barbados regarding implementation of the recommendations from the first review and subsequently it was recommended in 1999 that Parties suspend imports from Barbados. This suspension was in place by the second review and Barbados was considered of Possible Concern at that time.

Status, trade and management

In 1996 the population was considered patchily distributed off the north-west and south-west of the island and considered rare, probably due to overfishing and habitat loss. At that time there were no conservation measures in place for the species. The area of suitable habitat for Queen Conch in Barbados is limited with a total shelf area of 320 km^2, much less than for other range States (Oxenford *et al*., 2007). Oxenford *et al*.'s survey of catch showed that the majority of harvested specimens were immature (71%). A third of fishermen interviewed considered that there had been a decline in population.

In Barbados there is only a small-scale, non-commercial fishery for conch. Catch is opportunistic, mostly as part of a multi-species harvest although often takes place in July to October – the breeding season – which is the off-season for other fisheries (Oxenford *et al*., 2007).

Between 1997 and 2008 a total of 58 shells were reported in trade, mostly by importing countries, with some reported as P and some as I. Some of these have been reported as "I", particularly in the period when import was suspended from Barbados, although not all during this period. According to exporter reports 14,279kg of meat was imported by Barbados between 1998 and 2009.

A study carried out in 2005-2006 found that landings of Queen Conch were likely between 3121 and 5198 individuals per year. Meat was consumed locally but demand was not particularly high and much was consumed by the fishermen themselves. Shells were sold mainly to tourists, generating more revenue than meat. Because Barbados allows the export of up to three Queen Conch shells per person without the need for an export permit under the Personal Effects and Household Goods rule, Article VII.3 of CITES, the number exported is not known and not reported in the annual trade data (Oxenford *et al.,* 2007).

Recorded international trade has been insignificant and has not increased since the suspension of imports has been removed.

No fishing of Queen Conch has been allowed in the Folkstone Marine Park since 1988. The Fisheries Management Plan of Barbados (2001-2003) included measures for Queen Conch for; licensing of harvesters and vendors, the establishment of a closed season, the imposition of minimum shell size and/or lip thickness, and the establishment of total, individual or area allowable catch quotas. Implementation was not yet in place by 2001 (AC19 Doc 8.3, 2003).

In response to the second review Barbados stated that the Fisheries Division studied all dive fisheries of Barbados, including Queen Conch, in 2006-07 to identify important fishing areas and estimate the value of each fishery; activities were included in the Biodiversity Work Programme for 2006-2007 and funding ensured. A public awareness campaign deterring the harvest of juveniles was undertaken by the Fisheries Division and local fisherfolk organizations. Barbados was removed from the process in 2006.

The species is included in a fisheries management plan, although Oxenford *et al*. (2007) considered that there was no real management of the conch fishery.

Impacts of the Review

Given the lack of exports of the species (it would appear that the country is a net importer), it is unlikely that there has been a significant impact of the review on population or management of the species. Barbados requested removal from the process in 2003 and 2004 on the basis that it did not export meat.

Bahamas

Review Recommendations

Recommendations of 1997 applied.

In 2003 trade from Bahamas was considered to be of Possible Concern.

Status, trade and management

Surveys in 1984 estimated mean densities from 20.79 to 28.5 individuals per ha. By 1991 some considered that the populations were healthy despite fishing pressure whereas others considered that the population was depleted. Localized overfishing was noted in 1994 and surveys showed low densities in some areas. The total *S. gigas* biomass was calculated at over 881,000 kg of Queen Conch meat and it was concluded that the stocks of the Grand Bahama Islands were not fully exploited. However, studies undertaken in the Exuma Cays in the Bahamas showed failure of populations to recover, considered to be partly result from low local spawning stock densities that are reduced below a critical threshold (<56 ind./ha) for reproduction (AC19 Doc 8.3, 2003).

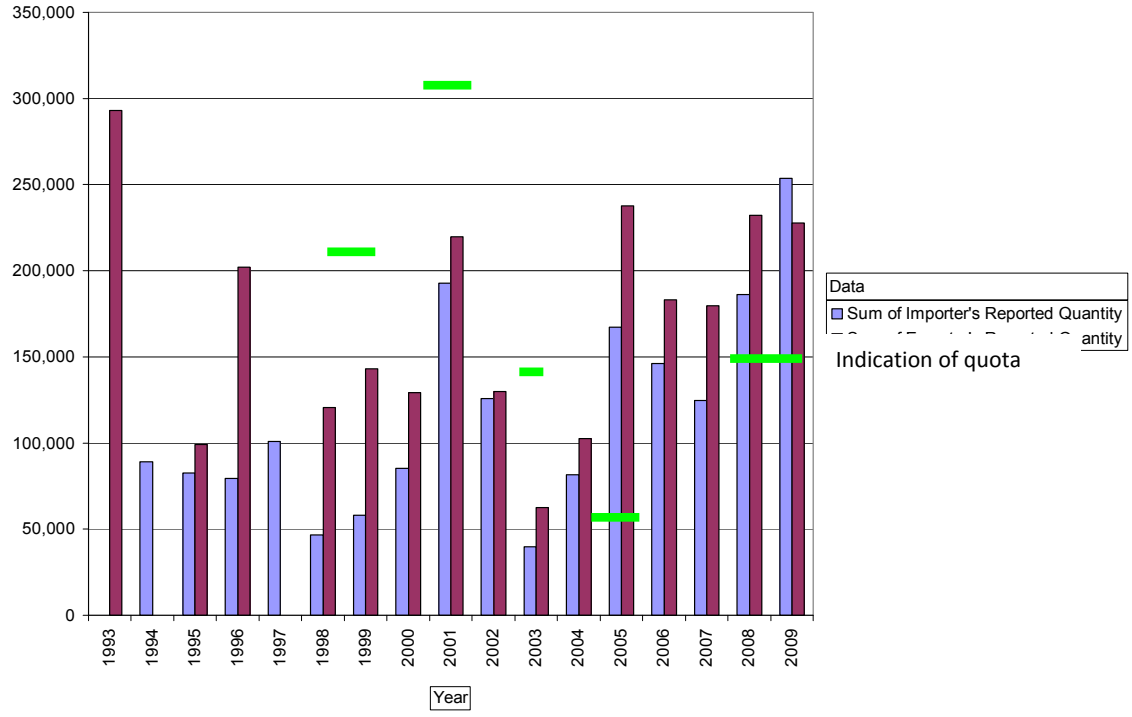
Surveys conducted recently by *Community Conch* (an NGO formed in 2009 with a mission to bring about sustainable harvest of Queen Conch through research, education and collaboration with local communities, the Bahamian government and other nongovernmental organizations), estimated total numbers of conch at surveyed sites off Andros Island were about 2.11 million adult conch and 1.56 million subadults. All but one site had low densities and they considered for most sites the Queen Conch fisheries of Andros Island were no longer viable or are taking place at unsustainable levels (Stoner and Davis 2010). In 2009 Community

Conch surveyed the Berry Island bank estimating total numbers of conch for the survey area of approximately 2.54 million adults and 1.61 million subadults. On the basis of the low density of Queen Conch adults over most of the Berry Islands bank fishing grounds, relative youth of the adult population except in the area west of Rum Cay where adults were very small, low mating frequency, and apparent loss of 2 historically significant juvenile populations, they considered that it was likely that recruitment overfishing was occurring (Stoner *et al*. 2009).

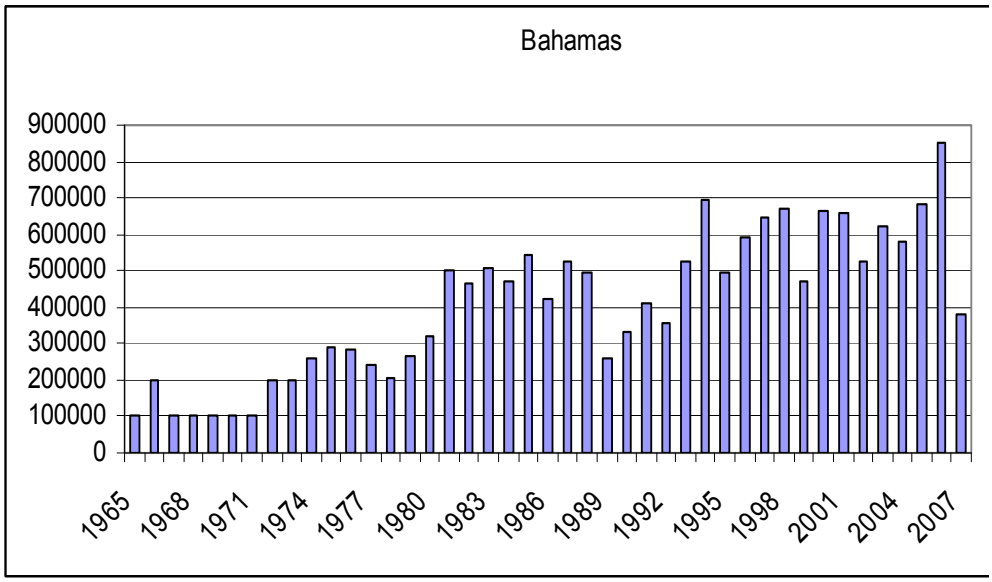
Harvest in 1991 was said to be mainly for domestic consumption and the tourist trade but the Bahamas have exported large quantities of meat over the past 2 decades. However in 2003 it was estimated that only around 20% of meat was exported, mostly to the US (AC19 Doc 8.3, 2003). Virtually all (95%) of trade from the Bahamas has been reported as imports by the US. Trade has increased somewhat since the Bahamas was removed from the review in 2006. Reported trade has been somewhat different from the quotas posted on the CITES website.

In 2003 it was reported that the imposition of export quotas had helped to control the amount of Queen Conch meat exported, but that it had failed to stem the rising levels of recorded Queen Conch landings, as the demand was mainly driven by domestic consumption (AC19 Doc 8.3, 2003). FAO landings data for Stromboid conch show a similar pattern to exports from Bahamas (see figures).

Reported trade in *Strombus gigas* meat (kg) from the Bahamas



FAO landings data (kg) of Stromboid conchs reported by Bahamas



The Department of Fisheries is responsible for the management of *S. gigas* under the Fisheries Resources (Jurisdiction and Conservation) Act of 1977. The Fisheries Regulations of 1986 prohibit the harvest, possession and sale of Queen Conch shells without a well-formed flaring lip (i.e. immature), the export of Queen Conch specimens without a licence, and sets a limit for non-commercial exports of 10 lbs per person (≈ 4.5 kg). In 1995, an export quota system for Queen Conch was established and quotas were allocated to selected licenced processing facilities (AC19 Doc 8.3, 2003). Annual export quotas have been posted on the CITES Secretariat of 204115kg in 1997 and 1998 and 45359 kg in 2005. According to AC 19 Doc 8.3 in 2003 the export quota was reduced from 308,448 kg to 136,080 kg. In 1997 and 1998 trade was far below the quota set, whereas the quota for 2005 was exceeded by 192,188 kg.

A fishery data collection programme existed by 2003 and an initiative is ongoing to improve the system. In 2005 a Management Plan existed which was at that time partially implemented. This included planning of abundance survey intended for the establishment of conservative quotas (AC22, Inf. 4, 2006).

Daily landing forms are used to collect catch and effort statistics from vessels at landing sites in Abaco, Grand Bahamas and New Providence. In addition, all licenced processing facilities are required to submit Monthly Purchase reports that details species, source and cost of all purchases (AC22, Inf. 4, 2006).

Fishing is prohibited in the Exuma Sea and Land Park (45,584 ha). In the mid-1990s, the Government of the Bahamas started to develop a system of fisheries reserves (AC19 Doc 8.3, 2003).

Bahamas worked with CRFM on implementation of recommendations and they had applied for funding for a proposed project on “Rehabilitation and management of the Queen Conch resource in member States of CARICOM”. Joint surveys were carried out with FAO (AC22, Inf. 4, 2006).

Impacts of the Review:

The Review may have helped to stimulate efforts to improve management of the species in the Bahamas, although it is unclear how much progress has been made in this to date.

Belize

Review Recommendations

Recommendations of 1997 applied.

In 2003 trade from Belize was considered to be of Possible Concern.

Status, trade and management

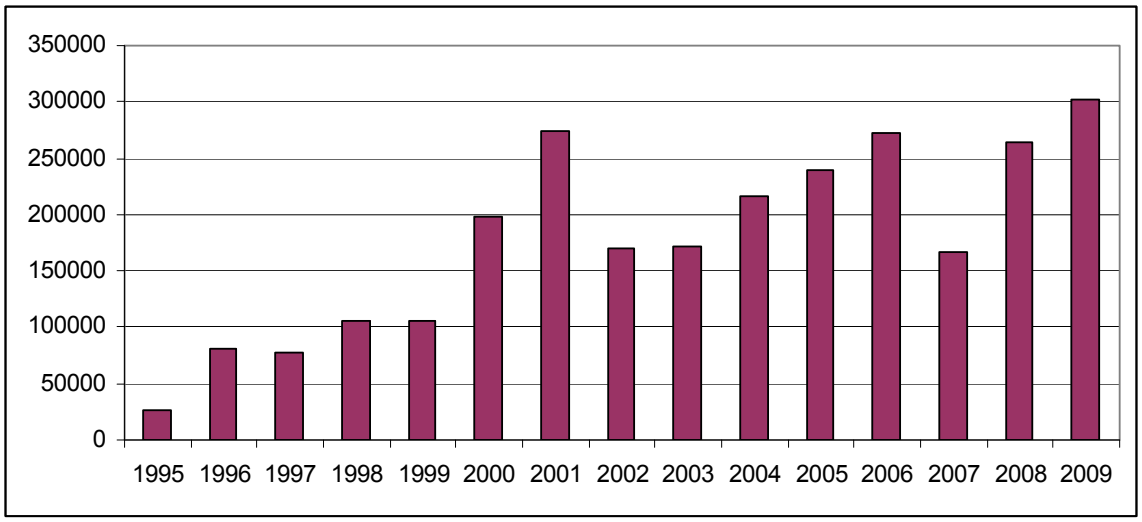
The population of Belize was considered to be overfished by 1994 with evidence of depleted stocks. In 1996, the Belize Fisheries Department conducted visual surveys in shallow waters of up to 70 ft (21.3 m) in commercially important fishing grounds; deeper water populations (>70ft) were not surveyed. The surveys found that the shallow water population was dominated by juveniles greater than 10 cm (70%) and only a few adults were observed; it was suggested that the population was seriously overexploited and in danger of stock collapse due to spawning failure (AC19 Doc 8.3, 2003).

The 2003 conch abundance survey estimated a substantial increase in abundance compared to that in 1996 and densities in the areas sampled in 2004 showed further increases (AC22 Inf. 4, 2006). Marine reserves and no-take zones were apparently having a beneficial effect on the stock

In 1999 the Queen Conch fishery was the second largest capture fishery in Belize, earning about 3.3 million Belize Dollars per year (≈ USD 1.7 million) from the exports of around 212,000 kg of processed meat and 11,000 kg of shells (AC19 Doc 8.3, 2003).

Landings of Queen Conch have been reported from Belize in FAO's data since 1950, increasing from 100,000 kg to around 2,000,000 kg in 2007. The majority of meat imports from Belize have been reported by the US with Barbados importing 431kg of meat in 2008. Belize's export data show other destinations as well; Canada, Japan, Mexico, Taiwan (Prov. of China).

Trade in *Strombus gigas* meat (kg) from Belize as reported by importers.



A comprehensive conch fishery research programme was established by the Fisheries Department in 1974. In 1977 a closed season was established from 1 July to 30 September and minimum legal shell size of 7 inches (18 cm) and a minimum meat weight of 3 oz (85 g) for 'market clean meat' imposed. The use of scuba and hookah to harvest *S. gigas* is prohibited. Harvest is prohibited in certain areas (AC19 Doc 8.3, 2003). The permit system was based on stock abundance and potential yield data from studies with the Belize fisheries Department and the CARICOM Fisheries Resource Assessment and Management Project (CFRAMP).

Regional co-ordination was sought through the San Andres Declaration and Declaration of San Juan. Belize was also committed to implementing sustainable fishing through implementing FAO's Conduct for Responsible Fisheries (AC22 Inf. 4, 2006).

The Maximum Sustainable Yield of the legal size population (>18 cm) was calculated to be around 190,000 kg (AC19 Doc 8.3, 2003). Stock assessments undertaken in 1999 based on available catch and effort data from 1996 to 1998 estimated the Total Maximum Sustainable Yield at 284,398 kg per year, however, this figure was considered a very unreliable estimate and it was concluded that the Queen Conch stocks are overexploited (AC19 Doc 8.3, 2003). The second review report suggested that there was significant illegal fishing activities in Belize's waters.

The main management measures concerning the *S. gigas* fishery were incorporated in an amended Fishery Regulation in 2005 to ensure implementation. Conch catch and export quotas were to be reviewed on a bi-

annual basis and adjusted according to the results of the biomass surveys (AC22 Inf. 4, 2006). However no quotas have been posted on the CITES website.

The law enforcement capacity was good and effective.

The conch fishery is the second most valuable fishery after spiny lobster. In 2003 export of 240 t had a value of 2.06 million dollars and at that time 1800 full time fishers were employed (AC19 Doc 8.3, 2003).

Assistance was provided for stock assessment and management by the CRFM.

Impacts of the Review

Some management measures were in place before the first Review and even before the CITES listing. According to Belize the population has increased since 1996, possibly due to better management encouraged through the first review. In 2004 Belize (*in litt.* to the CITES Secretariat) expressed concern that, a trade restriction in respect of Queen Conch would "present major socio-economic difficulties for almost 2,000 active Belizean artisanal fishermen" given the importance of the Queen Conch fishery in Belize. Assessments of status and recommendations for management by the Belize Fisheries Department were believed to be in response to the CITES review and recommendations.

Brazil

Review Recommendations

Recommendations of 1997 applied.

In 2003 trade was considered of least concern.

Status, trends and management

Very little is known about the population in Brazil, which is at the southernmost extent of the range.

According to the responses to the first review recommendations there was no commercial exploitation of *Strombus gigas*, only incidental capture. Brazil reported exporting 25kg of meat to Martinique in its annual report data in 1994, however, apparently licences were issued but the export never took place.

Little information is available on management but there is no evidence of trade.

Impacts of the Review

It is unlikely that the review has had any impact on the status or management of this species.

British Virgin Islands (to United Kingdom)

Review Recommendations

Recommendations of 1997 applied.

Trade considered of least concern in 2003.

Status, trade and management

Little is known on the population of the species in the British Virgin Islands. Surveys undertaken in 2003 showed a slight decline in the fishery since the previous surveys in 1993 (Gore and Llewellyn, 2005).

According to the BVI's response to the first review recommendations it does not commercially export *Strombus gigas.* Total harvest in 1997 was estimated at 58 223 kg. According to FAO data an average of 43,000kg of Stromboid conchs were landed per year between 1994 and 1996 dropping to an average of 9000 kg between 1997 and 2007. Very little legal trade of *Strombus gigas* from the BVI has been reported. In fact BVI is a net importer with almost 10,000 kg being reported as exported to BVI since 2002, mainly from St Kitts and Nevis. BVI wished to be in a regional management strategy for sustainable harvest of *Strombus gigas*.

By 2001 management measures in place included a ban on the use of SCUBA gear. Measures proposed were minimum size and closed season restriction as well at the establishment of protected areas for Queen

Conch, which were included in the Fisheries Regulation 2003 (Gore and Llewellyn, 2005). The Queen Conch fishery is co-managed by the Government and the community.

Impacts of the Review

Given the lack of exports it is unlikely that the review directly influenced improved management measures.

Cayman Islands (to United Kingdom)

Review Recommendations

Recommendations of 1997 applied.

In 2003 trade was considered of least concern.

Status, trade and management

Annual stock assessments of shallow water populations have been undertaken since 1988 in Grand Cayman and Little Cayman, but only areas that are fished and that have large enough densities to support fishing in the future have been surveyed. The survey results showed that Queen Conch populations have decreased in both islands: in Grand Cayman the average density fell from approx. 260 ind./ha in 1988 to around 70 ind./ha in 2000; in Little Cayman the average density dropped from 220 ind./ha in 1988 to approximately 100 ind./ha in 2000 (AC19 Doc 8.3, 2003). By 2006 surveys indicated fluctuating but decreasing populations, with a ca.50% relative decrease in observed average conch densities in the Cayman Islands (Anon, no date).

Shells have been exported in small numbers mainly for personal use. In 2000, 454 kg meat was reported as originating in Jamaica and exported to US. The Cayman Islands are considered a significant consumer of Queen Conch meat, with demand largely exceeding the islands' supply and foreign imports make up the major proportion of the Queen Conch meat consumed (AC19 Doc 8.3, 2003). Imports to the Cayman Islands have been reported by exporting countries in 2003 (308 kg) and 2008 (909kg).

The Marine Conservation Law and Regulation of 1978 included several management measures for the Queen Conch fishery such as daily bag limits. This law was amended in February 2002 to include an annual closed season from May to October and reduced catch and purchase limits. The daily bag limit was reduced from fifteen to five Queen Conch per person, or ten per boat (whichever is least); the purchase of more than five Queen Conch per day is not allowed (AC19 Doc 8.3, 2003). The use of SCUBA to harvest Queen Conch was prohibited. Queen Conch *Strombus gigas* is protected under the revised (2007) Marine Conservation Law. Conch are also protected under the Endangered Species (Trade & Transport) Law (Parts 1 & 2). The Department of Environment is the lead body for enforcing the legal protection (Anon, no date).

Impacts of the Review

Population surveys have taken place since 1988 and some management measures were in place in 1978. More have been established but given the lack of trade from the Cayman Islands and the primarily domestic consumption, it would be unlikely that these were as a result of the review process.

Colombia

Review Recommendations

Recommendations of 1997 applied.

In 2003 trade from Colombia was considered of Possible Concern, with recommendations for long and short term actions.

Status, trade and harvest

In the early 1970s, the main commercial fishing areas for Queen Conch were the San Bernardo Archipelago and Islas del Rosario (close to Cartagena). However, these areas were closed in 1977 after substantial overfishing had occurred and consequently fishermen had turned to new areas (AC19 Doc 8.3). Surveys undertaken in 1993 and 1994, found at a depth range of 1.5-5 m, adult densities of 160 ind./ha at Quitasueño, 410 ind./ha at Roncador, 500 ind./ha at Serrana and 70 ind./ha at Albuquerque (AC19 Doc 8.3, 2003). At the time of the first Review there were indications of overharvesting including the closure of some fisheries, harvest of specimens under the size limit and decreasing catch per unit effort. Subsequent surveys

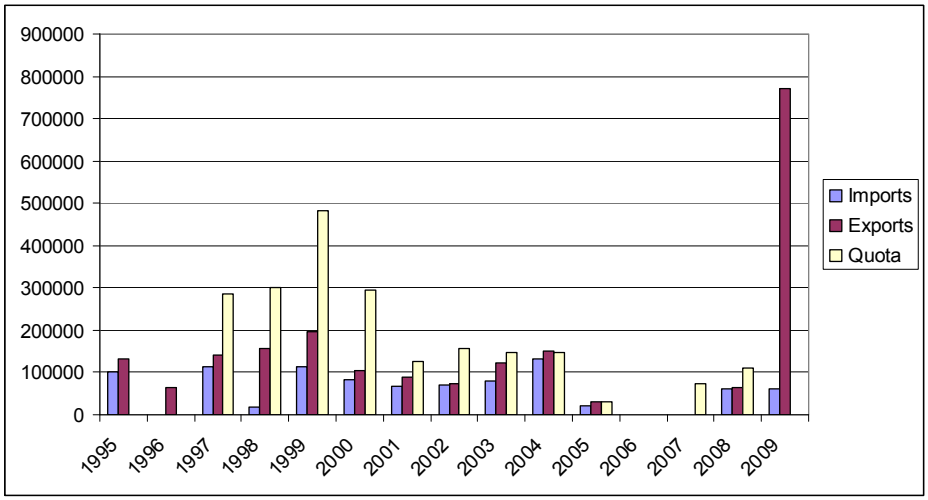
founds densities at Serrana bank were 317.5 ind./ha; lower than those found earlier but considerably higher than at the other banks (AC19 Doc 8.3, 2003). Ongoing illegal fishing activities were also noted.

Population surveys carried out in San Andres, Prividencia and Santa Catalina Archipelago in 1996 and 1997 showed that populations were overfished (AC19 Doc 8.3). On the basis of surveys in 2007 the potential population was estimated at more than 10.7 million individuals, with 56% adults and 44% juveniles (Prada *et al* 2008).

Local consumption was said to be small and estimated to be around 5% of the total landings (AC19 Doc 8.3, 2003). FAO landings data show that harvest has dramatically declined over the period of records.

Trade data reported by importers and by Colombia vary significantly, however, in discussion with UNEP-WCMC (*in litt.* to TRAFFIC; 2011), this may be in part due to interpretation of placement of commas not as decimal places. This is likely to account for the huge discrepancies in 1998 and 2009.

Trade in *Strombus gigas* meat from Colombia (kg) as reported by importer and by Colombia with quota level. Reported exports in 2009 were considered to be incorrect due to a misplaced decimal place (UNEP-WCMC, 2011, *in litt*. to TRAFFIC International)



Trade was significantly under the quotas set before 2001. After 2001, quotas were reduced and trade was closer to the quota level. During the time of CITES export restriction imposed in Honduras and the Dominican Republic, it is estimated that approximately 29.3 t of illegally harvested Queen Conch was transshipped through Colombia (Prada *et al.*, 2008).

Colombia then banned harvest for export and domestic use from 2004 to 2007. In 2007, despite having set a quota, no exports were recorded although it is not clear why this was.

According to ICA (Instituto Colombiano Agropecuario), between the years 2000 and 2003, Colombia's Queen Conch exports totaled more than USD 3.2 million with pearls accounting for 63%, conch fillets 36% and shells less than 1% (Prada *et al.,* 2008).

Since the early 1990s, Colombia has established annual harvest and export quotas for Queen Conch specimens and currently harvest is only allowed at the Serrana Bank and the Peninsula de la Guajira.

Colombia responded to the recommendations from the first review stating that measures have been put in place from 1990, including the prohibition of the use of SCUBA, a closed season and minimum size limit as well as export quotas from 1995 (31t) (which had been announced in a notification although these are not recorded in the CITES Species Database until 1997).

Population surveys were carried out in San Andres, Providencia and Santa Catalina Archipelago in 1996 and 1997. Data on CPUE were likely to lead to changes in management provisions in these areas. One area the Gulf of Morrosquillo, was closed to fishing. Colombia was coordinating closely with the Caribbean Fishery Management Council attending meetings and has implemented recommendations (AC 22 Inf.4, 2006).

In 2001 the fishery was closed between September and December. The government also limited the number of vessels that were licenced to harvest Queen Conch (AC19 Doc 8.3, 2003). Catch and effort data are

compiled by the National Fishery and Aquaculture Institute and the Co-operation for the Sustainable Use of San Andrés, Providencia and Santa Catalina (AC19 Doc 8.3, 2003).

Quotas are established annually and are based on stock abundance survey. Following the 1999 surveys, the harvest of Queen Conch at Serranilla and Roncador Bank was closed and the 2001 export quota was reduced from 293,839 kg in 2000 to 126,000 kg in 2001. However, in 2002 the quota was increased slightly to 158,000 kg and was set at 148,000 kg for 2003. The annual harvest quota is allocated to different fishing areas and was 96,000 kg for Serrana and 30,000 kg for the Peninsula de la Guajira in 2001 (AC19 Doc 8.3, 2003).

Quotas for meat, pearls and shell are set and have been posted on the CITES website.

Impacts of the Review

Colombia has undertaken a number of management measures. A method for making NDFs was presented at the NDF workshop in Cancun 2008. Reductions in quotas in the early 2000s may have been as result of the species being selected again for the review. Colombia was swift to respond to the recommendations of the second review, clarifying actions in the hope of being removed from the RST in 2003; however, despite this they were not removed. Colombia voluntarily closed its fishery between 2004 and 2007 because of lack of stock assessment on which to base management and because of illegal trade. The closure remained in place until well after the country was removed from the review, indicating that Colombia was taking the management of this species seriously and that the management measures that were established were a real step towards sustainable management.

Costa Rica

Review Recommendations

Recommendations of 1997 applied.

In 2003 trade was considered to be of least concern.

Status, trade and management

In 1994 the population of *Strombus gigas* in Costa Rican waters was reported to be declining . In 2001 it was noted that the *Strombus gigas* fishery was of little importance to Costa Rica where *Strombus alatus* was more commonly fished and traded. Indeed the only report of trade from Costa Rica was in 1997 of 4309kg of meat reported as imported by the US. The harvest and export of *S. gigas* is prohibited in Costa Rica although subsistence fishing reportedly occurs illegally in small quantities for domestic consumption (AC 19. Doc 8.3).

Impacts of the Review

It is unlikely that review has had any significant impact on the population or management of the species in Costa Rica.

Cuba

Review Recommendations

Recommendations of 1997 applied.

In 2003 trade from Cuba was considered to be of Possible Concern.

Status, trade and management

By 1996 Cuba's population of *Strombus gigas* was considered to have undergone large decreases in density from 2040 ind/ha in 1984 to 840 ind/ha in 1987. Some populations along the South Coast were considered to be healthy and overall the population was considered fully exploited but stable. In 1991 it was reported that some populations along the northern shore were considered depleted and in decline. Populations along the southern shelf were considered stable, but fully exploited. In 1999, a study to evaluate population abundance and structure in the most important fishing areas was initiated. Preliminary results found densities of 0.2 – 0.35 ind./m2 (or 2000-3500 ind/ ha) with around 80% of individuals being adults which would indicate a very healthy population (AC19 Doc 8.3, 2003).

Commercialisation of harvest from the 1960s led to a collapse of the fishery in 1978 when fishing was banned for 4 years. By 1989 an estimated 1,500,000kg was harvested for the bait market (exceeding the quotas set) and in 1990 due to concerns over stock declines one fishing area was closed and the total quota was reduced to 55,000kg (AC19 Doc 8.3, 2003).

Harvest of Queen Conch in Cuba is mainly by free diving from small boats. Unlike many other countries the Queen Conch is primarily landed alive in its shell and landing figures are recorded as total animal weight. The processed or "cleaned meat" is approximately 7% of animal total weight (AC19 Doc 8.3, 2003). It would appear from FAO landings data that harvest of "Stromboid conchs" increased significantly in 1996.

Until 2000 Cuba only reported the export of shells, mainly as personal items in small quantities; consistent with the majority of meat being used for bait fisheries. Meat exports are reported in the CITES trade data after 2000 with total trade of ca 125 mt for the period 2001-2009, the majority to Mexico.

The Cuban Queen Conch fishery was closed between 1978 and 1982 due to stock depletion. In 1982 the fishery re-opened under a system that established separate harvest quotas for each of the four fishing zones. The annual quota for all areas was 555,000 kg in 1982, reduced to 200,000 kg in 1986. By 1989 an estimated 1,500,000 kg was harvested for the bait market (exceeding the quotas set) and in 1990 due to concerns over stock declines one fishing area was closed and the total quota was reduced to 55,000 kg. Harvesting of juveniles was prohibited, a closed season was set. Compliance was said to be good for commercial fisheries, this was only for the non-bait fishery (AC19 Doc 8.3, 2003).

In 1990, Cuba imposed a minimum shell size limit of 20 cm. The use of scuba and hookah is prohibited in Cuba, and there has been a closed season from 1 May to 30 September since 2001. Queen Conch has also been harvested for bait for the finfish fishery in Cuba; however, it was not clear whether the regulation in place also applied to the harvest of Queen Conch for bait (AC19 Doc 8.3, 2003).

At the time of the first review (1996) export quotas had been set but these were believed to have been far exceeded and despite this and other regulatory measures stocks had not recovered.

In 1998, the Queen Conch fishery was closed, and reopened in 1999 after the initiation of a stock abundance study and the establishment of an annual harvest quota of 800,000 kg (total animal weight equivalent to 50,400 kg cleaned, processed weight). In 2003 the harvest was restricted to six areas with a quota system to manage fishing. Abundance surveys have been made including research and monitoring cruises in traditional fishing areas. Quotas have been based on abundance surveys (AC19 Doc 8.3, 2003). Quotas have been posted on the CITES website since 2005.

Cuba's *Strombus gigas* quotas posted on the CITES website.

Year	2005	2006	2007	2008	2009	2010	2011
Quota	70000 kg	70000 kg	42300 kg	50000 kg	50000 kg	50000 kg	38350 kg

Impacts of the Review

Cuba's fishery of Queen Conch has undergone declines leading to temporary closures of the fishery even before the Review. Some management measures were also in place before the review, including quotas. Harvest was previously predominantly for bait but trade in meat, manly with Mexico, was reported from 2000. Between 1995 and 1998 Dominican Republic and Honduras has reported the export of approximately 35,587 kg to Mexico; with these countries subject to a suspension of trade, it is possible that trade from Cuba increased to meet demand.

Dominica

Review Recommendations

Recommendations of 1997 applied. No response was provided by Dominica (which became a Party in 1997) and subsequently it was recommended in 1999 that Parties suspend imports from Dominica. This suspension was in place by the second review and Dominica was considered of Possible Concern at that time.

Status, trade and management

The population of *Strombus gigas* in Dominica was said to be overfished in 1994. Due to unsound harvesting practices and lack of regulation Queen Conch populations in Dominica were considered over-exploited and depleted. By 2002 there was no information on the population status, the extent of Queen Conch habitat or biological or fishery catch and effort data. Populations were were not monitored but random measurements of shell length and meat weight indicated that the majority of harvested individuals were juveniles below the legal minimum size (AC19 Doc 8.3, 2003).

Queen Conch was said to be one of the least harvested fishery resources in Dominica. Fishing took place mainly off the northwest coast by free divers (AC19 Doc 8.3). Most meat was sold locally to restaurants and hotels while the shells are sold to tourists and cruise ship passengers (AC19 Doc 8.3, 2003). In total the only trade of specimens originating in Dominica reported in the CITES trade database has been 1 shell, 1 live and 20g of pearls. In the review report of 2003 it was reported that the US imported 2500kg from Dominica in 1996 but this no longer appears in the CITES trade database. No exports have been reported from Dominica since the end of the trade suspension. 1028kg of meat were reported to be exported to Dominica between 2002 and 2010. FAO do not record any landings data for Stromboid conchs from Dominica.

No specific regulations for the management of the Queen Conch fishery in Dominica were in place in 2001, although some measures such as minimum shell length and meat weight, prohibition of SCUBA gear, are used as a policy (AC19 Doc 8.3, 2003).

Dominica participated in regional management planning for the species under auspices of CFRM, and reported that they undertook public education and awareness building activities.

Impacts of the Review

Despite the lifting of the trade suspension there has been no trade reported since 2006 and given the lack of exports it is unlikely that any of the activities have been a result of the review.

Dominican Republic

Review Recommendations

Recommendations of 1997 applied.

In 2003 trade from Dominican Republic was considered to be of Urgent Concern. A moratorium on trade was voluntarily imposed in line with the short-term recommendations made. This remained in place until 2006 after the review of implementation of the recommendations.

Status, trade and management

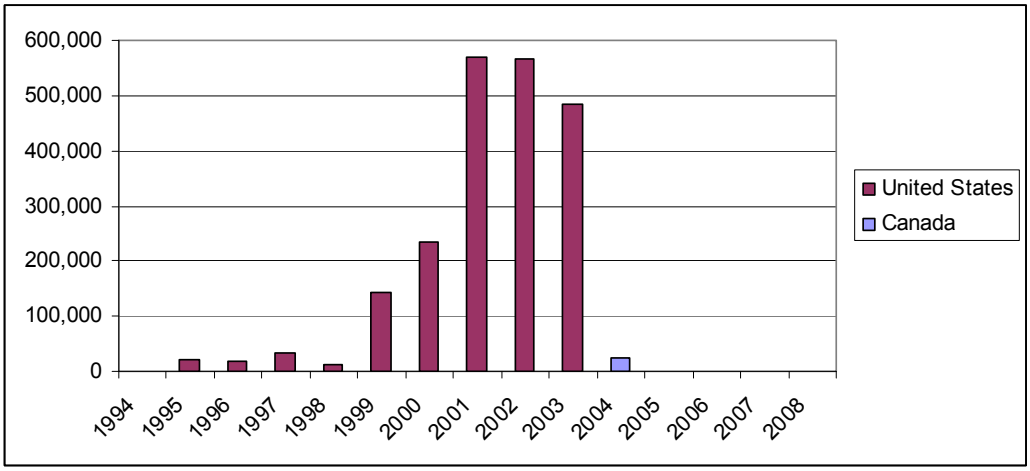
At the time of the first review populations of *Strombus gigas* in the Dominican Republic were considered to be depleted although there was a viable resource and fishery off the Punta Beata on the south-west coast. Information available by the second review indicated that Queen Conch populations were declining and considered seriously over-fished in the main fishing areas within the territorial waters of the country, i.e. in the south- western area around the Jaragua National Park and in the south-eastern area around the Parque Nacional del Este (AC19 Doc 8.3, 2003). A 1999 study reported a three-fold decline in adult density (4.5 ind./ha in 1996 and 1.6 ind./ha in 1997) and a ten-fold decline in juvenile densities (283 ind./ha in 1996 and 22.5 ind./ha in 1997) between 1996 and 1997 in the Parque Nacional del Este, linked to high fishing pressure in the park. A survey conducted in 2000 in the same area found juvenile densities of 14.4 ind./ha and adult densities of 0.6 ind./ha. Surveys in the insular shelf of the Jaragua National Park in the south-western part of the country noted that 90% of the individuals dominating shallow waters were juveniles. Juvenile densities in this area, where the majority of Queen Conch landed in the country were caught, were 53.0 ind./ha and mean adult densities were 4.6 ind./ha, indicating high fishing pressure. Populations at the north coast are also largely depleted (AC19 Doc 8.3, 2003).

Domestic consumption is high in the Dominican Republic and it was considered that harvest was unlikely to meet local demand (AC19 Doc 8.3). It was also considered that reported landings could not be harvested exclusively from the waters of the Dominican Republic and there was evidence of illegal fishing in the waters of other range States.

According to reported imports, the US is the major destination of *S. gigas* meat from the Dominican Republic with little trade before 1999 followed by a rapid increase to a peak of almost 600 t in 2001, when the country became the largest exporter. This may have been a result of lower supply in the late 1990s and early 2000s

from Jamaica. Reported imports and exports originating from Dominican Republic have varied significantly with Dominican Republic reporting significant (319 t) trade since 1994 not reported by importers. Apart from some export to Canada in 2004, trade ceased from Dominican Republic after the moratorium recommended by the review. Reported trade since 2006 has been minimal.

Reported imports of *Strombus gigas* meat (kg) from Dominican Republic reported by importers.



The Dominican Republic had already set minimum shell size of 25 cm for harvest in 1986. Following population studies in the mid-1990s, a closed season from 1 July to 31 October was set in 1999 and no fishing zones were also established although in 2002 these measures were said to be ineffective due to insufficient enforcement (AC19 Doc 8.3, 2003). By the end of 2005 an "Assessment of Conch resources in the Dominican Republic" was underway as well as other activities funded by the Caribbean Regional Fisheries Mechanism (CRFM) (AC22 Inf.4, 2006) and they were removed from the review. No quotas have been posted on the CITES website and it appears that trade has been minimal since Dominican Republic was removed from the review.

The moratorium on trade is likely to have had a significant economic impact, with exports of at least double this amount in the three years prior to the moratorium.

Funding was received from the CRFM to undertake assessments and other activities. Studies have been carried out under the auspices of NOAA (AC22 Inf. 4, 2006).

Impacts of the Review

The Review appears to have had a major impact on harvest and trade in *Strombus gigas* in the Dominican Republic, having led to the cessation of a large-scale export trade in 2003 and put in train efforts to improve management of the species, although it is not clear how much progress has subsequently been made with these.

Grenada

Review Recommendations

Recommendations of 1997 applied. Grenada did not respond; however a trade suspension was not recommended.

In the second review trade from Grenada was considered of Possible Concern. Again, no response was received regarding the implementation of the recommendations and Grenada did not send a representative to the workshop in Santo Domingo in 2005. An intercessional decision was made in May 2006 to recommend a suspension of imports of *Strombus gigas* from Grenada, which remains in place.

Status, trade and harvest

The population was described as "growth overfished" in the early 1990s. Fishing effort shifted to the northern parts of the island shelf and in the Grenada Grenadines, as populations in the southern parts of the shelf appear to be overfished and to consist mainly of juveniles. The Queen Conch is harvested commercially on the island shelf of Grenada and of the Grenada Grenadines. Meat is consumed locally,

especially in the tourist industry (AC19 Doc 8.3, 2003). Grenada has traditionally been a supplier of Queen Conch meat to Trinidad (AC19 Doc 8.3); however, reported international trade has been minimal.

According to the Fisheries (Amendment) Regulations S. gigas may not be landed with a shell size of less than 18 cm or a minimum meat weight of 225 g. Biological and catch and effort data was collected in 1997 and 1998 with the assistance of the CARICOM Fisheries Resource Assessment and Management Program (CFRAMP), part of the CRFM. However, it was said that basic data collection was still required before a reliable stock assessment was possible (AC19 Doc 8.3, 2003).

Impacts of the Review

It would appear that there was little trade from Grenada prior to the recommendations given in the second round of the Review and it is unlikely that these or the trade suspension will have had or will have any impact on trade from Grenada. Assistance from the CFRAMP for improved management may have been as a result of the review.

Guadeloupe (to France)

Review Recommendations

Recommendations of 1997 applied with specific recommendations that France provide information on the controls of trade in *S. gigas* in Guadeloupe and Martinique.

In 2003 trade from Guadeloupe was considered to be of Least concern.

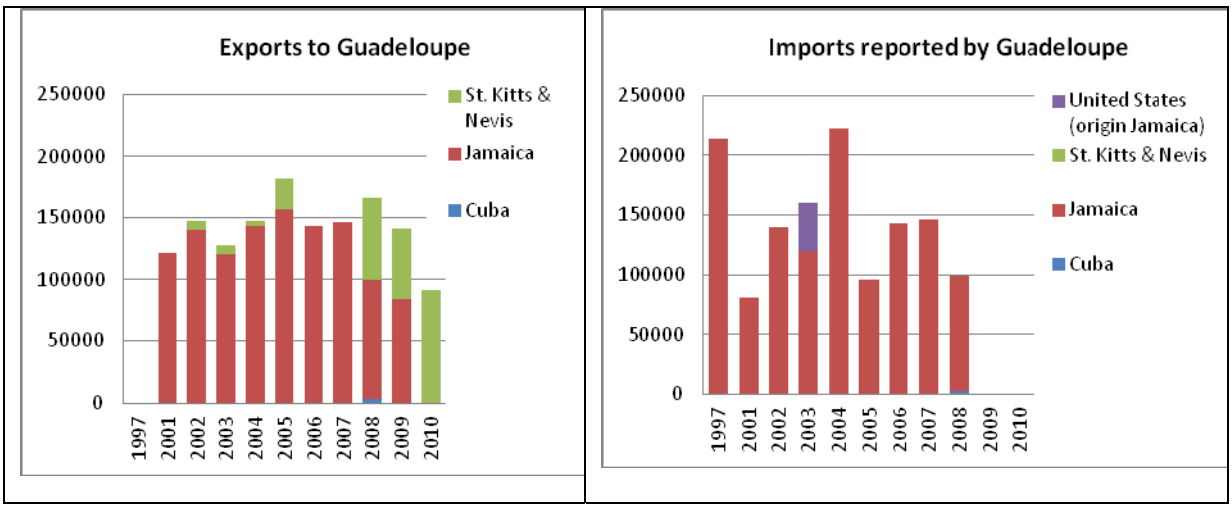
Status, trade and management

There is little information available on status of the species, although it was apparently overexploited with local populations unable to meet the high local demand requiring import of meat from elsewhere (AC 19 Doc 8.3).

Guadeloupe has been one of the largest consumers of Queen Conch meat in the region importing between 300,000 to 400,000 kg of Queen Conch meat per year in the mid 1990s. In 2001 it was reported that local harvests had considerably decreased in recent years due to stock depletions and overexploitation, although there were no official landing figures (AC19 Doc 8.3, 2003).

Only two shells originating from Guadeloupe have been recorded in the CITES trade data. Trade to Guadeloupe in meat is considerable, mainly originating from Jamaica. Due to EU Food Sanitary Regulations, no imports of Queen Conch meat were allowed from July 1997 to December 2001. Due to these import restrictions, prices for Queen Conch meat in Guadeloupe increased greatly to USD 13/kg in 2001 (AC19 Doc 8.3, 2003). In 2001, imports from a number of Jamaican exporters were allowed again and CITES trade data indicate the import of 241,494 kg of Queen Conch meat.

Trade in *Strombus gigas* meat (kg) to Guadeloupe reported by exporters and reported as imports by Guadeloupe.



Impacts of the Review

Guadeloupe is an importer rather than exporter of *Strombus gigas*. The Review would appear to have had negligible impact on management of the species there, although may have affected quantities and sources of imports.

Haiti, (Non-Party)

Review Recommendations

Recommendations of 1997 applied. In 2003 trade from Haiti was considered to be of Urgent Concern. No response was received regarding the implementation of the short term recommendations and in late 2003 the Standing Committee recommended that imports of *Strombus gigas* (from all sources) be suspended until Haiti demonstrated its compliance (Notification Notification 2003/057). This suspension remains in place.

Status, trade and management

In the early 1990s the population in Haiti was considered to be depleted likely due to over-exploitation. However, populations on the Rochelois Bank and off Dame Marie were considered relatively high. Surveys in 1995 found low adult densities of 15 ind/ha on the Roichelois Bank. Higher densities of 160 ind./ha were only found off the western end of the southern peninsular close to Dame Marie where fishing is restricted to local fishermen (AC19 Doc 8.3, 2003). Populations around the Gonaves Islands, Les Arcadines Islands and Les Cayemites Islands were seriously over-fished (AC19 Doc 8.3). Surveys carried out in 2007 and 2009, which were undertaken in response to the Review recommendations and funded by the Queen Conch exporters (Association des Exporteurs du lambi en Haiti) found that Queen Conch populations in Haiti were low and dominated by immature individuals. Populations appear to have declined since the previous survey in 1995 but recruitment was still taking place (Wood, 2010).

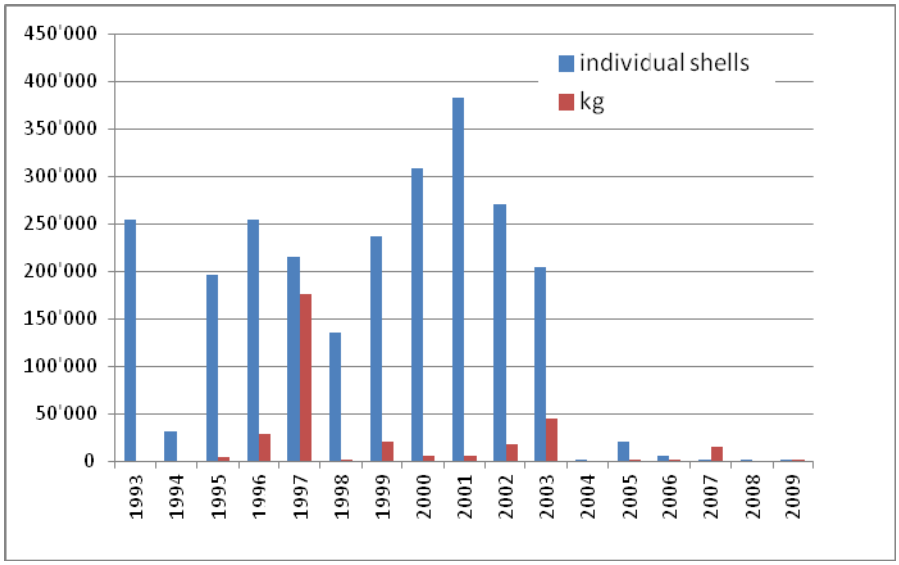
Haiti is traditionally one of the largest consumers of Queen Conch meat in the region. Domestic demand has exceeded local supplies with reported exports to Haiti, mainly from Cuba, of 20,000 kg between 2000 and 2009. The majority of trade from Haiti has been in shells, a by-product of the domestic consumption of meat (see table and figure). Shell trade declines from 2001 to 2003 possibly as a result of minimum size restrictions imposed by the EU Member States on import of shells originating from Haiti due to concerns of harvest of immature conchs. Shell trade almost ceased after 2003 after the trade suspension. Some meat has been reported as imported from Haiti but almost none since the suspension of trade in 2003. However, according to data from FAO landings of Stromboid conchs stayed fairly constant at around 300 t per year. Although it is not possible to determine what proportion of this catch is of Strombus gigas, it may be that the suspension of trade had little impact on the harvest of the species.

After the trade suspension in 2003 increased exports of shells were seen from other range States; mainly Jamaica, Nicaragua, Turks and Caicos and the Bahamas.

Reported imports of meat (kg) from Haiti by importers.* indicates seizures

Year	France	United States	Total
1995		34	34
1996		17043	17043
1997	10000	151894	161894
2000		541	541
2001		1091	1091
2002		7512	7512
2003		7737	7737
2005		57	57
2006		44	44
2009		5*	5*

Reported imports of shell from Haiti (all source coded including "I")



Haiti is not a Party to CITES. In 2003 it was reported that regulations in Haiti prohibited the harvest of shells without a well-formed lip and the use of scuba and hookah (AC19 Doc 8.3, 2003). Wood (2009) noted that whilst controls have existed 'on paper' for decades they had not been implemented due mainly to other government priorities and limited surveillance capacity within the Fisheries Department. Lack of capacity was a major problem, and the practicality of introducing conservation initiatives and enforcing regulations remained a challenge. She also observed that the trade suspension had drawn attention to the urgent need for management and monitoring, and her survey was to address this, although it had not apparently caused any reduction in fishing effort or an improvement in the status of populations.

Impacts of the Review

Although Haiti is not a CITES Party, the Review has clearly had considerable impact on the export of Queen Conch from the country, through the imposition of a trade suspension. It has prompted action in the country, in the form of stock assessments, but appears to have had little impact on fishing effort or on the status of Queen Conch populations.

Honduras

Review Recommendations

Recommendations of 1997 applied.

In 2003 Honduras was considered to be of Urgent Concern with recommendations including establishment of a voluntary moratorium in the short term.

Status, trade and management

A study undertaken in 1996 in the Cayos Cochinos, located on the northern coast, found low densities of 7.3 ind./ha for both, juveniles and adults, which was thought to be caused by intensive exploitation during previous decades. The Cayos Cochinos were declared a Biological Reserve in 1993 and since then harvest of Queen Conch has been prohibited (AC19 Doc 8.3, 2003).

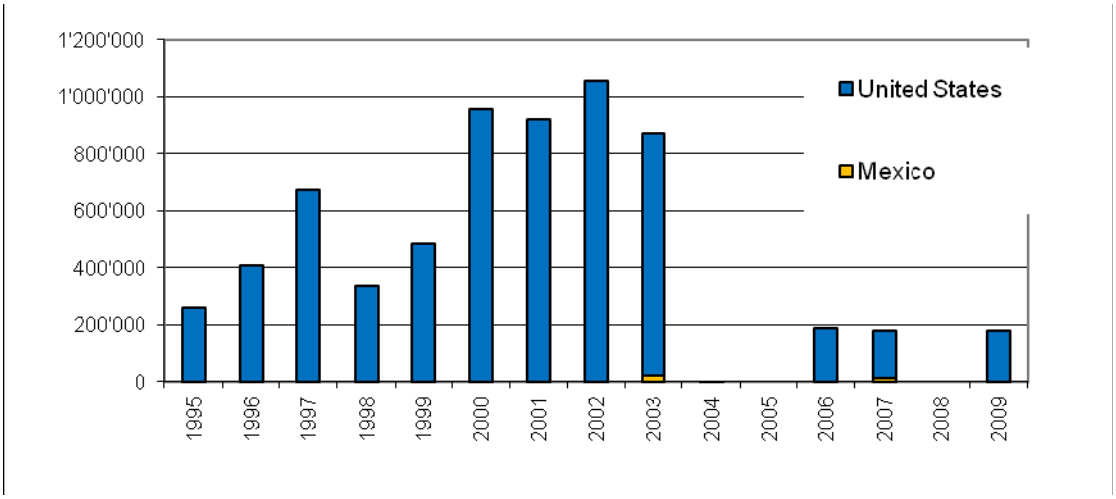
Density studies in designated fishery areas in November 2003, showed densities (mean = 192 ind./ha) (AC22 Inf. 4, 2006). Honduras reported that studies for 2006 showed that stock appeared to be in a healthy state.

Honduras has a large commercial Queen Conch fishery. Since 1998, exports of Queen Conch meat from Honduras have increased significantly (from 636,252 kg in 1998 to 1,328,118 kg in 2001) and since 2000 Honduras has become the largest exporter of Queen Conch meat. The majority of Queen Conch meat exported from Honduras is imported by the US. Honduras has also reported the export of small amounts of meat to the Netherland Antilles and Costa Rica but these were not reported by these countries as imports.

The voluntary moratorium on trade recommended in the review meant that there was no trade between 2003 and 2006. Trade resumed in 2006 for meat collected through scientific surveys. Quotas have remained at 210,000kg since 2006, however field data collection was temporarily suspended from November 2007, resulting in no trade in 2008, and resumed in 2009.

In the early 2000s there was evidence that significant portions of Queen Conch meat landed in and exported from Honduras have been fished illegally in waters under the jurisdiction of neighbouring States. In particular concerns were raised about the increase in Queen Conch meat exports from Honduras that coincided with the period when the Jamaican fishery at Pedro Bank was closed (2000-2001 and 2002), which led to an increase in poaching at the Bank by foreign vessels (including Honduran vessels) after the closure (AC19 Doc 8.3, 2003).

Reported trade in meat (kg) from Honduras according to the main importers.



Honduras responded to the primary recommendations in the first Review stating that they had a closed season and minimum size for capture with a limited to number of fishing vessels. Issuance of CITES export permits was required. They also stated that export quotas would be established after regional consultation (export quotas have posted on the CITES website since 2006).

The voluntary moratorium recommended in 2003 was continued until 2006 when Honduras was removed from the review process. Significant actions have been taken in response to the second review recommendations including stock assessment as a basis for setting quotas. Export quotas have been set at 210,000 kg since 2006, which comprised meat from scientific surveys, exported to fund scientific work (Honduras Management Authority *in litt* to CITES Sec, 2005). Honduras agreed to continue commercial moratorium until quotas can be set on the basis of scientific research.

Queen Conch with a shell length of less than 22 cm, and the use of scuba and hookah to harvest Queen Conch has not been allowed since 1997. All vessels harvesting Queen Conch must be licenced and authorized. No take zones have been established in the Cayos Cochinos Marine Protected Area (AC19 Doc 8.3, 2003).

The costs of scientific surveys have been covered by the sale of conch meat taken during the surveys (Honduras Management Authority *in litt* to CITES Sec, 2005).

Honduras noted the high social and economic impact of the trade moratorium on trade which had affecting over 1200 people with the loss of several hundred million dollars to the country (Honduras Management Authority *in litt* to CITES Sec, 2005).

Impacts of the Review

In 2006, Honduras was considered to have undertaken all recommendations issued in 2003.

Nelson Ehrhardt, scientist in charge of the Conch Research Project in Honduras, considered that studies would be the “most ambitious and comprehensive effort to understand the Queen Conch response to fishery

exploitation" (*in litt*. to CITES Secretariat, Decmber 2005). As part of this work he produced manual for Queen Conch stock assessment. It would appear that most efforts taken since 2003 have been in response to the recommendation from the review.

Jamaica (became a Party in 1997)

Recommendations of 1997 applied.

In 2003 Jamaica was considered to be of Least Concern and removed from the process.

Status, trade and management

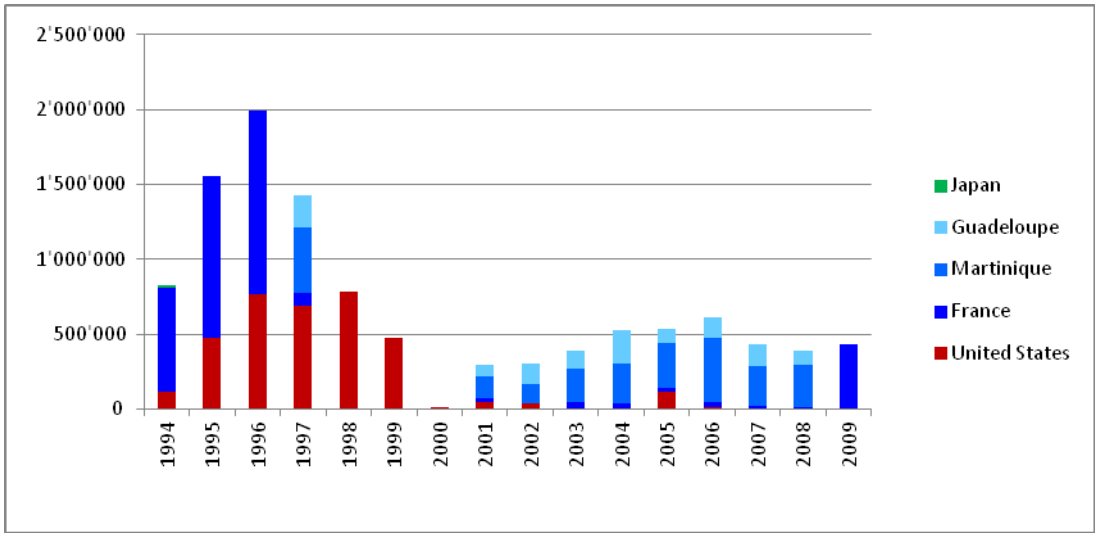
Abundance survey on Pedro Banks, the main fishing area, in 1994 indicated that the density of Queen Conch in that area was 10-100 times higher than most other areas of the Caribbean subject to fishing with average densities ranging from 89 individuals per ha to 277 individuals. A large area has been inaccessible to SCUBA and hookah divers, acting as a source of replenishment. Surveys in 2002 found higher mean densities in some depth zones than in 1997. The increased abundance of adults is seen as a result of the growth of the large juvenile recruitment of 1997, or as a consequence of the reduced fishing pressure that occurred since 1999 (AC19 Doc 8.3, 2003).

Abundance surveys were funded by the Queen Conch industry up to 2002. The 2002 surveys showed a stable population but with estimates of 800-900 t sustainable yield, slightly lower than previously estimated (AC19 Doc 8.3, 2003).

Prior to 1988 Jamaica's Queen Conch fishery was limited to small-scale free diving however, investment in the fishery led rapidly to the development of an industrial fishery which became the most important fishery product both with regard to annual landings and as a source for economic income. In Jamaica for example, the annual Queen Conch landings for the year 1998 were estimated to be worth around USD 15-20 million, making it Jamaica's economically most valuable fishery and creating employment for around 3,000 people, especially in the processing and packaging sector (AC19 Doc 8.3, 2003).

Reported trade (on the basis of imports) peaked at 2 million kg in 1996. It was considered in the first review that harvest rates in 1993/94 were probably not sustainable. Reported trade reduced after 1997 due to lowering of quotas, according to Aiken *et al*. (2006) as a result of the review. There have also been significant market changes; before 1997, Jamaica exported meat exports to the US and the French Departments of Guadeloupe and Martinique but stricter EU Food Sanitary Regulations meant no exports of Queen Conch meat from Jamaica were allowed into the latter between July 1997 and December 2000 leaving the United States as the main market. In addition, the Queen Conch fishery at Pedro Bank was closed due to a law suit by exporters against the government, in an attempt to prevent the establishment of further management measures i.e. the continued reduction of quotas and the introduction of a fishing season (AC19 Doc 8.3, 2003). The fishery closed and consequently all exports from Jamaica effectively ceased for almost two years from August 1999 to May 2001, and again in 2002.

Reported import of *Strombus gigas* meat (kg) from Jamaica by main importing countries.



The Fishing Industry Act 1975 and the Fishing Industry Regulation of 1976 are the two pieces of primary fishery legislation. However, Aiken *et al*. (2006) consider that the fishery up to 1992 was essentially unmanaged. When the rapid expansion of the fishery on Pedro Bank in that year caused serious concern for the sustainability of the fishery resulting in drafting a Management Plan for conch, including the setting of quotas, with the assistance of the CARICOM Fisheries Resources Assessment and Management Programme (CFRAMP).

Since 1993 the Jamaican Queen Conch fishery has been regulated under a quota system (National Total Allowable Catch or NTAC), based on abundance surveys. This applies exclusively to Queen Conch resources at Pedro Bank as a specially designated Fishery Management Area from which all Queen Conch meat harvested is destined for export, the NTAC is considered as both a catch and export quota. The quotas are set as equivalents to the weight of “50% cleaned” Queen Conch meat. Queen Conch meat harvested from the island shelf is not allowed for export and is destined for local consumption (AC19 Doc 8.3, 2003).

The quota has been steadily reduced from 3 million kg in the 1993/1994 fishing season. Based on surveys undertaken in May 2002, the MSY (Maximum Sustainable Yield) for 2002 was estimated to be 800,000 to 900,000 kg but the Fisheries Division estimated that around 300,000 kg of meat was lost annually to poachers and consequently a quota of 500,000 kg was set for the 2002/2003 fishing season (1 August 2002 to 31 May 2003) (AC19 Doc 8.3, 2003). Quotas have been posted on the CITES website since 2000 and show a gradually decreasing trend.

Quotas for Jamaica posted on the CITES website.

Year	2000	2001	2003	2004	2008	2009	2010	2011
Quota (kg)	1,216,000	946,000	500,000	550,000	400,000	in prep.	420,000	350,000

All fishers and vessels harvesting Queen Conch in Jamaica must be licenced. Only the harvest of Queen Conch with a minimum size limit of 22 cm and a well-formed lip or a minimum weight for “market clean meat” of 84 g is allowed and the fishery is normally closed each year for four months. The Management Plan for 2001-2002 set out additional measures, including a prohibition on processing and selling Queen Conch meat during the annual closed season, and the collection of catch and effort data from the larger industrial vessels operating at Pedro Bank (AC19 Doc 8.3, 2003).

Considerable poaching by Honduran and Dominican Republic vessels was suspected to have taken place during the closed season 2000/2001 and for part of the 2001/2002 season. Landings in Honduras and the Dominican Republic rose significantly in those years. Funding for conch fishery enforcement by the Fisheries Division has been lacking, coupled with longstanding personnel shortage, resulting in poor enforcement (Aiken *et al* 2006).

Impacts of the Review

Aiken *et al* (2006) considered that regional management has played a minor role in the management of conch fishing in Jamaica and that the San Juan Agreement of 1996 has had little effect on trade. More important has been the compliance with CITES, particularly after 1993 when a shipment with no CITES documentation was seized in the US and the entire shipment perished before the matter was resolved. It is likely that review recommendations made in 1997 will have reinforced the need for compliance.

Martinique

Review Recommendations

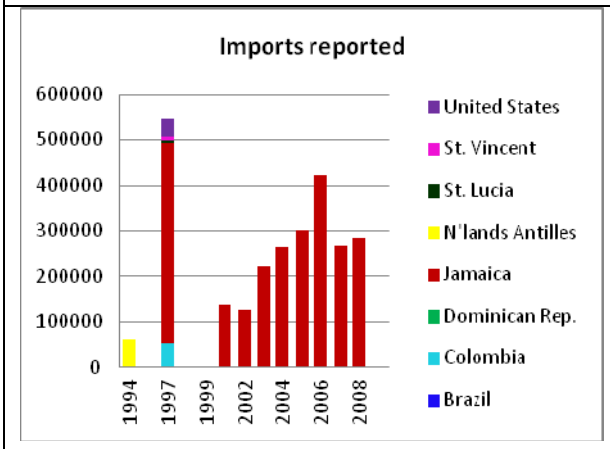
Recommendations of 1997 applied with specific recommendations that France provide information on the controls of trade in *S. gigas* in Martinique and Guadeloupe.

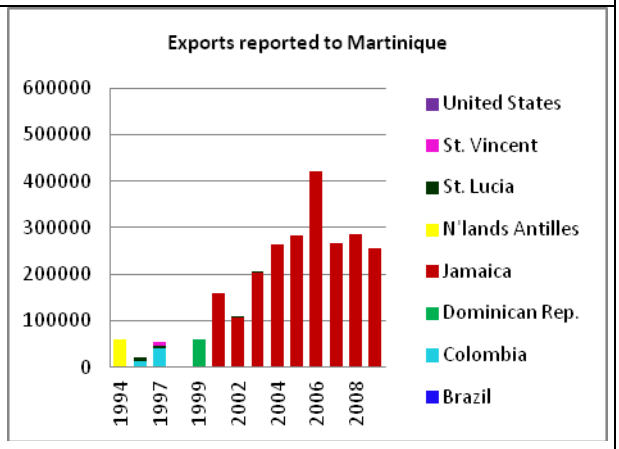
In 2003 trade from Martinique was considered to be of least concern.

Status, trade and management

Surveys of the Queen Conch populations of Martinique conducted between 1986 and 1987 revealed that shallow water populations were seriously overfished and locally depleted, and that the majority of the harvest had been sustained by juveniles. Deepwater populations were considered to be in a better state than inshore populations, due to the prohibition on the use of scuba. High domestic consumption has depleted local populations and created a market for Queen Conch meat harvested from other parts of the Caribbean, mainly Jamaica (AC19 Doc 8.3, 2003).

Trade from Martinique as reported by importers and by Martinique





The use of scuba to harvest Queen Conch has been prohibited since 1992. In 1999, Regulation No. 994296 was passed that prohibited the harvest of Queen Conch with a shell length of less than 22 cm and of shells without a flared lip whose meat weight is less than 250 g (without digestive gland). The recreational harvest of Queen Conch is restricted to three animals per person and day; there is no closed season (AC19 Doc 8.3, 2003).

Impacts of the Review

As Martinique is an importer rather than exporter of Queen Conch, the Review is likely to have had little impact on Queen Conch populations there. The greatest impact on levels of trade to Martinique have been from the EU's Food Sanitary Provisions.

Mexico

Review Recommendations

Recommendations of 1997 applied. Although no response was received to the first Review, it was agreed at AC14 that if Mexico provided information quickly then a trade suspension would not be imposed. No suspension was subsequently imposed.

In the second Review, Mexico was given a preliminary categorisation of Possible concern. During working group discussions at AC 19, with clarification from Mexico it was decided that sufficient regulatory mechanisms were in place to ensure that harvest was being conducted in a sustainable manner and exports only concerned shells derived from this harvest. The preliminary categorization to 'least concern' and Mexico was removed from the Review.

Status, trade and management

Historically, Queen Conch was fished in the Yucatan Peninsula and Quintana Roo. Declines of shellfish (including *S. gigas*) led to the closure of the fishery off the Yucatan Peninsula including the Alacranes reef in 1989. The coast of Quintana Roo is divided into three main fishing areas (North, Central and the South Zones). The most productive zones were the North and South Zones. In the South Zone, Queen Conch were usually found in shallow waters that allowed access by free diving. Depth at the North and Central Zones averaged 20-30m and therefore scuba and hookah prevailed. In the late1990s it was reported that Queen Conch were generally found at depths of 30 m or more, except for Chinchorro Bank where some shallow water stocks remained. In Quintana Roo the fishery was closed from 1990 to 1996, except for the Chinchorro Bank. In 2003 the only legal harvesting areas in Quintana Roo were the Chinchorro Bank (in the South Zone) and the Cozumel Bank (in the Central Zone) (AC19 Doc 8.3, 2003).

All Queen Conch meat harvested in Mexico is consumed nationally. Shells from Mexico have been reported in trade. Mexico has reported the import of just over 184 t of meat since 2001, mainly from Cuba and Honduras.

Bans on fishing have been imposed in various areas both temporarily and permanently. Size limits, closed seasons and harvest quotas were imposed in 1996 for Banco Chinchorro and Banco de Cozumel in Quintana Roo. In the early 2000s it was reported that the establishment of harvest quotas for Cozumel and Chinchorro Bank may have prevented further declines, but had not helped the populations to recover to their original size; illegal fishing of Queen Conch at both banks and at Alacranes reef were thought to be significant factors preventing recovery.

Recent studies have looked at genetics of the Mexican populations, their connectivity and connections to other Caribbean populations to help determine how the populations should be managed (e.g. see Paris *et al*. 2008, Zamora-Bustillos *et al* 2011).

Impacts of the Review

Mexico has not featured as an exporter of Queen Conch. Changes in the status and management of the species in the country have been as a result of domestic measures independent of the Review.

Montserrat (to United Kingdom)

Review Recommendations

Recommendations of 1997 applied. No response was received regarding the implementation of the recommendations but Montserrat did not receive a trade suspension at this time.

In 2003 trade was considered to be of least concern.

Status, trade and management

In the early 1960s important Queen Conch nursery habitats were lost due to road construction and from the mid-1960s, stocks showed signs of decline due to overexploitation . A study undertaken in 1980 concluded that populations were 'threatened' (AC19 Doc 8.3, 2003). There is little more recent information.

In 2002 it was reported that small amounts of around 100 kg of Queen Conch meat originating from Antigua were imported annually by local restaurants. There was also information that Queen Conch meat had been

imported from Nevis on a regular basis in recent years (AC19 Doc 8.3, 2003). According to exporters Montserrat imported 3564kg between 2003 and 2010. No exports from Montserrat have been reported.

In 1996, a management plan was drafted which included the restriction of scuba gear to harvest Queen Conch, the establishment of a minimum meat weight, the establishment of a closed season, and a restriction of the numbers of person allowed to harvest Queen Conch (AC19 Doc 8.3, 2003).

Impacts of the Review

As Montserrat is an importer rather than exporter of Queen Conch, the Review is likely to have had little impact on Queen Conch populations there.

Netherlands Antilles (to the Netherlands)

Review Recommendations

Recommendations of 1997 applied. It was also recommended that the Netherlands report on controls in Saint Maarten (Netherlands Antilles).

Status, trade and management

In the past Queen Conch were heavily fished at Saba Bank, mostly by foreign vessels. The Saba Bank was considered a refuge for foreign fishing as no regulations were in place until the early 1990s, when an Extended Fisheries Zone, which included parts of the Saba Bank, was declared. From the the mid-1990s enforcement increased. Fishing on the bank was then only allowed for Antillean boats in possession of a fishing permit, although it was reported in 2002 that Queen Conch were fished only occasionally by local fishers. The species was also caught around the island of St. Eustatius for local consumption. Some fishing also occurred around the waters of Bonaire and possibly Curaçao, but populations were depleted and could no longer sustain a commercial fishery (AC19 Doc 8.3, 2003).

According to CITES trade data the only export reported by the Netherland Antilles was just over 60,000 kg meat in 1994 to Martinique. Small numbers of shells have also been reported in trade. In 2009 and 2010 Honduras reported the export of just under 30,000 kg of shells to the Netherland Antilles.

Between 1995 and 2009 the Netherlands Antilles has been a significant importer of Queen Conch meat, with just over 200,000 kg reported as exported to them and an additional 40,000 kg reported as imported to the Netherlands.

In 1992, the National Fisheries Decree came into effect, which regulated fishing activities in the Netherlands Antilles territorial waters and the EFZ. A national decree adopted under this law imposed a minimum legal shell length of 18 cm, or a minimum meat weight of 225 g for Queen Conch (AC19 Doc 8.3, 2003).

In response to the recommendation from the first Review, the CITES Management Authority of the Netherlands Antilles stated that they did not issue commercial export permits for trade because insufficient biological data were available. They also stated that a research programme was being carried out on the Saba bank and that local governments had been asked to collect data on populations of *Strombus gigas*. No exports permits would be issued until the MA was assured that stocks were not endangered.

Impacts of the Review

The Netherlands Antilles has not reported export of Queen Conch since 1994, and has been an importer of the species since 1995. It is unlikely that the Review has had an impact on status or management of the species there.

Nicaragua

Review Recommendations

Recommendations of 1997 applied.

In 2003 trade from Nicaragua was considered to be of Possible Concern.

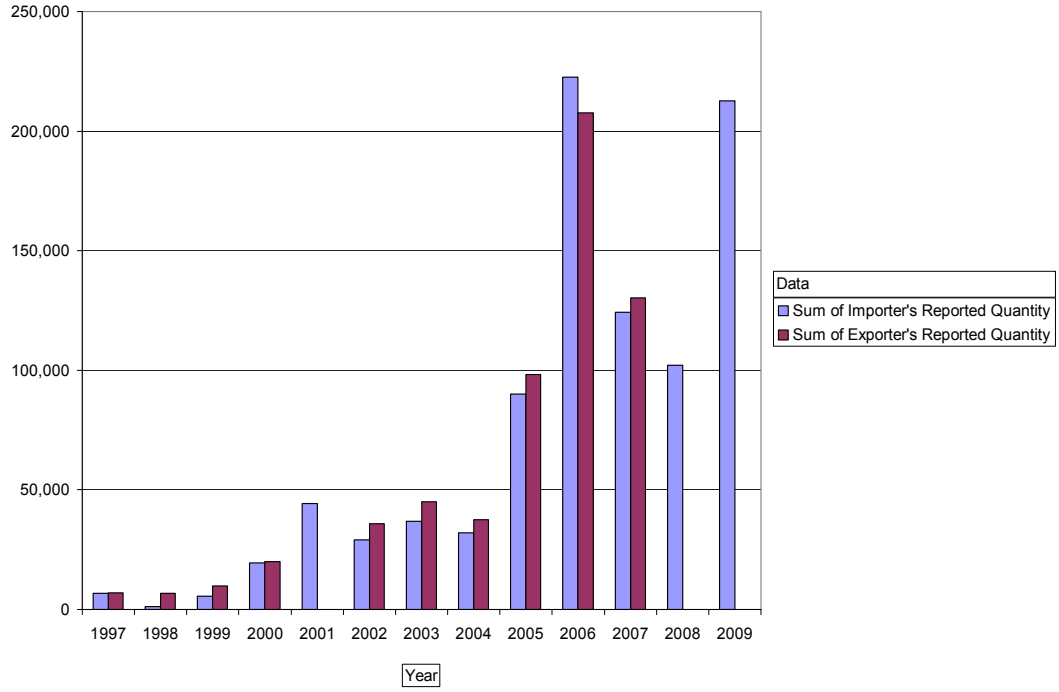
Status, trade and management

Abundance surveys and stock assessments were initiated in 2002 (AC19 Doc 8.3, 2003). Density studies in 2004 off northern Nicaragua estimated mean density of adults of 112 ind./ha (confidence intervals 30 – 194 ind./ha.) (AC22 Inf. 4, 2006).

Until the mid-1990s, Queen Conch was not a popular catch and was normally taken as a by-catch by fishers targeting lobster. Following an attempt to diversify national fisheries, landings of Queen Conch meat increased steadily from 16,783 kg in 1997 to 65,318 kg in 2000. The species was harvested mostly for export, but also consumed locally (AC19 Doc 8.3, 2003).

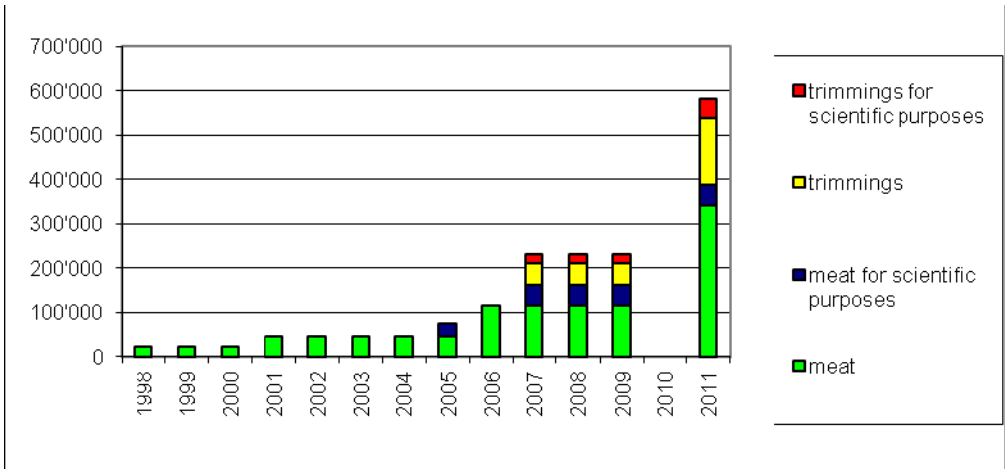
Trade from Nicaragua increased considerably from 2000, reaching a peak in 2006 at around 200 t. Although it is unlikely that trade data for 2010 are complete yet, the US (the main importer) has already reported importing just over 300,000 kg in that year.

Trade in *Strombus gigas* meat (kg) from Nicaragua



Since 1998, Nicaragua has set export quotas for Queen Conch, which were around 20,000 kg of meat in 1998, 1999 and 2000, but increased in 2001 to around 40,000 kg (AC19 Doc 8.3). Nicaragua's quotas have increased from 1998, with a large increase in 2007 and a quota of almost double in 2011. A quota was "in prep" in 2010.

Nicaragua's quotas for *Strombus gigas* meat (kg) posted on the CITES website.



Before 2001 scientific information regarding the local population size and distribution was currently not available and the quotas were based on basic information such as historical offtake and export volumes. Stock assessment surveys were initiated in 2001 in order to calculate harvest and export quotas and to establish relevant management measures for the Queen Conch fishery in Nicaragua (AC19 Doc 8.3, 2003).

Nicaragua implemented decrees (Decree DGRN-PA-No341-2003)in 2003 that establish measures for the management of Queen Conch, such as fishing closure from June to September, minimum size of 200 mm and minimum weight of processed meat of 172 g, and the export quota of 100,000 pounds of processed meat (100% clean), specifying sanctions and the conditions for monitoring and surveillance by the enforcing agencies (AC22 Inf. 4, 2006,).

An Action Plan was elaborated to research and develop systems for monitoring the Queen Conch fishery. Two programs of data collection exist: a program to assess the resource through exploratory fishing and onboard biological monitoring of the catch, and another to monitor the size and weight of Queen Conch at the processing plants (AC22 Inf. 4, 2006).

It is assumed that the considerable export quota for "scientific" meat and trimmings has helped fund monitoring activities.

Nicaragua collaborated with Honduras, Columbia, Belize and Jamaica on scientific matters

concerning *S. gigas* (AC22 Inf 4).

Impacts of the Review

Management measures introduced by Nicaragua appear to be in response to the review. However quotas and trade increased significantly once the review had been completed.

Panama

Review Recommendations

Recommendations of 1997 applied.

Panama was considered of least concern in 2003.

Status, trade and management

No information was available on the population status of the species at the time of the first review. However visual surveys undertaken in 2000 in the Boca del Toro archipelago revealed that the stocks there were overfished and found at extremely low overall densities of 1.4 ind./ha (adults approximately 0.2 ind./ha). These densities were among the lowest reported from the Caribbean region. The long-term overexploitation of the species in the Bocas de Toro archipelago was seen as the major cause of these low densities (AC19 Doc 8.3, 2003).

No commercial export of *Strombus gigas* has been reported in the CITES trade database.

Decree No. 159 (September 2004) banned the *Strombus* fisheries in Panama for five years. The main *Strombus* fished is *Strombus galeatus* (Cipriani *et al* 2008).

Impacts of the Review

Panama is not reported as trading in Queen Conch. The Review does not appear to have had any impact on the status or management of the species there.

Puerto Rico (to United States of America)

Review Recommendations

Recommendations of 1997 applied.

In 2003 Puerto Rico was considered of Least concern.

Status, trade and management

Primary Queen Conch fishing grounds in Puerto Rico are at the west coast of the island. In 1999 it was reported that populations were depleted and thought to have been overfished. Abundance studies undertaken in the late 1980s found mean densities of 8.1 ind./ha in the La Parguera area. Surveys undertaken in 1996 found densities of 7.4 ind./ha on the East Coast and 8.48 ind./ha on the West Coast (AC19 Doc 8.3, 2003). Analysis of commercial landing statistics and of catch and effort data for the years 1983 to 2001 found that fishing effort levels had sharply increased while catch rates had declined, from around 200,000 kg annually in the early 1980s to half this by 2001, confirming that stocks were likely to be overfished and in decline. All landings were destined for local markets. As local demand was high the majority of Queen Conch meat consumed in Puerto Rico was imported (AC19 Doc 8.3, 2003).

Trade from Puerto Rica, if it occurred, has generally not reported separately from that of the US. In 1998 the US reported the export of 29,400 kg originating from Puerto Rico to Jamaica. Considerable quantities of meat have been reported as exported to Puerto Rico amounting to 770 t for the period 1997 to 2009.

The Queen Conch fishery in the EEZ of Puerto Rico is managed through the federal Caribbean Fisheries Management Council (CFMC). Management regulations are described in detail in RST (2003). Since 1994 it has been mandatory to have a commercial licence and permit for harvest of Queen Conch. In 2004 Puerto Rico prohibited the use of Hookah gear and from 2007

Conch must be brought to boat ‘intact’ (but may be landed otherwise) in Puerto Rico (SEDAR 2007).

The Caribbean Fisheries Management Council has been preparing a recovery plan for the Queen Conch. A total ban is now in place in EEZ of the US Caribbean waters with the exception of St. Croix (US Virgin Islands), where fishing is still permitted (NOAA, 2012).

Impacts of the Review

No export of Queen Conch from Puerto Rico has been reported since 1998. Puerto Rico has been a major importer for the past decade. The Queen Conch fishery is currently banned but this is a result of domestic US policy rather than the Review.

Saint Kitts and Nevis

Review Recommendations

Recommendations of 1997 applied.

Trade from Saint Kitts and Nevis was considered to be of possible concern in 2003 and recommendations were made.

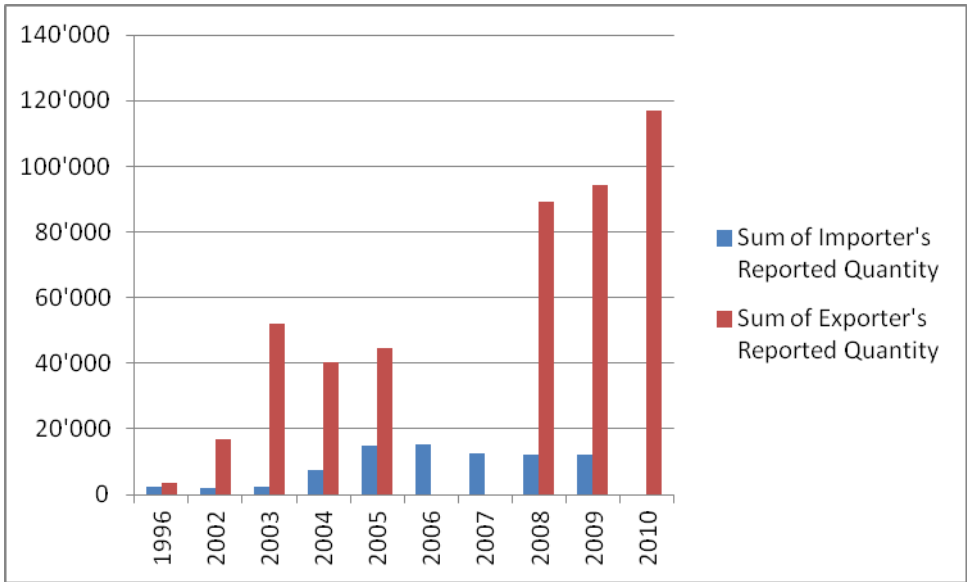
Status, trade and management

Queen Conch populations were reported in 1999 as found in various around the entire coast of the two islands at various depths, some of which were considered overfished, especially on the western side of the islands. By 2002 there was evidence of population declines in Saint Kitts, thought to be mainly due to habitat degradation, dredging and hurricanes. Although no abundance surveys had been carried there were

indications in 2003 that depleted stocks were beginning to recover in near-shore areas, possibly caused by a reduction in fishing efforts that occurred after the closure of the French market for Queen Conch meat from Saint Kitts and Nevis due to EU Food Sanitary Regulations imposed in 1997. Nevis appeared to be a regional settlement area for Queen Conch larvae (AC19 Doc 8.3, 2003).

Trade as reported by importers and by Saint Kitts and Nevis differ significantly. According to Saint Kitts and Nevis exports increased significantly in the later 2000s.

Trade in *Strombus gigas* meat (kg) from Saint Kitts and Nevis



The Fisheries Regulation No. 11 of 1995 on Queen Conch prohibited the harvest, sale and purchase of 'immature' Queen Conch with a shell length of less than 18 cm, or individuals without a flared lip, or with a meat weight of less than 225 g (after removal of the digestive gland). There also was also a requirement to obtain a permit for the use of scuba or hookah for fishing Queen Conch. The Fisheries Regulation also provided for the imposition of a closed season, but as of 2003 none had yet been established (AC19 Doc 8.3, 2003).

Some biological data on lip thickness, meat weight, shell length and samples of the catch, i.e. the number of Queen Conch within the catch samples, was already being collected by 2003, although difficulties were noted (AC19 Doc 8.3, 2003). In response to the recommendations Saint Kitts and Nevis reported that they had strengthened data collection and management systems, including enforcement through the purchase of a patrol vessel. No quotas have been posted on the CITES website.

There was effective co-ordination with the CFMC through the CARICOM Fisheries Resource Assessment and Management Programme (CFRAMP) (AC22 Inf.4, 2006).

Impacts of the Review

There is no evidence to assess the impact of the Review on the population; if any improvement has been brought about because of trade, it would appear the EU food sanitary provisions had a greater effect by closing the main markets in France. Some of the recommended management regulations were already in place at the time of the recommendations. Trade has increased since the completion of the Review.

Saint Lucia

Review Recommendations

Recommendations of 1997 applied. No response was provided by Saint Lucia on the implementation of the recommendations from the first review and subsequently it was recommended in 1999 that Parties suspend imports from Saint Lucia. This suspension was in place by start of the second review but on submission of information to the Standing Committee the suspension was removed in 2002.

In 2003 Saint Lucia was considered of Possible Concern.

Status, trade and management

Although Queen Conch is thought to be distributed around the island, only two significant populations have been identified: one in the north and one in the south, with the former considered in the early 1990s to have been more heavily exploited than the latter. Near-shore populations have been over exploited and thus most fishermen now target stocks in deeper waters using scuba gear. Few surveys had been undertaken until 1996 when a two-year study was conducted to collect morphometric data (shell length, lip thickness and meat weights of harvested specimens). It was observed that the majority of the Queen Conch harvested had a lip thickness of 21-23 mm and a shell length between 24-25 cm (AC19 Doc 8.3, 2003).

Analysis of catch showed that 99.5% of conch sampled were mature – suggesting that regulations on size limits were being followed although declining CPUE since 1996 indicated declining stocks. (http://www.caricom-fisheries.com/LinkClick.aspx?fileticket=Efza64gmryk%3D&tabid=85)

From 1993 to 1999, exports of Queen Conch from Saint Lucia were destined to Martinique (FR). The temporary closure of the EU market for Queen Conch products imported from Saint Lucia due to EU Food Sanitary Regulations in 1998 and the Standing Committee recommendations are reported to have resulted in a significant illegal trade of Queen Conch meat between Saint Lucia and Martinique (AC19 Doc 8.3, 2003). Trade has not resumed since the trade suspension recommended by the Standing Committee in 1999 was lifted in 2002.

Trade from Saint Lucia according to importers' reports.

Year	bodies	Live	live (kg)	meat (kg)	shells
1993	2130				
1994				15000	
1995		34800	20595		
1996			8400	600	
1997				6000	6
1998					31
1999					11
2000					4
2001					11
2002				975	17
2003					7
2004					7
2006					1
Total	**2130**	**34800**	**28995**	**22575**	**95**

Saint Lucia reported the export of 58,800 live and 8400 kg of live specimens between 1994 and 1998, meat totalling 819 kg has been exported in 1996 and 2002 and 2003. Most was reported as imported by France and Martinique. Since 2003 the only exports reported by Saint Lucia have been in tens of shell and pearls, often as personal items.

In 1987, the Department of Fisheries introduced legislation relevant to the Queen Conch fishery in Saint Lucia under the Fisheries (Turtle, Lobster and Fish Protection) Regulation No. 67. New fisheries regulations were imposed in 1994 through the Fisheries Act No. 9. These comprise a minimum size limit of 18 cm shell length and a minimum weight of 1 kg total animal weight or 280 g for meat (after the removal of the digestive gland). In addition, all Queen Conch harvested must have a flared lip. The policy of the Department of

Fisheries also requires all Queen Conch to be landed whole (live) in the shell. However, it was reported in 2003 that enforcement focused only on the flared lip requirement due to the ease of enforcement and implementation in the field (AC19 Doc 8.3, 2003).

Saint Lucia provided comprehensive information concerning the outstanding recommendations (see document SC46 Doc. 16.2 Annex, 2002).

By 2007 no abundance surveys had taken place but the recommended that such surveys would give an accurate estimate of the current biomass as well as identify juvenile and breeding areas. This would improve the accuracy of the assessment and give more options for appropriate management and control of this fishery. It was also recommended that "Mapping of the fishing grounds and conch habitats should be carried out as soon as possible. This would make the stock assessment more reliable and would enable the management authority to manage the resource more effectively through for example zoning and declaring closed areas if necessary. (http://www.caricom-fisheries.com/LinkClick.aspx?fileticket=Efza64gmryk%3D&tabid=85)

Impacts of the Review

Saint Lucia considered that the trade restrictions of the EU and the Standing Committee has led to a "thriving illegal trade" between Saint Lucia and Martinique [SC46 Doc. 16.2 Annex, 2002].

A biological data collections initiative was jointly funded by CARICOM Fisheries Research Assessment and Management Programme (CFRAMP). However, in 2002 Saint Lucia still considered they lacked capacity for data analysis. It was also felt that trade restriction has severely undermined efforts in managing the conch fishery more effectively (SC 46 Doc 16.2 Annex, 2002).

Saint Vincent and the Grenadines

Review Recommendations

Recommendations of 1997 applied.

In 2003 trade was considered of possible concern and recommendations applied.

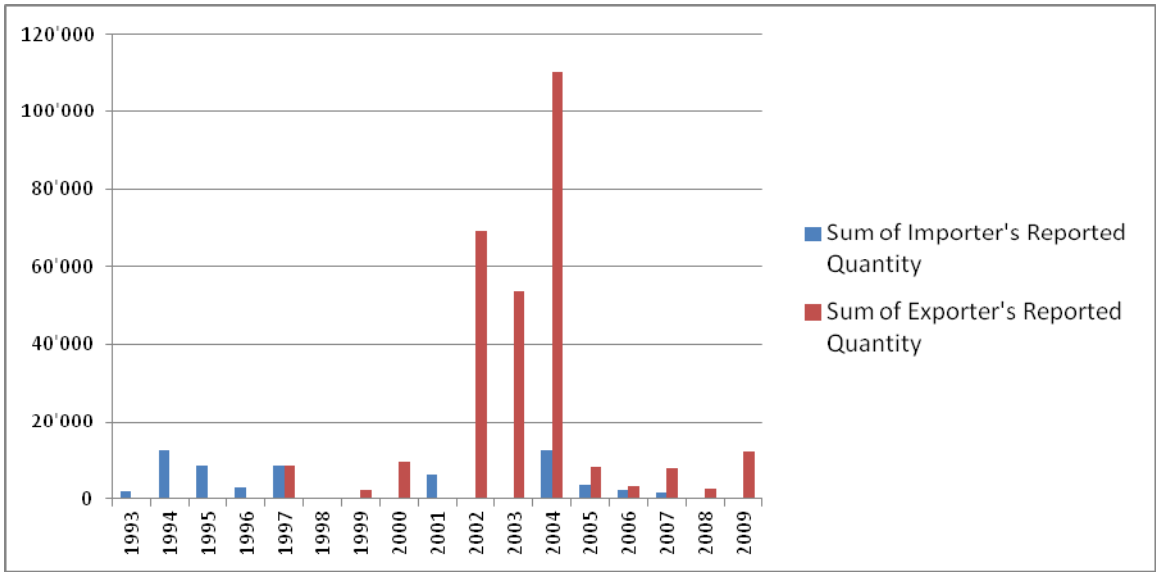
Status, trade and management

Little is known of Queen Conch populations in Saint Vincent and the Grenadines. In 2008 it was reported that a baseline data collection and monitoring systems would be implemented in order to further assess the current status of the fishery and evaluate its sustainability (Baldwin, Punnett and Chakalall (no date)). This study showed that fisher's considered that conch were getting smaller, there were fewer conch and that they were having to fish deeper, indicating fishing was not sustainable.

Queen Conch meat has been an important protein source in the diet of many Grenadines inhabitants. In 2003 it was reported that the Queen Conch fishery had recently gained importance as a commercial activity. The species was primarily fished during the closed season for lobster (1 May to 31 August), but there were also a number of specialised free-divers who targetted the species all year around. Some divers had started using scuba gear to reach deeper waters (AC19 Doc 8.3, 2003).

Until 2002 there was a small amount of reported trade from Saint Vincent and the Grenadines. This increased between 2002 and 2004 mainly due to exports to Anguilla, Saint Lucia and the US (little of which has been reported by the importers). The shift to these markets was apparently as a result of the closure of the "French markets" of Martinique and Guadeloupe. After the highest exports reported in 2004, trade then dropped back to the level of the 1990s. The high level of trade in 2002 to 2004 was said to be "heavily influenced by market forces rather than stock abundance" (Management Authority of Saint Vincent and the Grenadines *in litt.* to CITES Secretariat, 2004). Reported exports in the early 2000s exceeded landings of Stromboid conchs reported in the FAO data.

Trade in *Strombus gigas* meat (kg) from Saint Vincent and the Grenadines



The Statutory Rules and Orders Act 1986, Part IV section 18 prohibits the possession of Queen Conch with a shell length of less than 7 inches (18 cm) or without a flared lip, or with a total meat weight of less than 8 oz (225 g). The legislation also provides for the Ministry of Agriculture and Fisheries to close the Queen Conch fishery for a season (AC19 Doc 8.3, 2003).

In response to the second Review recommendations Saint Vincent and the Grenadines said that they had adopted a policy not to allow exports to exceed the 2002 levels (which were almost 70,000kg according to their reported exports), although there was no indication of the scientific basis for this level of export. In order to obtain some baseline information and assist with the development of a management plan, a small scoping study was conducted in June 2008. In October 2008 a draft management plan was completed based on FAO's 'Revised Manual for the Monitoring and Management of Queen Conch' (Baldwin, Punnett, Chakalall, no date). The preparation of the St. Vincent & the Grenadines Queen Conch Management Plan was made possible through support provided by Swedish International Development Agency through the United Nations Environment Programme Caribbean Environment Programme.

Impacts of the Review

The prepration of the management plan for the species appears to have been at least in part prompted by the Review. It is not clear to what extent the plan has subsequently been implemented.

Trinidad and Tobago

Review Recommendations

Recommendations of 1997 applied. No response was provided by Trinidad and Tobago and subsequently it was recommended in 1999 that Parties suspend imports from Trinidad and Tobago. This suspension was in place by the second review when Trinidad and Tobago was considered of Possible Concern.

Status, trade and management

In the early 1990s it was reported that Trinidad had a depleted and small population of Queen Conch, Tobago's population was greater than that of Trinidad but also considered to be depleted. In the mid 1990s it was repored that populations of *S. gigas* in Trinidad and Tobago were heavily overfished, but only used for the domestic markets. Harvests were apparently insufficient to meet the local demand for meat, which was imported (AC19 Doc 8.3, 2003).

A recent study in Tobago found that the majority of fishers they interviewed (71%) reported observing a decline in the abundance of conch (Georges *et al*., 2010). All interviewed fishers stated that empty conch shells which have been discarded in the water are responsible for driving live conch away from near shore to areas further out to sea.

The main island of Trinidad does not have a Queen Conch fishery and probably never has supported a productive fishery, due to low salinities and high turbidity associated with the big continental rivers and numerous Trinidadian streams (AC19 Doc 8.3, 2003).

The Tobago Queen Conch fishery is small scale, artisanal, open access and unmonitored (Georges *et al.* 2010). In 1996 harvest was said to be mainly for the domestic market for both meat and shell. Harvest is insufficient to meet local demand and therefore meat was also imported. There were no harvesting regulations at the time and the populations were said to be heavily over fished. Harvests are apparently insufficient to meet the local demand for meat, which is therefore imported from other countries (AC19 Doc 8.3, 2003), reflected in the imports reported as exported to Trinidad and Tobago in the CITES trade data 11,280kg since 1997.

A very crude estimate of the annual harvest, based on interview and observational data, indicates that somewhere between 19,271 and 42,588 conch may be harvested a year, yielding approximately 4.16 - 9.2 mt of uncleaned meat (Georges *et al.*, 2010).

Since the suspension in trade was removed in 2006 trade of just a few shells from Trinidad and Tobago has been reported.

In response to the second recommendations it was reported that a project had been initiated to develop marine fishery policy and finalize fisheries management act, providing legislative and management framework for implementing CITES recommendations. A Fisheries Monitoring Surveillance and Enforcement Unit was also said to be being established (AC 22 Inf. 4, 2006).

According to Georges *et al.* (2010) there is no management of the conch fishery or regulations pertaining specifically to conch harvesting or sale. There are also no fishery landings or sales records for conch meat or shells in Tobago and there is no commercial export, although shells purchased by tourists presumably leave the island as personal effects.

Impacts of the Review

It would appear that there has been little trade from Trinidad and Tobago and it appears that little action had taken place as a result of the review. A recent study was intended to help address the current deficiency in information by formally describing the fishing and marketing of Queen Conch in Tobago and providing the baseline information needed to begin the development of a management plan for Queen Conch in Tobago, which may, in part, have been as a result of the recommendations.

Turks and Caicos Islands (to United Kingdom) (Non-Party)

Review Recommendations

Recommendations of 1997 applied.

In 2003 trade from Turks and Caicos was considered to be of Least Concern.

Status, trade and management

Queen Conch was reported in the late 1990s as economically the second most important commercial fishery in the Turks and Caicos Islands. The majority of Queen Conch meat landed in the Turks and Caicos Islands was destined for export, with probably less than 5% or around 45,260 kg of unprocessed meat consumed locally (AC19 Doc 8.3, 2003).Turks and Caicos Islands are the third largest exporter of conch meat, with fairly stable exports of around 300 t per year. A notable exception being in 1998 where reported imports totaled 82t. Slight increased in trade were observed in the 2004 and 2005, likely as a result of trade suspensions for other important exporters.

In addition to wild exports, there was a small ranching operation called Caicos Conch Farm in Providenciales. Trade in meat reported as ranched increased from 2000 to 2005 but then decreased. None has been reported since 2008 when only 48kg was reported exported to the US.

A 1974 survey estimated 255 ind./ha in the Turks and Caicos Islands. During surveys between October 2000 and August 2001 an average density of 203 conch/ha was observed, suggesting healthy populations. However there were also reports that harvests had shifted to more distant and deeper waters in recent years, suggesting that some stocks were declining. Queen Conch population densities in the East Harbor Lobster and Conch Reserve in South Caicos were almost twice as high as in similar habitats outside the reserve (AC19 Doc 8.3, 2003).

The Turks and Caicos Islands are not a Party to CITES. Since 1995, the Queen Conch fishery in the Turks and Caicos Islands has been managed through a system of harvest and export quotas that are set per fishing season. A national quota is set for landings and subsequently for exports, taking into account the loss in tissue weight and amounts consumed locally (AC19 Doc 8.3, 2003).

The Turks and Caicos Islands have one of the longest catch-effort time series data, which date back to 1974. Between 2000 and 2001, the Department of Environment and Coastal Resources conducted visual stock assessment surveys in the main fishing area on the Caicos Bank in order to validate the findings of the dynamic biomass model which is used to set yearly quotas (AC19 Doc 8.3, 2003).

Quotas for wild harvested and ranched specimens have been posted on the CITES website since 1997.

Other measures included the prohibition of the harvest of undersized individuals with a shell length of less than 7 inches (18 cm) or with a meat weight of less than 8 oz (225 g). All Queen Conch landed must also have a flared lip. Since 2000, a closed season has been established from 15 July to 15 October. Fishing of Queen Conch is prohibited in the Admiral Cockburn Land and Sea National Park and in the East Harbour Conch and Lobster Reserve (both in South Caicos).

The Caicos Conch Farm in Providenciales was one of the few economically profitable farming operations. Significant investment was made on research into the cultivation of *S. gigas.* In addition to pursuing commercial viability of Queen Conch production for human consumption, the farm had also begun a program to release hatchery-produced juveniles to the wild to augment local populations (AC19 Doc 8.3, 2003).

Impacts of the Review

It would appear that this economically important resource was actively managed even before the species was listed, although focus on it through the Review may have ensured sustained management attention.

United States of America

Review Recommendations

Recommendations of 1997 applied.

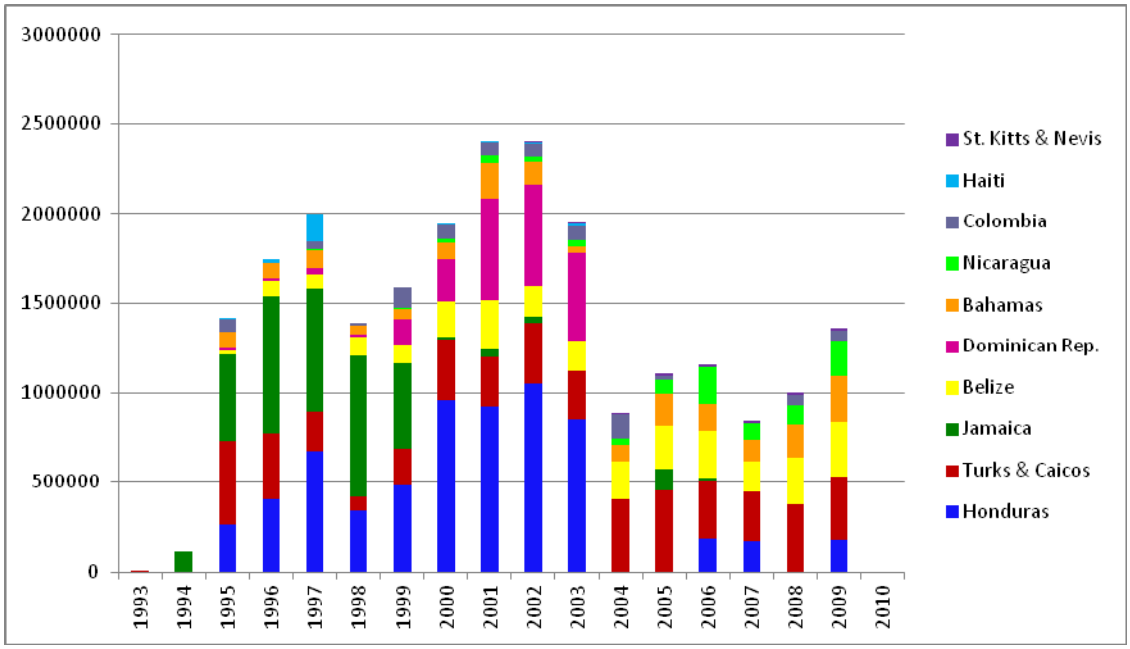
In 2003 the US was considered of least concern.

Status, trade and management

Throughout the 1960s and 1970s the local population declined dramatically due to overfishing. In 1985, all harvest of *Strombus gigas* was banned in Florida State waters and in 1986 the ban was extended to adjacent federal waters. Population recovery has been slow. It has been assumed that the lack of recovery in Florida was a result of the low adult densities that were observed since the early 1990s that did not allow reproduction. In 1992, the population estimate for adult Queen Conch spawning stock in the entire Florida Keys island chain was approximately 5800 individuals; however, in 2002, this estimate had grown to 31,000 individuals at a density of 800 ind./ha. There has been little change in density estimates since 1999 when off-shore populations became self-sustaining. Based on research that demonstrated that the nearshore population never reproduces, but that reproduction regularly occurs in the offshore population, a transplantation project was initiated in 2001 with the aim of enhancing the stocks in the Florida Keys (AC19 Doc 8.3, 2003).

The United States, including the territories of Puerto Rico and Virgin Islands (US), are the largest importer and consumer of Queen Conch meat. Clear patterns in countries from which imports originated can be seen, many linked to recommendations of the Review, such as the suspension of trade from Honduras and Dominican Republic from 2004 see Figure).

Imports of *Strombus gigas* meat (kg) reported by the United States from the top 10 supply countries.



In 1975, the commercial Queen Conch fishery was closed in Florida due to over-fishing. This ban was extended to the recreational fishery in 1985 in state waters (through the Florida Administrative Code, Chapter 68b-16003). In 1986 the US banned all harvest of continental populations of Queen Conch.

Impacts of the Review

Although a range State, the United States is not an exporter of *Strombus gigas* but rather the major importer. The Review appears to have catalysed its involvement in regional management for the species, through provision of financial and technical support.

United States Virgin Islands

Review Recommendations

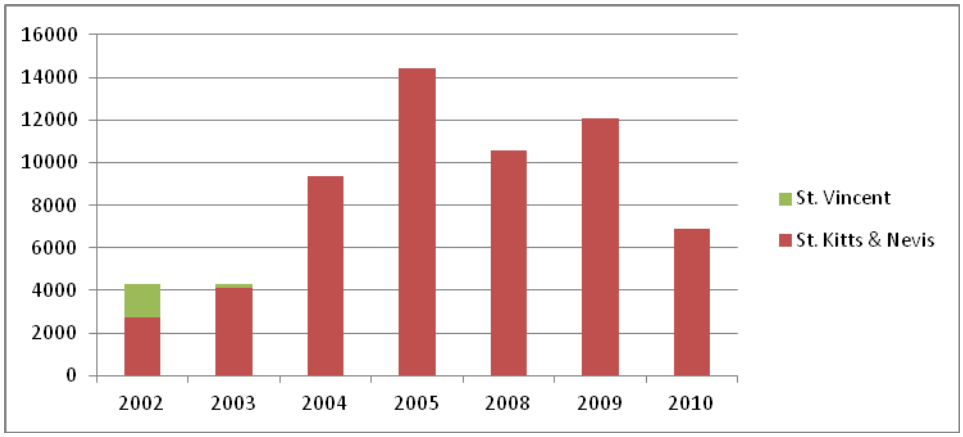
Recommendations of 1997 applied.

Status, trade and management

In the early 1980s densities were reported to range from 2 to10 ind./ha. In St. Thomas and St. John, over-fishing led to a five-year moratorium in the period 1987- 1992. When the ban was lifted, no new management measures were in place, and the resource was depleted again in a short time. Abundance surveys were conducted at five year intervals from 1981 to 2001. In 1999, the fishery was considered to be fully exploited and shell lengths and lip frequency values indicated that increasingly smaller individuals were harvested each year. In 2001 mean densities of adult Queen Conch were lower for St John compared to previous surveys; for St Thomas a decline in juvenile density was observed in 2001 (in 1996: 31 ind./ha; in 2001: 1.88 ind./ha); and for St Croix adult densities were relatively stable (around 26-27 ind./ha). Based on shell sizes at fishermen's landing sites, more than 60% of *S. gigas* harvested in St Croix in 2001 were undersized. Analysis of commercial landing statistics and catch and effort data for the Virgin Islands (US) found a decrease in landings and much higher effort levels, particularly in St Croix (AC19 Doc 8.3, 2003).

International trade in *S. gigas* involving the Virgin Islands (US) is normally not reported separately from trade involving mainland US in the CITES annual reports of the US, which makes it difficult to quantify trade involving these islands. The only trade recorded in the CITES trade data involving the Virgin Islands (US) referred to 4 kg of Queen Conch meat that were seized by the US in 1995. Exports reported to the US Virgin Islands may not reflect actual trade levels. Trade has been mostly reported as exports from Saint Kitts and Nevis to the Islands.

Exports of *Strombus gigas* meat (kg) to the US Virgin Islands



The Caribbean Fisheries Management Council (CFMC) regulates Queen Conch fisheries in the federal waters, i.e. from nine nautical miles to the edge of the US Exclusive Economic Zone or 200 nautical miles. All fishing is currently prohibited within the US EEZ with the exception of Lang Bank, St. Croix, USVI (east of 64°34'W). Further regulations include;

- Fishing for or possession of Queen Conch is allowed during November 1 through May 31 at Lang Bank, St. Croix, USVI (east of 64°34'W).
- The possession of undersized Queen Conch less than nine (9) inches total length or less than 3/8 inch lip thickness measured at the thickest point of the lip is prohibited.
- All Queen Conch must be landed still attached to the shell.
- Harvest of Queen Conch at Lang Bank east of St. Croix, USVI, using hookah gear is prohibited.
- Daily limit for non-commercial fishers is three (3) Queen Conch per day, not to exceed twelve (12) per boat.
- Licenced commercial fishers may land one hundred and fifty (150) Queen Conch per day.

(See http://sero.nmfs.noaa.gov/sf/CaribbeanQueenConch.htm)

Venezuela

Review Recommendations

Recommendations of 1997 applied.

In 2003 trade was considered of least concern.

Status, trade and management

In 1999 an assessment of distribution, density, and abundance of Queen Conch for Los Roques Archipelago National Park estimated mean density of 18. 8 conchs per ha and abundance of 1,374,640 conchs on the 73,197 ha of the platform, < 40 m depth. These overall density values were close to those obtained in overfished areas of Belize and St. Thomas/St. John, U.S. Virgin Islands (Schweizer and Posada 2006).

Venezuela closed its fishery for Queen Conch in 1991.The fishery was re-opened for one year in 1999 due to pressure from fishermen and the industry (AC19 Doc 8.3, 2003). Illegal fishing by foreign fishermen was considered to be a problem (AC19 Doc 8.3).

Little trade has been recorded from Venezuela since 4930 kg of meat was reported as imported by US in 1998 (when the fishery was officially closed) (Schweizer and Posada, 2006).

Impacts of the Review

Apart from in 1999 Venezuela has not had a legal fishery for Queen Conch since 1991. The Review is unlikely to have had any impact on the status or management of the species in the country.

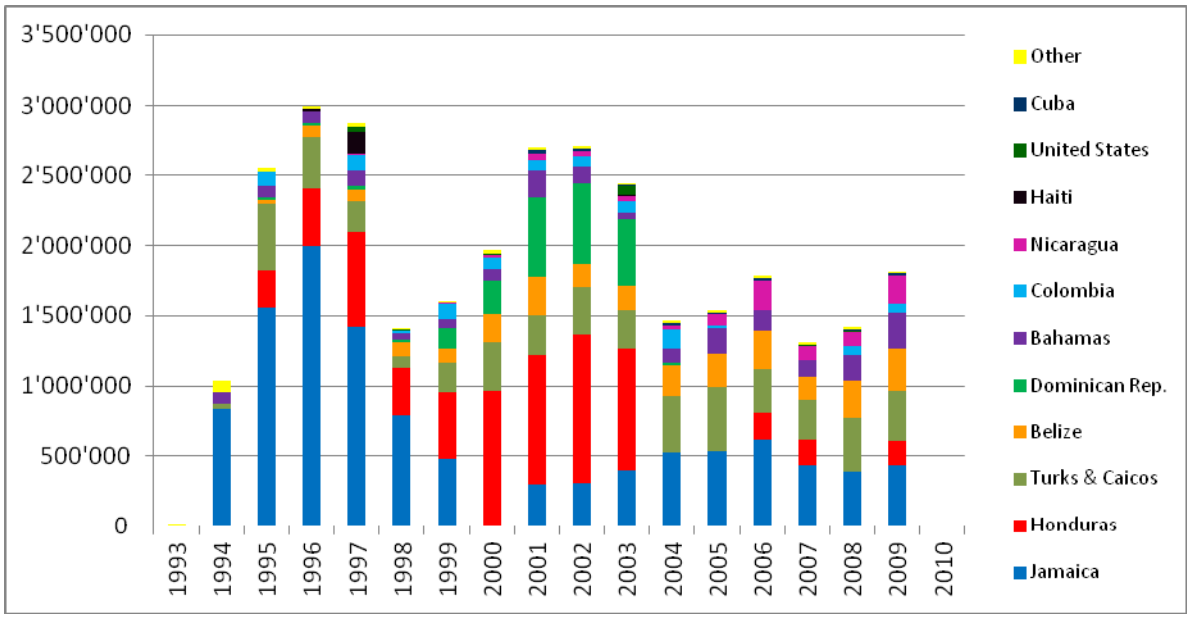
Overall trade patterns and impacts of the Review on these

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 t in 1996 and 1997 (see figure).

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 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.

Trade in *Strombus gigas* meat (kg) from key exporting countries.



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.

Costs and benefits associated with management of and trade in the species

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.

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.

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Annex 1

Review of significant trade in specimens of Appendix-II species
(Resolution Conf 12.8)

RECOMMENDATIONS CONCERNING STROMBUS GIGAS (PHASE V)

[made at the 19th meeting of the Animals Committee

Geneva (Switzerland), 18-21 August 2003]

Pursuant to the implementation of the provisions of Resolution Conf. 12.8, the Animals Committee proposes that the Standing Committee recommend a suspension of imports of specimens of the species from those Parties in Category (i) and Category (ii) if the Secretariat, in consultation with the Chairman of the Animals Committee, has not been able to verify that they have implemented the following:

Category (i) - 'species of urgent concern' for which the available information indicates that the provisions of Article IV, paragraph 2(a), 3 or 6, are not being implemented

Dominican Republic; Haiti; Honduras

1. Short-term actions to be taken within 6 months:

a) Establish a moratorium on the commercial harvest (excluding legal harvest in territorial waters of the Parties concerned) and the international trade of Strombus gigas within four weeks of these recommendations being communicated by the Secretariat to the Parties;

b) Identify areas to be designated for commercial fisheries;

c) Undertake density studies of Strombus gigas in these designated areas;

d) Identify and analyse trends in available landing data;

e) Establish a standardized minimum weight of unprocessed and processed meat that corresponds to adult specimens;

f) Based on the results of the density studies, the analysis of landing trends and standardized meat weight establish cautious catch and export quotas in consultation with the Secretariat;

g) Demonstrate that actions 2a), 2b) and 2 c) below have been initiated.

2. Long-term actions for implementation to be taken within 18 months:

a) Design and implement a fishery data collection programme to collect catch and effort data, including

1) a system of permits and licences for commercial harvesters and exporters, and

2) regular reporting of landing and export data;

b) Design and implement a long-term population monitoring programme for the designated commercial fishing areas that, as a minimum, should provide reliable estimates of adult and juveniles densities within commercial fishing areas;

c) Give consideration to and implement the recommendations of the International Queen Conch Initiative - CITES workshop (Montego Bay, Jamaica 11-12 June, 2003) annexed hereto, particularly the recommendations concerning:

i) Development of a regional management regime, including cooperative quota setting;

ii) Law enforcement capacity and effectiveness;

iii) Population assessments and other research relating to the management of Strombus gigas.

Category (ii) - 'species of possible concern' for which it is not clear whether or not the provisions of Article IV, paragraph 2(a), 3 or 6(a) are being implemented

Antigua and Barbuda*; Barbados*; Bahamas; Belize; Colombia; Cuba; Dominica*; Grenada; Nicaragua; Saint Kitts and Nevis; Saint Lucia; Saint Vincent and the Grenadines; Trinidad and Tobago*

(* refers to those countries currently subject to a trade suspension under Phase III of the Review of Significant Trade)

3. Short-term actions to be taken within 12 months:

Bahamas, Belize, Colombia, Cuba, Nicaragua, Saint Kitts and Nevis and Saint Vincent and the

Grenadines shall:

a) Establish within 12 months cautious catch and export quotas, communicate these to the

Secretariat and provide information on the basis of these quotas;

b) Establish a standardized minimum weight of unprocessed and processed meat that corresponds to adult specimens;

c) Demonstrate that actions 3 d), 3 e) and 4 below have been initiated;

d) Design and implement a fishery data collection programme to collect catch and effort data, including 1) a system of permits and licences for commercial harvesters and exporters, and 2) regular reporting of landing and export data;

e) Design and implement a long-term population monitoring programme for the designated commercial fishing areas that, as a minimum, should provide reliable estimates of adult and juveniles densities within commercial fishing areas.

4. Long-term actions to be taken within 24 months:

All Parties included in Category (ii) shall:

a) Apply adaptive management procedures to ensure that further decisions about harvesting and

management of the species will be based on the monitoring of the impact of previous harvesting

and other factors;

b) Give consideration to and implement the recommendations of the International Queen Conch

Initiative - CITES workshop (Montego Bay, Jamaica 11-12 June, 2003) annexed hereto,

particularly the recommendations concerning:

i) Development of a regional management regime, including cooperative quota setting;

ii) Law enforcement capacity and effectiveness;

iii) Population assessments and other research relating to the management of Strombus gigas.

At its 41st meeting the Standing Committee recommended to all Parties that they suspend imports of specimens of Strombus gigas from certain range States. The Secretariat should remind these States of the measures that need to be implemented before the recommendation of the Standing Committee can be withdrawn.

Category (iii) - 'species of least concern' for which the available information appears to indicate that the provisions of Article IV, paragraph 2(a), 3 or 6(a) are being met

Bermuda; Brazil; Costa Rica; France (including Guadeloupe and Martinique); Guatemala; Jamaica; Mexico; the Netherlands (including Aruba and the Netherlands Antilles); Panama; United Kingdom of Great Britain and Northern Ireland (including Anguilla, British Virgin Islands, Cayman Islands,

Montserrat and Turks and Caicos Islands); United States of America (including Puerto Rico and the US Virgin Islands); Venezuela

On the basis of paragraph l) of Resolution Conf. 12.8, all range States categorized as of 'least concern' would be eliminated from the review.

These range States are invited to participate in the regional activities arising from this review of significant trade in Strombus gigas, and to give consideration to and implement the recommendations of the International Queen Conch Initiative - CITES workshop (Montego Bay, Jamaica 11-12 June, 2003) annexed hereto, particularly the recommendations concerning: - Development of a regional management regime, including cooperative quota setting;

- Law enforcement capacity and effectiveness;

- Population assessments and other research relating to the management of Strombus gigas.

Problems identified in the course of the review that are not related to the implementation of Article IV, paragraph 2 (a), 3 or 6 (a)

In compliance with paragraph l) of Resolution Conf. 12.8 the Animals Committee recognized that there were issues of concern in range States other than those specifically related to the implementation of Article IV, paragraph 2 (a), 3 or 6 (a), and requested the Secretariat to address these in accordance with the appropriate provisions of the Convention and relevant Resolutions.

Issues of concern in particular range States:

1. Specimens of *Strombus gigas* are reportedly imported into several countries and territories after being obtained illegally, for example through unauthorized fishing in waters under the jurisdiction of other states and the subsequent transfer of the product across international borders. Often, the product is sold at sea or reported as being landed in national waters. Although this happens in many range States this is of particular concern for Aruba (NL), Dominican Republic, Guadeloupe (FR), Honduras, Martinique (FR) and the Netherlands Antilles (NL).
2. In several countries illegal fishing and subsequent transfer of the product across international borders occurs undermining national management measures. This is of particular concern for Haiti, Jamaica, Saint Lucia and Venezuela. These countries should also explore opportunities to strengthen bilateral communication, cooperation and exchange of data on law enforcement issues. This cooperation should especially be sought between importing and exporting States.
3. Insufficient monitoring and reporting of trade occurs in a number of range States and needs to be addressed. Monitoring and reporting of trade volumes seems especially problematic for the dependent territories of France, the Netherlands and the United Kingdom, with trade often not monitored and going unrecorded.

Issues of concern in all range States:

4. The majority of Parties have reported trade in *Strombus gigas* meat in numbers of specimens instead of kilograms, which prevents proper monitoring and analysis. All meat in international trade should be reported in kilograms (kg) and live specimens and shells in kilograms (kg) or number of specimens.
5. To properly control and monitor levels of exportation, range States are encouraged to collect and communicate information on percentages of tissue loss (and thus weight) during the processing of *Strombus gigas* meat.
6. All countries are requested to collaborate in the development and establishment of standardized terminology and conversion factors for processed meat of *Strombus gigas* that allow estimation of the number of animals in international trade.
7. Range States of *Strombus gigas*, and particularly those categorized as of urgent concern, should seek assistance from the United Nations Food and Agriculture Organization (FAO) and urge major importing countries to contribute technical and financial assistance.

5. *Pericopsis elata*

***Pericopsis elata* or Afromosia** is a tree found in moist forests in central and western Africa, exported as timber and included in Appendix II in 1992.

Range States and overall status: Cameroon, Central African Republic, Congo, Côte d'Ivoire, Democratic Republic of the Congo (DRC), Ghana, Nigeria. The species was assessed in 1998 by IUCN as Endangered although this categorisation is currently noted as in need of updating.

Review of Significant Trade

P. elata was originally selected for the Significant Trade Review process at PC12 in May 2002. Results of the initial review were presented at PC14 February 2004. At that meeting the species was included in the category 'Species of Possible Concern' in Cameroon, Central African Republic, Congo and Democratic Republic of the Congo (DRC). Specific recommendations were formulated for each of these countries. Cameroon and Central African Republic were given 6 months to act on their recommendations and Congo and DRC were given 12 months. At that meeting the category 'Species of Least Concern' was applied to Côte d'Ivoire, Ghana and Nigeria and so these latter countries fell out of the Significant Trade Review process.

In 2005, at SC53, the Standing Committee reviewed progress in implementation of the recommendations and agreed a further set for each country in the Review. One aspect of these was that exporting countries should fully collaborate in the establishment of a regional management strategy for *P. elata.* The Secretariat subsequently began a joint project with the International Tropical Timber Organization, to establish such a strategy. A training workshop aimed at ensuring that international trade in the species was not detrimental to its conservation in the Congo basin was held in Cameroon in April 2008 (ITTO, 2008). In Sept-Oct 2010 a further joint ITTO-CITES three-day workshop, "to ensure that international trade in African tree species included in CITES Appendix II is compatible with their conservation" was held in Limbe, Cameroon. One half-day of the workshop (2 Oct) was devoted to *Prunus africana* (qv), the remainder to *Pericopsis elata* (Anon., 2010).

Range States subject to recommendations

Cameroon

Review Recommendations

The following recommendations made at PC14 applied:

Within six months (by March 2005):

> *The Management Authority of Cameroon needs to clarify to the Secretariat how the existing forestry policies provide the scientific basis for the formulation of non-detriment findings for exports of Pericopsis elata, and confirm that the exports are allowed in accordance with the requirements of Article IV. The information to be provided could include information on: the national forest extent, protected areas, concession policies, species inventories, quotas, current areas of harvesting, information regarding minimum felling diameters and compliance and enforcement measures, efforts to minimize environmental impacts.*
>
> *The exporting states should be encouraged to work together to share experiences in the implementation of Article IV, to exchange information on procedures in place and to take common steps to improve monitoring of trade in the species.*

In 2005 the Standing Committee at SC53 reviewed the implementation of the Recommendations and concluded that, while progress had been made, there were still outstanding issues. The Committee agreed the following more specific Recommendations:

Cameroon should undertake the following actions before the end of 2005:

> *Provide information to the Secretariat on the role of the Scientific Authority of Cameroon in the making of non-detriment findings for exports of* P. elata *in compliance with Article IV;*
>
> *Clarify exiting inspection procedures and enforcement schemes concerning exploitation of and trade in* P. elata*, and the results of these activities (e.g. inspections in concessions and on state-owned land, control efforts, seizures, prosecutions, verification of shipments in harbors, etc.);*

Establish a cautious export quota for P. elata *for 2007 in consultation with the CITES Secretariat; and*

Commit to fully collaborate in the establishment of a regional management strategy for P. elata*.*

At SC54, the Secretariat reported to the Standing Committee (SC54 Doc. 42, 2006[6]) that in March 2006 Cameroon submitted information to the Secretariat on the recent designation of the Scientific Authority and its role in the making of non-detriment findings for exports of *P. elata* in compliance with Article IV; it clarified existing inspection procedures, provided information on concession policies and enforcement measures; it established an export quota for *P. elata* of 15,200 m^3 of sawn wood for 2006; Cameroon also commented on regional cooperation and mentioned fora used to discuss regional management strategies. On this basis, the country was removed from the Review.

Status, trade and management

Dickson *et al.* (2005) reported that *Pericopsis elata* was said by the Ministry of Forests in Cameroon (MINEF) to be found exclusively in the south-east of Cameroon in the river basins of the Dja, Boumba, Ngoko and Sangha rivers; this covered an area of just over 4 million ha, around 20% of the national forest estate. Around 42 % of this distribution was made up of areas subject to managed exploitation; of these areas, 1.7 million ha was made up of UFAs and 63,500 ha of communal forest. Just over 15 % of the total distribution area was described as being subject to multiple use, and the remaining 43 % as under complete protection (see below) (Dickson *et al.* 2005). In addition to the main distribution area in the south east of the country there were also reported to be three other, much smaller areas where *Pericopsis elata* is found, including in the Dom and Mamfe areas.

Inventory data from MINEF, reported in Dickson *et al.* (2005) and covering 23 of the 24 forest management units (UFAs) in which exploitation can occur within the *Pericopsis elata* distribution area (MINEF 2004) showed a total of 829,000 stems (above 20 cm diameter at breast height) in an area of 1,602,209 hectares, giving a density of 0.52 stems per hectare. MINEF did not attempt to extrapolate from these figures, but Dickson *et al.* (2005) noted that if this density were found across the whole of the main distribution area, it would imply a total of over 2,100,000 trees (above 20 cm diameter at breast height) in Cameroon. The sampling intensity of the inventories was a function of the size of the UFA. This level is at least 0.5 % for those in an area bigger than 50,000 hectares and at least 1 % in the other cases.

Betti (2008) compared inventory data for six blocks in Eastern Province in Cameroon for 1985 and 2004, noting that for five of these results for 2004 were somewhat higher than for 1985, but also that survey methods were not standardised and that it was impossible to tell if these reflected real changes in abundance.

Dickson *et al.* (2005) noted that according to an official in Cameroon the domestic consumption of *Pericopsis elata* was insignificant and posed no threat to the species. It was pointed out that the species was found in remote areas where the density of the human population was extremely low, with little or no demand for hardwood.

No time series data or repeat inventories for the species in Cameroon have been located. National deforestation rates (2000-2005) estimated by FAO were around 1% of forest cover per year.

Import data indicate around 4000 m^3 roundwood exported annually by Cameroon in the period 1996-1999 (export data indicate around 17000 m^3 annually in the same period). In the period 1999-2009, import data indicate around 5800 m^3 sawnwood exported annually by Cameroon (export data indicate slightly more), with no roundwood recorded. *Pericopsis elata* is one of 23 species for which export in the form of logs was forbidden from 1st July 1999 onwards with the aim of promoting secondary processing within the country (Dickson *et al,* 2005). There is little indication of any significant trends in trade.

In November 2001 the EU Scientific Review Group (SRG) gave a negative opinion on imports of *P. elata* from Cameroon. In April 2002 it changed this to a positive opinion. In 2004 it confirmed this positive opinion for Cameroon noting that despite the scientific concern, the SRG would wait for additional information in the framework of the Significant Trade Review process under CITES. The issue would be discussed again at the next SRG meeting. In 2006 the Group noted the new management structures in Cameroon relating to forestry and trade. It retained the positive opinion, noting the recent information Cameroon had sent to the CITES Secretariat under the Significant Trade Review process and that the country was committed to

[6] CITES documents including summary records, working group reports and information documents have been cited with the meeting number and document number followed by the date. Most can be found on the CITES website. They are not included in the reference list.

implement the CITES recommendations to establish sustainable export quota for this species. Further information on how the quota was established would be requested from Cameroon. In March 2009 the Group confirmed a positive opinion for Cameroon.

A detailed description of forestry regulations and the operations of the forestry sector in Cameroon is given in Betti (2008). These regulations cover harvesting of *Pericopsis elata.* A company with a licence to exploit a UFA is obliged to produce a management plan. The *Rapport Technique sur Pericopsis elata* (MINEF 2004) states that this plan must be based on a minimum rotation of 30 years. The minimum exploitable diameter (MED) of *P. elata* in Cameroon has been 100 cm, the highest for the species in the Congo region (only Ghana has a higher MED, of 110 cm). There has been widespread agreement that this is too high, as most trees of this diameter are overmature or senescent, often with heart-rot (Betti, 2008). As a result of work undertaken in response to the Review, it has been proposed to reduced the MED to 90 cm, although it is not known if this has yet been implemented.

Cameroon has undertaken extensive reform of its forestry sector since 1998, much of this supported by the international community, including the appointment of an Independent Observer to monitor both resource allocation and application of the forest law and its regulations in forestry operations. From 2000 until early 2005 the ngo Global Witness acted as the Independent Observer, financed by the United Kingdom Department for International Development, the World Bank and the European Union. In its final assessment in 2005 Global Witness noted that significant progress had been made in the application of forest law and regulations, but that problems still remained, particularly a lack of coordination between the various Ministries and agencies involved (Anon., 2005).

Along with Congo and Democratic Republic of the Congo, Cameroon drafted an action plan for *Pericopsis elata* at the CITES-ITTO workshop in Limbé, Cameroon (29 Sept to 2 Oct 2010) (Anon, 2010). Major recommendations were: i) put in place specific activities recommended in the report on non-detriment findings (ie. Betti, 2008); ii) implement the management measures set out in the management plan fo the Bidou plantation forest; iii) provision of materials and methods to allow forest agents to collect and analyse data; iv) provide training to the forestry administration and customs officials at different levels in the implementation of CITES (following the example of the Democratic Republic of the Congo).

Impacts of the Review

It is not clear what impact the Review may have had on management of *Pericopsis elata* in Cameroon, as the country's forestry sector has undergone considerable reform in the period in question. The Review has drawn attention to problems with the implementation of CITES in the forestry sector and set in train efforts to address these. The perception (shared in the Democratic Republic of the Congo and probably Congo) that the species is not threatened in the country, is adequately managed under non-CITES forestry regulations, and has not merited the attention focused on it by the Review, may have made some stakeholders in Cameroon look less favourably on the Convention as a mechanism for the sustainable management of commercially exploited timber species.

Central African Republic

Review Recommendations

The following recommendations made at PC14 applied:

Within 6 months (by March 2005)

> *The Management Authority should clarify to the CITES Secretariat how its Scientific Authority determines that levels of export of specimens of Pericopsis elata are not detrimental to the wild populations concerned, and are exported in accordance with Article IV of the Convention. The information to be provided could include information on: the national forest extent, protected areas, concession policies, species inventories, quotas, current areas of harvesting, information regarding minimum felling diameters and compliance and enforcement measures, efforts to minimize environmental impacts; and*
>
> *Provide information on the measures in place to issue export permits and to monitor that levels of exports are allowed in compliance with Article IV, paragraph 2 (a) and (b).*
>
> *The Management Authority should collaborate with the Management Authority of other range States to share experiences in the implementation of Article IV, to exchange information on procedures in*

place and to take common steps to enhance the monitoring of trade of Pericopsis elata *from these countries.*

In 2005 the Standing Committee at SC53 reviewed the implementation of the Recommendations and noted that no responses had been received from the Central African Republic. The Committee then agreed the following Recommendations

The Central Africa Republic should undertake the following actions before the end of 2005:

Provide full and detailed information to the Secretariat regarding the recommendations of the Plants Committee;

Establish a cautious export quota for P. elata *for 2007 in consultation with the CITES Secretariat; and*

commit to fully collaborate in the establishment of a regional management strategy for P. elata*.*

The Central African Republic did not respond and the Secretariat issued a Notification to the Parties in January 2006 recommending that all Parties suspend trade in all specimens of *P. elata* from the Central African Republic until that Party had demonstrated compliance with the relevant parts of Article IV. In July 2006 the Central African Republic responded to the Secretariat explaining that it had virtually no trade in this species. The Standing Committee subsequently withdrew its recommendation, effective from December 2006.

Status, trade and management

The species is known to occur in the southwest of the country, in the regions of Sangha and Lobaye, where forests cover 3.7 million ha although few details are avialable (PC14 Doc 9.2.2 (Annex 3), 2003). *Pericopsis elata* was said to be logged in this area, particularly close to the borders with Cameroon and Congo (PC14 Doc 9.2.2 (Annex 3), 2003).

The Central African Republic was included as of Possible Concern in the Review on the basis of a lack of information on status and management and a small amount of trade reported in the 1990s. At the time the only trade reported since 1999 was an import of 25 m^3 into the USA in 2003. As noted above, the Central African Republic was subject to a temporary suspension of trade, lifted at the end of 2006. No trade from the country has been reported since.

Impact of the Review

It would appear that Review has had negligible impact on the status of and trade in the species in Central African Republic.

Congo

Review Recommendations

The following recommendations made at PC14 applied:

Within 6 months (by March 2005)

The Management Authority should clarify to the CITES Secretariat how its Scientific Authority determines that levels of export of specimens of Pericopsis elata *are not detrimental to the wild populations concerned, and are exported in accordance with Article IV of the Convention. Theinformation to be provided could include information on: the national forest extent, protected areas, concession policies, species inventories, quotas, current areas of harvesting, information regarding minimum felling diameters and compliance and enforcement measures, efforts to minimize environmental impacts.*

The Management Authority should collaborate with the Management Authority of other range States to share experiences in the implementation of Article IV, to exchange information on procedures in place and to take common steps to enhance the monitoring of trade of Pericopsis elata *from these countries.*

In 2005 the Standing Committee at SC53 reviewed the implementation of the Recommendations and noted that no responses had been received from Congo. The Committee then agreed the following Recommendations:

Congo should undertake the following actions before the end of 2005:

> *Provide full and detailed information to the Secretariat regarding the recommendations of the Plants Committee;*
>
> *Establish a cautious export quota for* P. elata *for 2007 in consultation with the CITES Secretariat; and*
>
> *Commit to fully collaborate in the establishment of a regional management strategy for* P. elata*.*

The Congo failed to respond to the Standing Committee's recommendations and, consequently, the Secretariat issued Notification to the Parties No. 2006/008 of 19 January 2006 recommending that all Parties suspend trade in all specimens of *P. elata* from the Congo until that Party demonstrates compliance with Article IV, paragraphs 2 (a) and 3, for these species.

At SC54 the Secretariat informed the Standing Committee (document SC54 Doc. 42) that in April 2006 the Congo responded to the Secretariat and provided information on the national forest extent, protected areas, concessions policies, species inventories, quotas, current areas of harvesting, information regarding the minimum felling diameters and compliance and enforcement measures, and explained efforts to minimize environmental impacts. It also established a quota for 2007 (hoping that the StandingCommittee would lift the current suspension of trade) of 15,000 m3 of logs, sawn wood and veneer sheets. The Congo committed itself to fully collaborate with regional cooperation to establish a regional management strategy for *P. elata*. On this basis the country was removed from the Review and the recommendation to suspend trade withdrawn (Notification 2006/072).

Status, trade and management

Dickson *et al.* (2005) noted that Forest Management Units (FMU) in which the species was believed to occur covered 4.9 million ha, including 1.74 million ha of national park (Odzala and Nouabalé-Ndoki National Parks) and six FMUs where exploitation was permitted (Sembé, Souanké, Tala-Tala, Ngombé, Kabo and Pokola). Unpublished inventory data and other observatons indicated that the species was abundant and widespread in some of these units (particularly the 500,000-ha Tala-Tala FMU) but that its distribution in others units was extremely limited.

There are no overall figure for the population or stock size of *Pericopsis elata* in Congo. Dickson *et al.* (2005) report that the uncertainties surrounding *Pericopsis elata's* distribution even within the areas of its reported highest abundance render impossible definitive statements about its true abundance. They note that stocks of *Pericopsis elata* are found only in Congo's northern forests where annual deforestation has historically been below the national average (0.06% to 0.2%), and agricultural and demographic pressures are not significant. Timber extraction in the northern forests where *Pericopsis elata* occurs was a relatively recent development in comparison to the south, and sources suggested logging rates were likely to be on the low side of the national values (*c.*0.1% of total area per annum). Commercial logging currently represented the only potential threat to the species. Timber cutting for local and national consumption was insignificant or nil. Only in highly localised areas around the ten or so cities and larger towns of the north might *Pericopsis elata* be cut, although these were not near the areas of reported highest abundance.

Most recorded export from Congo has been in the form of roundwood. Import data indicate exports of just under 2000 m^3 annually in the period 1997-2003, with a peak of 4300 m^3 in 2001. Subsequent exports have been at a much lower level, averaging just over 300 m^3, according to import data, in the period 2004-2009. Recorded sawnwood exports have been sporadic and at a much lower level.

In 2002 Sept the EU Scientific Review Group gave a negative opinion on imports of *P. elata* from Congo. In 2004 it changed this to a positive opinion, subject to the outcome of the Review of Signficant Trade. In 2006 it reverted to a negative opinion for imports of *P. elata* from Congo. This was maintained until June 2009, when it changed this to no opinion, with the condition that all applications be referred to the group. In September 2009 the group agreed to one shipment of max. 800 m3 harvested in Congo 2007 and stocked in Cameroon and one shipment of 213 m3 harvested in 2009.

Congo began development of its Tropical Forest Action Plan (TFAP) in 1990. It was completed in 1997, included the following recommendations: to reformulate the Forestry Code in line with sustainable development; to conserve biological diversity; to integrate social and ecological data into management of the permanent and non-permanent forest estates; and to restructure the taxation system and the granting of Forest Management Units (FMUs) and other logging contracts. The TFAP was superseded by a National Forest Action Plan, which was heavily informed by the TFAP. These sector-specific documents fit within two broader plans: Congo's Triennial Development Plan and the Integration Plan (*Plan de Convergence*) of COMIFAC (*la Commission des Ministres responsables des Forêts d'Afrique Central*), a forum through which the Ministers responsible for forest management in Central Africa co-ordinate planning and decisions related to forest management in the region (Dickson *et al.*, 2005).

The Tropical and National Forest Action Plans served as references for the Forest Code (Law No. 16/2000) of 2000 as well as the Decrees for its implementation. The 2000 Code and policies resulting from it go beyond promoting to requiring strict sustainability norms. The Code and is implementation decrees are in line with ITTO Objective 2000, which targets sustainable management of forests to sustain production of timber and non-timber forest products, and to permit the forest sector to contribute more to comprehensive socio-economic development. In 2004 MFEE was also developing technical policies (*directives*), procedures, standards and related indicators for sustainable logging in Congo, and a model management plan for a FMU (Dickson *et al.*, 2005).

Under forest management regulations, successful bidders for forest concessions, including those containing *P. elata*, are given a 2-3 year grace period to install infrastructure and other management elements are allowed to extract limited quantities of timber in anticipation of a Maximum Allowable Volume permitted for every targeted species, including *P. elata.* Following the grace period, they have another 3 years to conduct detailed inventories and prepare their management plans (Dickson *et al.*, 2005). The MED for *Pericopsis elata* in Congo is set at 60 cm, the lowest in the region.

Dickson *et al.* (2005) noted that in 2004 taxes a FMU permit holder was obliged to pay for *P. elata* consisted of:

- a concession/FMU tax (an area-based annual tax paid regardless of trees felled);

- a stumpage fee calculated as a percent (3-10% variable) of the shipment's FOB value, which is set at a standard rate by regulation. In 2005 official FOB value of *P. elata* was 192,780 FCFA per cubic metre (Euro 293.89 per cubic metre) for grade A logs, the only grade cut and exported from northern Congo. This was the third highest FOB value of any species harvested and exported from Congo, after Wengué and Longhi blanc. For comparison sapelli's FOB value was 131,015 FCFA (Euro 199.73 per cubic metre), and Okoumé's 110,160 FCFA (Euro 167.94 per cubic metre); and

- an export tax of 0-10% of FOB value. This tax is levied so as to encourage in-country processing and value-addition and to discourage the export of logs.

Along with Cameroon and Democratic Republic of the Congo, Congo drafted an action plan for *Pericopsis elata* at the CITES-ITTO workshop in Limbé, Cameroon (29 Sept to 2 Oct 2010). Major recommendations were: i) provide assistance to local authorities in the Forest Management Unit (Unité Forestière d'Aménagement or UFA) of Tala Tala in North Congo in the preparation of non-detriment findings for Afrormosia; ii) provide training to the forestry administration and customs officials at different levels in the implementation of CITES (following the example of the Democratic Republic of the Congo).

Impact of the Review

The Review may have drawn attention to problems of implementation of CITES in the forestry sector in Congo. It is unclear what other impacts it may have had on management of the species in the country.

Democratic Republic of the Congo

Review Recommendations

The following recommendations made at PC14 applied:

> *The Management Authority should clarify to the CITES Secretariat how its Scientific Authority determines that levels of export of specimens of* Pericopsis elata *are not detrimental to the wild populations concerned, and are exported in accordance with Article IV of the Convention. The information to be provided could include information on: the national forest extent, protected areas, concession policies, species inventories, quotas, current areas of harvesting, information regarding*

minimum felling diameters and compliance and enforcement measures, efforts to minimize environmental impacts.

The Management Authority should collaborate with the Management Authority of other range States to share experiences in the implementation of Article IV, to exchange information on procedures in place and to take common steps to enhance the monitoring of trade of Pericopsis elata *from these countries*

In 2005 the Standing Committee at SC53 reviewed the implementation of the Recommendations and concluded that DRC had responded to the first of these but not the second. The Committee then agreed the following Recommendation:

The Democratic Republic of the Congo should before the end of 2005 commit to fully collaborate in the establishment of a regional management strategy for P. elata *and formally request the Secretariat to provide assistance in this regard.*

At SC54 the Secretariat reported that the Democratic Republic of the Congo had not responded to this recommendation but this might have been because as yet there had been no initiative to establish a regional management strategy.

Status, trade and management

The distribution area of *Pericopsis elata* is reported to be of the order of 34 million ha, straddling the Congo River in Province de l'Equateur and Province Orientale. Of the total distribution area, around one quarter had been inventoried (just over 8 million ha) has been inventoried (Dickson *et al.*, 2005). This inventory data dates from the period 1974-1991 and so it does not take account of the exploitation that has occurred subsequently. This later exploitation was probably concentrated in the period 1991-1997, before the civil conflict reduced the overall level of logging (Dickson *et al.* 2005). The inventory data indicated a stock of over 11 million cubic metres at an average density of 1.35 cubic metres per hectare within the inventoried area. There were a number of sources of uncertainty regarding this figure, but Dickson *et al.* (2005) thought it reasonable to assume that total stock at the time was over 10 million cubic metres. Local use was thought insignificant.

Dickson *et al.* (2005) noted that both government officials and industry representatives in DRC were unanimous in holding that *Pericopsis elata* was not seriously threatened and was not likely to become so, chiefly because of the existence of large stocks and the remoteness of the distribution area. Much *Pericopsis elata* occurs more than 2000 km away from the main exit port of Matadi. The road network is poor and all *Pericopsis* has to come down the Congo River to Kinshasa and then by rail to Matadi. The transportation costs are therefore high and provide a disincentive to exploitation.

All *Pericopsis elata* that is legally exported is transported down the Congo River to Kinshasa, and then by rail to the sea port of Matadi. In 2003 the figures from the Office Congolais de Contrôle indicate that around 26% of *Pericopsis elata* exports were in the form of parquet flooring, which is not covered by the CITES Appendix II listing (Dickson *et al.* 2005). Records in the CITES trade database show that DRC has exported substantial amounts of both roundwood and sawnwood since 1996, with the exception of the period 2001-2003 when virtually no exports were recorded. This was a period of civil war in DRC when much of the distribution area of *Pericopsis elata* was in rebel-controlled areas and there were virtually no logs being shipped downriver to Kinshasa. The first shipment after the peace agreement left Kisangani in April 2003 (Dickson *et al.,* 2005). At the time there was also a series of general recommendations from the Standing Committee that all trade with DRC be suspended, owing to problems with implementation of the Convention.

Export data indicate around 10000 m^3 of roundwood and around 5000 m^3 exported annually in 1996-1999, with a declining trend. Import data show a very different pattern, with only 400 m^3 of roundwood and some 7000 m^3 of sawnwood annually in the same period. Both import and export data indicate that exports increased markedly after 2005. Export data indicate an annual average of 13000 m^3 of roundwood and 3000 m^3 of sawnwood in the three years 2006-2009. Import data indicate 2300 m^3 of roundwood and 3700 m^3 of sawnwood.

The Democratic Republic of the Congo introduced a new forest code in 2002, replacing the former code which was largely a legacy from Colonial rule. Details of regulations are provided in Dickson *et al.* (2005). The Minimum Exploitable Diameter is set at 80cm by the Ministry of Forestry and Natual Resources (MECNEF). Logging companies are obliged to collect information on their production and to submit it to MECNEF. However, the Direction de la Gestion Forestière, within the Ministry, indicated that they do not

always do so and that, in any case DGF does not have the capacity to check the veracity of the information provided.

Along with Cameroon and Congo, the Democratic Republic of the Congo drafted an action plan for *Pericopsis elata* at the CITES-ITTO workshop in Limbé, Cameroon (29 Sept to 2 Oct 2010). Major recommendations were: i) promote sustainable management of *P. elata* in forest concessions (following the example of Cameroon and Congo); ii) develop non-detriment findings (following the example of Cameroon); iii) develop research activities to improve knowledge of the biology, ecology and timber charactersitics of *P. elata*; iv) develop methods to improve transparency in Afrormosia trade and put in place an effectivde oversight system for processing, transport and commercialisation of the species.

Both government officials and industry representatives have expressed considerable scepticism and incredulity about the listing of *Pericopsis elata* on Appendix II. The Director of the Minister's Cabinet expressed concerns about the listing decision and queried the motives of the Parties. The Management Authority expressed 'deep astonishment' at the listing and the FRCF stated that the decision was not based on reliable field data. FECBOIS said that the inclusion on Appendix II caused astonishment in the timber industry (Dickson *et al.*, 2005).

Impact of the Review

It is not clear what impact the Review may have had on management of *Pericopsis elata* in DRC, as the country's forestry sector has undergone considerable reform in the period in question. The Review has drawn attention to problems with the implementation of CITES in the forestry sector and set in train efforts to address these. The perception (shared in Cameroon and probably Congo) that the species is not threatened in the country, is adequately managed under non-CITES forestry regulations, and has not merited the attention focused on it by the Review, may have made some stakeholders in DRC look less favourably on the Convention as a mechanism for the sustainable management of commerically exploited timber species.

Range States not subject to recommendations

Côte d'Ivoire:

Pericopsis elata was included in a list of threatened species of Côte d'Ivoire published in 1988. The species is localized in the east (Abengourou), northeast (Bondoukou) and along the frontier with Ghana. Some isolated populations have been reported in the west (Guiglo) and in the Forêt Classée de Yapo in the south (PC14 Doc 9.2.2 (Annex 3), 2003). The species was included in a list of protected species given by Decree No.66-122, 31 March 1966, although it is unclear whether this legislation is still in force (PC14 Doc 9.2.2 (Annex 3), 2003). The CITES trade database records small amounts of exports from Côte d'Ivoire to Europe (25 m^3 in 2000 and 2001 and 14 m^3 in 2007).

Ghana

The Review of Significant Trade (2003) noted that in 1989 the species had been reported as effectively commercially exhausted in Ghana, having once been common in semi-deciduous forests there. There is a felling limit of 110 cm (DBH) for *Pericopsis elata.* A permit is required prior to harvesting of the species (PC14 Doc 9.2.2 (Annex 3), 2003). The export of logs of *Pericopsis elata* has been banned since 1979. Ghana introduced a general log export ban in 1995. There is an export levy of 30 percent on air-dried lumber exports for *Pericopsis elata* (PC14 Doc 9.2.2 (Annex 3), 2003). Importing countries have reported small quantities of exports from Ghana – ca 200 m^3 in the period 1998-2000 to Italy and 65 m^3 in 2010 to Germany. This trade was not reported in Ghana's annual reports.

Nigeria

The Review of Significant Trade (2003) noted that *P. elata* had been recorded as occurring mainly in the east of the country, notably in Cross River State,where it had been noted as locally abundant in the 1960s. 1994 inventory data for Cross River State gave an overall stocking density (including small trees with DBH > 10 cm) of around 0.3 trees per ha. High forests in the State covered around 730,000 ha but were being cleared at a high rate by farm encroachment. Forest depletion rates for Nigeria as a whole are around 3.5% per year. *Pericopsis elata* is subject to complete protection in Cross River State (the State with the largest remaining stocks of the species) (PC14 Doc 9.2.2 (Annex 3), 2003). The 1998 Timber Export Promotion Decree No. 1 prohibits the export of timber (whether processed or not) and wood in the rough form (PC14 Doc 9.2.2 (Annex 3), 2003). No trade in *P. elata* from Nigeria is recorded in the CITES trade database. It would appear that the Review has had no impact on the status, trade or management of the species in Côte d'Ivoire,

It would appear that the Review has had no impact on the status, trade or management of the species in any of these range States

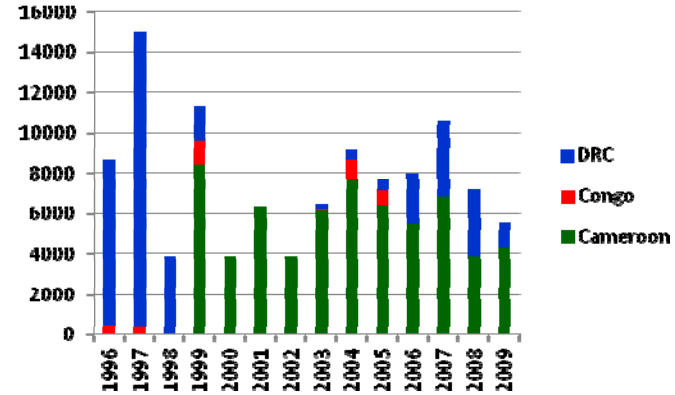
Overall Trade patterns and impacts of the review process

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. 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 the Congo also reported exporting reasonable quantities of roundwood until 1999. In the period 2000-2001 no exports were reported from the Democratic Republic of the Congo. From 2003 onwards the country has been by far the most important exporter of roundwood. Congo reported exporting reasonable 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 the Congo have grown consistently since 2005.

Actions undertaken as part of the review process 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 the 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.

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

i)



ii)

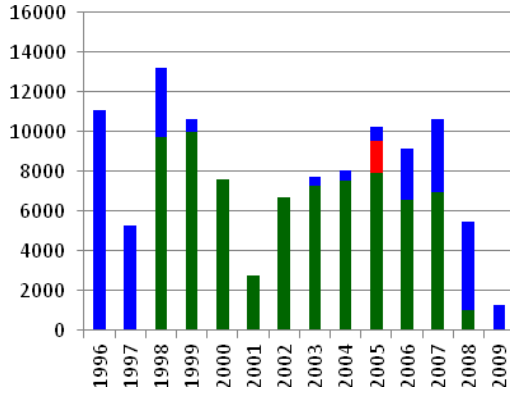
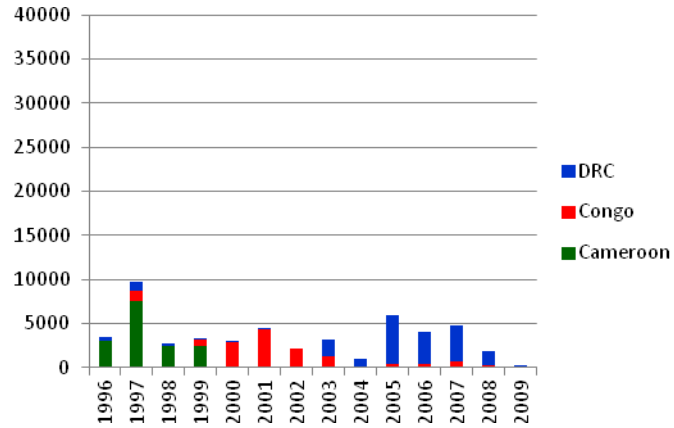
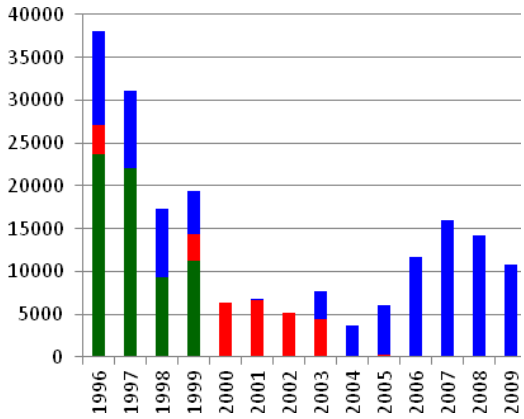


Figure: *Pericopsis elata* roundwood exports (cu m) reported by iii) importers and iv) exporters. (DRC = Democratic Republic of the Congo).

iii)



iv)



Market developments

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

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*.

Impact on other species

Afromosia is primarily exported as a hardwood timber, of which the most similar Appendix-II listed species are mahogany *Swietenia* spp. from the Americas and ramin *Gonostylus* spp. from south-east Asia. There are no similar African species listed in Appendix I or Appendix II. Export markets for tropical timbers are geographically organised so that in large part substitutions for non-specialised timbers (such as *P. elata*) are much more likely to be found locally, that is in West and Central Africa, than in other continents. Restriction of export of *P. elata* may in theory increase exploitation of other non-CITES listed timber species in producing countries; however, even in countries that have been important exporters of *P. elata,* customs and ITTO data indicate that the species has only ever comprised a very small proportion (2% or less) of total exports by volume, so that changes in export levels for this species may be expected to have a relatively minor effect on harvest and export of any one other species.

Conservation policies

Management of *Pericopsis elata* in exporting countries is under the forestry sector which in all cases is undergoing various reforms which are likely to largely 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.

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6. *Prunus africana*

***Prunus africana* - the African Cherry** is a tree found in montane forests in in sub-Saharan Africa and associated islands, exported as bark or bark products for medicinal purposes, almost exclusively the treatment, particularly in Europe, of benign prostatic hyperplasia, a urinogenital condition in men, chiefly afflicting those over 50 years of age.

Range States and overall status

Angola, Burundi, Cameroon, Democratic Republic of the Congo, Equatorial Guinea, Ethiopia, Kenya, Madagascar, Malawi, Mozambique, Nigeria, São Tomé and Principe, South Africa, Sudan, Swaziland, Uganda, United Republic of Tanzania, Zambia, Zimbabwe. *Prunus africana* was classified as Vulnerable in 1998 by IUCN, although this categorisation is currently noted as in need of updating.

Review of Significant Trade

The species was included in Appendix II in 1994. This listing was formerly annotated by #1 and is now annotated by #4, indicating that all parts and derivatives except for seeds, pollen and seedling and tissue culture obtained *in vitro* are covered by the listing. This includes products packaged and labelled for the retail trade. In 1997 the results of a study on trade in *Prunus africana* and the implementation of CITES (Cunningham *et al.* 1997) were presented as an information document at the 8th meeting of the Plants Committee (PC8), which discussed problems with the implementation of trade control mechanisms for the species. In 1999, PC9 supported the development of a project on *P. africana*, including mechanisms for determining quotas. In 2001, PC11 expressed concerns regarding trade volumes and harvest methods of *P. africana*. In 2002, PC12 selected *P. africana* for inclusion in the Review of Significant Trade; later the CoP12 explicitly called for a Review of Significant Trade in *P. africana* in Decision 12.74. In 2005 the Secretariat engaged a consultant to compile information on the biology and management of and trade in *P. africana* which was made available at PC15 (as document PC15 Doc 10.1.1 (Rev. 1), [7]). Because range States had not had a full opportunity to comment on the report, further progress with the Review was deferred to PC16.

At PC16 the Committee classified Burundi, Cameroon, Democratic Republic of the Congo, Equatorial Guinea, Kenya, Madagascar and United Republic of Tanzania as of 'Urgent concern' and formulated recommendations for each of these countries. The Committee also established an intersessional working group on *Prunus africana* with the task of providing guidance to the relevant range States on the implementation of the recommendations resulting from the Review of Significant Trade in this species, as well as of addressing general issues related to the management of and trade in the species. This is the first interessional working group established specifically to deal with significant trade in a species. The group organised an international workshop, held in Naivasha Kenya, in September 2008, attended by representatives of all countries subject to recommendations, as well as Togo, Uganda, France, Germany, Italy and Spain, and representatives of CIFOR, ICRAF, CITES, TRAFFIC and the private sector. The workshop was funded by France, Germany, Italy and Spain.

In Sept-Oct 2010 a workshop organised jointly by ITTO and CITES "to ensure that international trade in African tree species included in CITES Appendix II is compatible with their conservation" was held in Limbe, Cameroon. One half-day of the workshop (2 Oct) was devoted to *Prunus africana* (the remainder to *Pericopsis elata* (qv)).

Range States subject to Recommendations

Burundi

Review Recommendations

The following Recommendations apply:

Within 3 months (November 2006)

> *In consultation with the CITES Secretariat and the Chairman of the Plants Committee, establish a conservative quota for export of* P. africana *bark and other parts and derivatives exported.*

[7] CITES documents including summary records, working group reports and information documents have been cited with the meeting number and document number followed by the date. Most can be found on the CITES website. They are not included in the reference list.

Clarify reported exports of extract which are likely to be powder, and inform the Secretariat of any facilities to produce extract within the country.

Within 1 year (August 2007)

Carry out a preliminary inventory of standing stock, establish estimates of sustainable off-take, taking into account the need to conserve large seed-producing trees, and establish a scientific monitoring system of the harvested and unharvested P. africana *populations.*

Establish a revised conservative export quota based on the inventory of standing stock and the estimates of sustainable off-take.

Provide a timetable to carry out peer-reviewed ecological studies and appropriate population modelling of P. africana *in order to establish a long-term management plan for the sustainable use of this species.*

Within 2 years (August 2008)

The Management and Scientific Authorities should report to the Secretariat the final version of the long-term management plan and progress made against that plan.

Status, trade and management

Prunus africana occurs in montane forests of the Albertine Rift, where it is reportedly mainly confined to protected areas, although also occurs in vestiges of gallery forest outside these. No inventories have been carried out. Its timber is reportedly used to make furniture (CITES Secretariat, 2008 - Burundi country report). Export to Belgium and France of a total of 80 mt of bark was reported in CITES annual reports for the period 2000-2002. No exports have been recorded since 2002.

Burundi was classified as a range State of 'Urgent concern' for *Prunus africana* in 2006. In November 2006, the Management Authority of Burundi explained that the exports in 2000-2002 had in fact

originated in the Democratic Republic of the Congo. The Management Authority of Burundi has imposed a zero export quota to remain in place until inventories have been carried out (CITES Secretariat, 2008 - Burundi country report).

Impact of the Review

The zero export quota is evidently in response to the Review. However, as it appears that as no commercial harvest of the species for export had taken place in Burundi before the Review, it is not clear that there has been any significant impact on management of the species within the country.

Cameroon

Review Recommendations

The following Recommendations apply:

Within 3 months (November 2006)

In consultation with the CITES Secretariat and the Chairman of the Plants Committee, review their current export quota and establish a conservative reduced quota for export of P. africana *parts and derivatives.*

Clarify whether they have a working facility to process and export extract, in addition to bark and powder and inform the Secretariat of what parts and derivatives they plan to export (bark, powder, extract).

Within 1 year (August 2007)

To complement work already carried out on Mount Cameroon, in other areas subject to harvest, carry out a inventory of standing stock, establish estimates of sustainable off-take, taking into account the need to conserve large seed-producing trees, and establish a scientific monitoring system of the harvested and unharvested P. africana *populations.*

Establish a revised conservative export quota based on the inventory of standing stock and the estimates of sustainable off-take.

The MA of CM should collaborate with the MA of Nigeria to enhance the monitoring of trade in P. africana *between CM and Nigeria.*

Provide a timetable to carry out peer-reviewed ecological studies and appropriate population modelling of P. africana *in order to establish a long-term management plan for the sustainable use of this species.*

Within 2 years (August 2008)

The Management and Scientific Authorities should report to the Secretariat the final version of the long-term management plan and progress made against that plan.

Status, trade and management

Prunus africana occurs in six distinct highland areas in western and north-western Cameroon. Partial inventories have been carried out in several of these areas, with most attention focused on Mt Cameroon in the west. These have shown that in some areas populations can be relatively abundant, with around 12 stems per hectare, although such densities were relatively unusual. Although a number of different inventories have been carried at different times in some areas, notably Mt Cameroon, these have used different methods and cannot reliably be used to determine population trends. However, the inventories have demonstrated high mortality rates and atypical population structure (notably a dearth of mature trees) in heavily exploited areas. As well as wild populations there are considerable numbers of planted trees, on private lands and in community forest areas. A recent assessment estimated that over 1.6 million trees had been planted under various initiatives between 1977 and 2008, of which it was thought that over 500,000 were likely still to be alive (Betti, 2008, Ingram *et al.*, 2009).

There is a long and complex history of the commercial exploitation and management of *P. africana* in Cameroon, dating to the early 1970s. Details are provided in Betti (2008), Ingram *et al.* (2009) and Page (2003). In the early days, between 1972 and 1985 exploitation and processing was a monopoly of the company Plantecam and was reportedly well controlled. The monopoly on exploitation was revoked in 1985 and a number of other operators entered the market. Plantecam continued to be the sole processor in Cameroon. By the early 1990s the company was processing around 3000 mt annually compared with around 200 mt in 1980. Concern began to be expressed that the species was being overexploited, particularly on Mt Cameroon. In 1999 strict controls on harvest in the Mt Cameroon region were introduced and Plantecam's harvest quota was reduced from 1500 mt to300 mt. The processing plant run by Plantecam was closed in 2000. Since then all bark has been exported unprocessed, mainly to France but also Madagascar (Page, 2003).

According to CITES trade data, Cameroon has been by far the most important exporting country for *Prunus africana* , accounting for around half of all recorded trade in the period 1996-2009. Although there are some discrepancies, import and export data show a similar pattern, with relatively low levels (less than 200 mt annually) exported in the period 1996-1999 when Plantecam operated a processing plant in Cameroon. Levels remained low in the period 2000-2002 but then rose rapidly to a peak of over 1800 mt in 2005. No trade was recorded in 2008 either by importers or exporters. The country had annual export quotas of 2000 mt in 2005-2007, 1000 mt in 2008, zero in 2009, 150 mt in 2010 and 350 mt in 2011. The bulk of exports have been to Europe, particularly France.

Recent imports into the EU have been influenced by the decisions of the EU Scientific Review Group. In March 2005 the group gave a positive opinion on imports of *Prunus africana* from Cameroon. In February 2008 it gave a negative opinion, though noted that this was not to be formalised in the Suspensions Regulations. In December 2008 it reconfirmed this opinion and decided not to accept import of old stocks unless further information on origin and sustainable management of the harvested trees became available. In March 2009 it accepted import of 505 mt from Cameroon from old stocks from 2007 as an exceptional case after consideration of new data on legality and sustainability of the harvest of those stocks. In November 2009 it re-confirmed its negative opinion for Cameroon. In March 2011 it gave a positive opinion for Cameroon with a quota of 150000 kg for 2010 and 150000 kg for 2011, subject to clear indication in the export permit of the northwest region as origin.

Until recently harvest has in theory been controlled by an annual system of multiple permits, but these were not tied to harvest quotas, or harvest methods and applied to largely non-specific geographical areas. This made actual control of harvest difficult (Ingram *et al.* 2009).

In 2009 an action plan for *Prunus africana* was produced in Cameroon as part of a project undertaken by CIFOR in cooperation with FAO and GTZ , with funding from the EU to build capacity in small and medium-sized enterprises involved in the commercialisation of non-timber forest products in Central Africa (project GCP/RAF/408/EC). This plan has subsequently been adopted by the Cameroonian authorities to form the basis of management of *P. africana* in the country. Key elements of the plan are:

- The major landscapes of Cameroon containing *Prunus africana* are been agreed, defined and consolidated into Prunus Allocation Units, similar to timber concessions.
- Units can be leased, after an open bidding process, to a single exploiter in the long term, but solely for the exploitation of *P. africana*. They are zoned into a Permanent Forest domain, exploitable by enterprises or appropriate local community organisations or relevant Council, and Non-permanent Forest domain (communal, community or private forests), only exploitable by the governing community-based organisation, or forest management institution or owner respectively. With the exception of the currently proposed Mt Cameroon National Park, protected areas are excluded.
- Exploitable quantities of *P. africana* over a 10 year period in any single Prunus Allocation Unit are strictly related to the quantity determined by an inventory, approved the Cameroon CITES authorities, to be commissioned and paid for by the holder of the Unit. A regeneration obligation is part of the PAU.
- The national quota for commercial, large scale exploitation of any part of *P. africana* in any given year will consist of the total of the amount calculated as available in inventories and management plan for specific Prunus Allocation Units and the total of all registered planted *P. africana*.
- Planted *P. africana* (on private land or in plantations) is recognised as different from "wild" *P. africana*, (found in natural forest) and is only harvestable by the owner, upon registration of the trees. Exploitable quantities in any given year will depend upon data provided by the owners on the quantity available.
- All inventories will be conducted using a "*Prunus africana* Inventory norm" (to be clarified by law) with standard methods and equations for calculating harvestable yield quotas for PAUs in Permanent forests, communal or community forests and planted areas.
- Acceptable, sustainable harvesting techniques will be clarified– with monitoring and ongoing research used to verify sustainability. Techniques will differ according to whether Prunus is owned or wild. This will also be formalised and legally binding. The use of trained and certified harvesters ensures the techniques are implemented in practice.
- Controls and monitoring are strengthened to enable authorities to monitor from the forest edge, on transport routes and at ports. Traceability is enhanced by using regional level authorities.
- Coordination procedures and mechanisms between the Cameroon Management and Scientific Authorities have been clarified, and coordination between regional, central and port based agents of the Ministry of Forestry and Wildlife has been improved. Monitoring activities include any potential cross-border trade with Nigeria.

In addition, there is currently a joint CITES-ITTO project being undertaken with the relevant Scientific Authority in Cameroon (Agence National d'Appui au Développement Forestier or ANAFOR) to establish non-detriment findings in Cameroon, due to finish December 2011.

Impacts of the Review

The Review (and related actions of the EU Scientific Review Group) has clearly had considerable impact on approaches to management of *Prunus africana* in Cameroon. The detailed plan referred to above, now officially adopted, explicitly addresses the Review recommendations. The suspension of imports by the EU in 2008 is thought to have provided additional impetus in implementing the Recommendations. The attention focused on the species may also have helped to raise the profile of non-timber forest products more generally in the forestry sector in Cameroon (Ingram, *in litt.* to TRAFFIC, Nov. 2011). Implementation of the action plan will present challenges, in financing and in enforcement. It is too soon to determine whether it will have a detectable impact on the wild status of the species in Cameroon.

Democratic Republic of the Congo (DRC)

Review Recommendations

The following Recommendations apply:

Within 3 months (November 2006)

> *In consultation with the CITES Secretariat and the Chairman of the Plants Committee, establish a conservative quota for export of* P. africana *bark and other parts and derivatives exported.*
>
> *Clarify reported exports of extract which are likely to be powder, and inform the Secretariat of any facilities to produce extract within the country.*

Within 1 year (August 2007)

> *Carry out a preliminary inventory of standing stock, establish estimates of sustainable off-take, taking into account the need to conserve large seed-producing trees, and establish a scientific monitoring system of the harvested and unharvested* P. africana *populations.*
>
> *Establish a revised conservative export quota based on the inventory of standing stock and the estimates of sustainable off-take.*
>
> *Provide a timetable to carry out peer-reviewed ecological studies and appropriate population modelling of* P. africana *in order to establish a long-term management plan for the sustainable use of this species.*

Within 2 years (August 2008)

> *The Management and Scientific Authorities should report to the Secretariat the final version of the long-term management plan and progress made against that plan.*

At SC57 (July 2008) the Standing Committee decided that recommendations arising out of the Review had not been satisfactorily implemented, and therefore advised Parties in Notification No. 2009/003 (Feb 2009) not to accept exports of *Prunus africana* from the country until compliance with Article IV could be demonstrated. This suspension is still in place.

Status, trade and management

The species is reported to be relatively abundant in eastern and south-eastern parts of the country in suitable habitat, being found normally at altitudes of 1500-2750 m. In the east it is reported from North and South Kivu, Ruwenzori, Mt Virunga, the Itambwe Massif and Kahuzi-Biega national park. In the south east it is reported from the Kanaima region of Katanga. It is harvested in Kanaima and at various localities in North and South Kivu. In 1996 an estimate of around 0.5 trees per ha was made for some parts of eastern DRC. More recently, a company harvesting the species reported just over 700 exploitable trees in 41 km^2 in the Lubero and Walikale districts of North Kivu, giving a density of under 0.2 exploitable trees per ha. There is no overall inventory and there are no time-series data (CITES Secretariat, 2008 - Democratic Republic of the Congo country present).

Between 1995 and 2008 just under 2000 mt was recorded by importing countries as exported by DRC. The country itself reported the export of just over 3400 mt in that time. The discrepancy is likely to be because DRC's exports have been recorded on the basis of permits issued rather than actual quantities exported. DRC established annual export quotas from 2003 onwards, being 400 mt in 2003 and 1000 mt in 2004-2008. CITES trade data indicate that exports in this period were generally well below this.

There is no indication of active management or of regulations governing harvest. In 2008 the country reported it was seeking funding to carry out an inventory of the species, but evidently no progress has been made with this.

In July 2004 the EU Scientific Review Group gave a negative opinion on imports of *Prunus africana* from DRC. In December 2004 it changed its opinion to positive. In September 2008, in line with the recommendation from SC57, it changed its opinion to negative. This still holds.

Impacts of the Review

The Review has clearly had major impact on the export of *Prunus africana* from Democratic Republic of the Congo, in that export is currently suspended. However, there has evidently been little progress with the implementation of recommendations arising from the Review.

Equatorial Guinea

Review Recommendations

The following Recommendations apply:

Within 3 months (November 2006)

> *In consultation with the CITES Secretariat and the Chairman of the Plants Committee, establish a conservative quota for export of* P. africana *bark and other parts and derivatives exported. This quota should be based on results of studies conducted in the new harvesting areas.*
>
> *Clarify reported exports of extract which are likely to be powder, and inform the Secretariat of any facilities to produce extract within the country.*

Within 1 year (August 2007)

> *Carry out a preliminary inventory of standing stock, establish estimates of sustainable off-take, taking into account the need to conserve large seed-producing trees, and establish a scientific monitoring system of the harvested and unharvested* P. africana *populations.*
>
> *Establish a revised conservative export quota based on the inventory of standing stock and the estimates of sustainable off-take.*
>
> *Provide a timetable to carry out peer-reviewed ecological studies and appropriate population modelling of* P. africana *in order to establish a long-term management plan for the sustainable use of this species.*

Within 2 years (August 2008)

> *The Management and Scientific Authorities should report to the Secretariat the final version of the long-term management plan and progress made against that plan.*

At SC57 (July 2008) the Standing Committee decided that recommendations arising out of the Review had not been satisfactorily implemented, and therefore advised Parties in Notification No. 2009/003 (Feb 2009) not to accept exports of *Prunus africana* from the country until compliance with Article IV could be demonstrated. This suspension is still in place.

Status, trade and management

Prunus africana occurs on Bioko, where its potential distribution (mainly at altitudes of 1400-2500 m) covers just over 20,000 ha. Inventories carried out in 2004 found the species to be relatively abundant in forests at this altitude, with an average of around 7 stems per hectare, although with great variation between stands. There were no reliable historical data to compare these abundances with, although it was noted that one area (Monguibus or Moca) had been used for livestock early in the 20th century and that forest had now regenerated here in which *Prunus africana* was the dominant species. Stands in heavily exploited areas had few large trees (Clemente *et al.* 2006).

Bioko has been the site of two complementary studies undertaken in the 2000s, one funded by the CITES Scientific Authority of Spain, carried out by the University of Cordoba, Spain, on developing methods for making a non-detriment finding for *Prunus africana* (Clemente *et al.*, 2006) and one, carried out by a forester at the National University of Equatorial Guinea looking at harvesting of *Prunus africana* on Bioko and its environmental impacts (CITES Secretariat, 2008 - Equatorial Guinea country report).

Harvest statistics indicate that in the period 1995-2005 just under 1000 mt of bark was harvested for export, with virtually none harvested between 1999 and 2003. CITES import data do not show any imports from Equatorial Guinea before 1998, and show very few imports in 2001-2003. Total imports from Equatorial Guinea registered in the period 1995-2005 were around 1500 mt, notably higher than harvest figures

recorded in Equatorial Guinea and than export figures reported by the country (ca 670 mt). A further 200 mt was reported as imported in the period 2006-2008, none of which was reported by Equatorial Guinea.

During the period of commercial export, both harvest and export were theoretically under control, with official authorisation required, a minimum limit on the size of exploitable trees (20 cm DBH), a ban on collection in protected areas, an annual collection quota (up to 2005) of 500 mt and a certificate of origin required before export was authorised. It appears that enforcement and monitoring were generally lacking. Collection was carried out in a way designed to maximise the immediate rate of harvest and was not considered sustainable (workshop presentation) (CITES Secretariat, 2008 - Equatorial Guinea country report).

Some assessment of economic benefits was made. Collection and export was under the control of one operator. Harvesters were paid USD 0.15 per kg of bark harvested, along with an allowance of subsistence materials for time spent in the forest. Export charges amounted to USD 10 for a CITES certificate, USD 20 for a certificate of origin, commercial and export taxes amounting to 10% of the FOB value and a port commission of USD 1.7 per mt (CITES Secretariat, 2008 - Equatorial Guinea country report).

Clemente *et al.* (2006) estimated that a theoretical yield from Bioko, given no previous exploitation, might be in the region of 600-750 mt dry bark per year, based on return times of 8-10 years. Given the overexploited state of some stocks, they recommended a maximum annual quota of 197 mt of dry bark (for 2006) on an experimental basis.

In 2006 the Management Authority requested that exports be allowed on the basis of an annual quota of 197 mt. However, as noted above, at SC57 (July 2008) the Standing Committee decided that recommendations arising out of the Review had not been satisfactorily implemented, and therefore advised Parties not to accept exports of *Prunus africana* from Equatorial Guinea until compliance with Article IV could be demonstrated. This suspension is still in place.

In December 2004 the EU Scientific Review Group gave a positive opinion on imports of *Prunus africana* from Equatorial Guinea. In September 2008, in line with the recommendation from SC57, it changed its opinion to negative. This still holds.

Impacts of the Review

The Review has clearly had major impact on the export of *Prunus africana* from Equatorial Guinea, in that export is currently suspended. However, there has evidently been little progress with the implementation of recommendations arising from the Review.

Kenya

Review Recommendations

The following recommendations apply:

Within 3 months (November 2006)

> *The MA should report to the Secretariat the result of its actions to implement the provisions of Article IV, and how the SA determines that levels of export are not detrimental to the populations concerned.*
>
> *Clarify reported exports of extract which are likely to be powder, and inform the Secretariat of any facilities to produce extract within the country.*
>
> *Clarify whether wood or plywood of* P. africana *is or is likely to be exported from Kenya.*
>
> *In consultation with the CITES Secretariat and the Chairman of the Plants Committee, establish a conservative quota for export of* P. africana *bark and other parts and derivatives exported*

Within 1 year (August 2007)

> *Carry out an inventory of standing stock, establish estimates of sustainable offtake, taking into account the need to conserve large seed-producing trees, and establish a scientific monitoring system of the harvested and unharvested* P. africana *populations.*
>
> *Establish a revised conservative export quota based on the inventory of standing stock and the estimates of sustainable off-take.*

Provide a timetable to carry out peerreviewed ecological studies and appropriate population modelling of P. africana *in order to establish a long-term management plan for the sustainable use of this species.*

The Management and Scientific Authorities should report to the Secretariat the final version of the long term management plan and progress made against that plan

Status, trade and management

Prunus africana occurs in western and central Kenya at a range of altitudes, being known from forests on Mt Elgon, Mt Kenya , and Ol Donyo Sabuk, Kakamega, Mau and Nandi forests. The species has been planted on an experimental basis in Kenya, but the extent of such planting is small and all export is believed to have originated in wild stock. No inventory has been carried out. There is some local use. In the 1990s the species was reportedly harvested for plywood production, although this is thought unlikely still to be the case (CITES Secretariat, 2008 - Kenya country report).

Prunus africana has been exported from Kenya since the 1970s (Cunningham *et al.*, 1997). In the period 1995-2002 just over 2000 mt of bark were exported, all to France. In 2002, at the time when the species was first formally selected for inclusion in the Review, Kenya imposed a moratorium on exports. In 2003 export by the sole Kenyan exporter of accumulated stock of 100 mt was permitted. Since then no exports have been authorised.

Kenya was classified as a range State of 'Urgent concern' in 2006. At PC17 in 2007, the country was eliminated from the Review on the basis of the moratorium but the Standing Committee noted at SC57 (July 2008) that if Kenya wished to start exporting again it should provide information to the Secretariat on how the Review recommendations had been implemented. As reported at the 2008 workshop, Kenya has planned a long term management programme for sustainable use of the species, involving a full inventory, establishment of a monitoring system and undertaking of ecological studies and population modelling. However, funding has remained a major constraint (CITES Secretariat, 2008 - Kenya country report). As of 2011, the moratorium on exports remained in place.

Impacts of the Review

Kenya's moratorium on exports of *Prunus africana* dates from 2003, after the species had been selected for review, but well before the review had been conducted and recommendations formulated. However, it is likely that the review process influenced this decision. It has evidently played a part in further planning for sustainable management and harvest of the species in Kenya, although progress with implementation of a management plan has been relatively slow to date.

Madagascar

Review Recommendations

The following recommendations apply:

Within 3 months (November 2006)

Report to the Secretariat on the implementation of the National Action Plan for sustainable production of P. africana *and how this contributes to its Scientific Authority's determination that levels of export are not detrimental to the populations concerned.*

In consultation with the CITES Secretariat and the Chairman of the Plants Committee, establish a conservative quota for export of P. africana *bark and other parts and derivatives exported.*

Within 1 year (August 2007)

Update their inventory of standing stock, establish estimates of sustainable off-take, taking into account the need to conserve large seed-producing trees, and establish a scientific monitoring system of the harvested and unharvested P. africana *populations.*

Establish a revised conservative export quota based on the inventory of standing stock and the estimates of sustainable off-take.

The MA should report to the Secretariat the result of its actions to implement the provisions of Article IV, and the current means by which the SA determines that levels of export are not detrimental to the populations concerned.

Provide a timetable to carry out peer-reviewed ecological studies and appropriate population modelling of P. africana *in order to establish a long-term management plan for the sustainable use of this species.*

Within 2 years (August 2008)

The Management and Scientific Authorities should report to the Secretariat the final version of the long-term management plan and progress made against that plan.

Status, trade and management

The species is reported to be widespread but with a patchy distribution in montane forests between 1000 and 2000 m altitude. No large-scale inventories have been carried out.

Madagascar has processing facilities for the commercial production of extract of *Prunus africana* bark - with the closure of processing facilities in Cameroon in 2000, it is currently the only range with such facilities. As well as exporting bark for processing, chiefly in France, and bark extract, the country has imported significant quantities of bark from Cameroon and Democratic Republic of the Congo for processing (ca 750 mt in the period 1997-2007 according to Madagascar's annual reports and ca 1200 mt according to exporters). In the period 1996-2009, just over 22 mt of extract were reported as exported from Madagascar, with exporters' and importers'records in very close overall agreement[8]. In the same period, around 1000 mt of unprocessed bark was exported, again with exporters' and importer's records in very close agreement. No commercial export of bark has been reported since 2005.

In the past harvest has been undertaken on the basis of a collection permit, but without quotas, inventory data or specification of collection areas. Unlicensed or illegal harvest, including that in protected areas, was reportedly common (CITES Secretariat, 2008 - Madagascar country report). In 2002 at the time that the Country-based Review of Significant Trade in Madagascar was leading to the development of an Action Plan for the Reform of Madagascar's Wildlife Trade (see, for example, documents PC14 Doc. 9.2.1 and PC14 Inf. 12, 2004), a national committee for *Prunus africana* was established by Decree. In 2003 a national action plan for the species was finalised. Subsequently, in 2006, Madagascar established a moratorium on exports of bark. A plan was made in 2008 for a national inventory of the species but this has yet to be implemented. At that time two sites were chosen for an experimental harvest programme in the Sofia region of north-west Madagascar and management plans prepared for these sites, with harvest quotas for the years 2008, 2009 and 2010 of 52 mt, 53 mt and 35 mt respectively, amounting to 140 mt in total.

Madagascar subsequently submitted a request for an export quota of 140 mt for 2010 and reported at Limbe in Oct 2010 that they had calculated a sustainable export quota of 300 mt per year for 2011-2013. However, the Secretariat has communicated to Madagascar the view that the basis for this quota is not entirely clear and that outstanding issues with the recommendations arising from the Review remain to be resolved (Anon., 2010). Madagascar's export quota has remained at zero for 2010 and 2011.

In December 2004 the EU Scientific Review Group decided that all permit applications for import of *Prunus africana* from Madagascar should be referred to the Group. In March 2005 it gave a positive opinion on imports from Madagascar. In February 2008 in decided that all permit applications for imports from Madagascar should be referred to the Group. In May 2008 it noted that it had approved import of two shipments from Madagascar with origin Cameroon.

Impacts of the Review

The Review of *Prunus africana*, in concert with the Country-based Review of Significant Trade, has clearly had considerable impact on the approach to management and harvest of the species in Madagascar. However, at the time of writing (end of 2011) there are evidently considered to be some outstanding issues to be resolved so that export in accordance with Article IV of the Convention has yet to be resumed.

United Republic of Tanzania

Review Recommendations

[8] The CITES trade database records that in 1997 Madagascar reported the export of '51176.5' kg of extract to France. This seems clearly in error, probably through duplication of the digit 1. France in that year reported import from Madagascar of ca 4000 kg.

The following recommendations apply:

Within 3 months (November 2006)

> *In consultation with the CITES Secretariat and the Chairman of the Plants Committee, establish a conservative quota for export of* P. africana *bark and other parts and derivatives exported.*
>
> *Clarify reported exports of extract which are likely to be powder, and inform the Secretariat of any facilities to produce extract within the country.*

Within 1 year (August 2007)

> *Carry out a preliminary inventory of standing stock, establish estimates of sustainable off-take, taking into account the need to conserve large seed-producing trees, and establish a scientific monitoring system of the harvested and unharvested* P. africana *populations.*
>
> *Establish a revised conservative export quota based on the inventory of standing stock and the estimates of sustainable off-take.*
>
> *Provide a timetable to carry out peer-reviewed ecological studies and appropriate population modelling of* P. africana *in order to establish a long-term management plan for the sustainable use of this species.*

Within 2 years (August 2008)

> *The Management and Scientific Authorities should report to the Secretariat the final version of the long-term management plan and progress made against that plan.*

At SC57 (July 2008) the Standing Committee decided that recommendations arising out of the Review had not been satisfactorily implemented, and therefore advised Parties in Notification No. 2009/003 (Feb 2009) not to accept exports of *Prunus africana* from the country until compliance with Article IV could be demonstrated. This suspension is still in place.

Status, trade and management

The species is reported to occur in Kilimanjaro, Pare, East and West Usambaras, Nguru, Uluguru and Udzungwa Mts, Mufindi and Mahenge escarpments (CITES Secretariat, 2008 - United Republic of Tanzania country report). No inventory has been carried out.

Around 150 mt of bark has been recorded in CITES annual reports as exported since 1998, the great majority of this (ca 130 mt) from 2004-2008. The increase in exports in 2004 is likely to be a result of the cessation of exports from Kenya in 2003 (itself a response to the Review process). Very little of this export has been recorded in Tanzania's annual reports.

There appears to be little active management. Harvesting procedures laid down by the Ministry of Natural Resources and Tourism state that bark should only be taken from trees more than 40 years old (CITES Secretariat, 2008 - United Republic of Tanzania country report), although it is not clear to what extent this is complied with. The United Republic of Tanzania reported in 2008 that some companies had been issued collection licences for 2006/2007 and had stockpiled bark for export in 2008, but that no subsquent licences had been issued.

The United Republic of Tanzania was classified as a range State of 'Urgent Concern' in 2006. At SC57 (July 2008) the Standing Committee decided that recommendations arising out of the Review had not been satisfactorily implemented, and therefore advised Parties in Notification No. 2009/003 (Feb 2009) not to accept exports of *Prunus africana* from the country until compliance with Article IV could be demonstrated. This suspension is still in place.

In December 2004, the EU Scientific Review Group gave a positive opinion on imports of *Prunus africana* from the United Republic of Tanzania. In February 2008 it changed its opinion to negative. In December 2008 it further decided not to accept import of old stocks from Tanzania unless further information on origin and sustainable management of the harvested trees became available.

Impacts of the Review

The Review has clearly had major impact on the export of *Prunus africana* from the United Republic of Tanzania, in that export is currently suspended. However, there has evidently been little progress with the implementation of recommendations arising from the Review.

Range States from which notable international trade has taken place and that have not featured in the RST process

Uganda Reported from south-west Uganda, particularly Kalinzu, Bwindi, Mgahinga and Mt. Elgon, and in the Imatong mountains on the border with South Sudan. Reported to be healthy populations in Bwindi-Impenetrable National Park and Kalinzu Forest Reserve and assessed as not threatened in the 2006 review of significant trade.

Substantial exports to France have been reported since 2006, with considerably larger quantities reported by France than by Uganda in annual reports. (France recorded 8000 kg powder in 2006 and a total of 216 mt of bark in the period 2007-2009; Uganda records exports of 86.4 mt for 2007-2009).

Uganda was represented at the 2008 Naivasha workshop, but not at the October 2010 ITTO-CITES workshop on *Pericopsis elata* and *Prunus africana* held in Limbe, Cameroon. In the Africa regional report to PC19 (April 2011), Uganda signalled its intention to start a project on sustainable use of *P. africana*. It has posted quotas of 75893 kg for 2009 and 2010 and 176179 kg for 2011.

In December 2004 the EU Scientific Review Group decided that all permit applications for import of *Prunus africana* from Uganda should be referred to the Group. In December 2005 it reaffirmed this, pending further information from Uganda. In December 2008 it gave a positive opinion for Uganda based on based on an export quota to be set by Uganda of 75.9 mt and agreed to the import of one specific shipment then under consideration. In June 2009 it gave a positive opinion for Uganda, subject to quota publication on the CITES website (confirmed in September with the publication of a quota of 75.9 mt).

Of the remaining **range States**, no export at all has been recorded from Angola, Ethiopia, Lesotho, Nigeria, São Tomé and Principe, Sudan, Swaziland or Zambia. A very small amount of trade has been reported from Malawi, South Africa and Zimambwe, with only that from South Africa recorded as for commercial purposes. It is evident that the Review has had no direct impact on status or management of the species in these countries. However, with ongoing restrictions on exports from a number of range States that have historically exported significant quantities, it is likely that importers are or will be seeking new sources of supply (see below).

Trade patterns and impacts of the review process on these

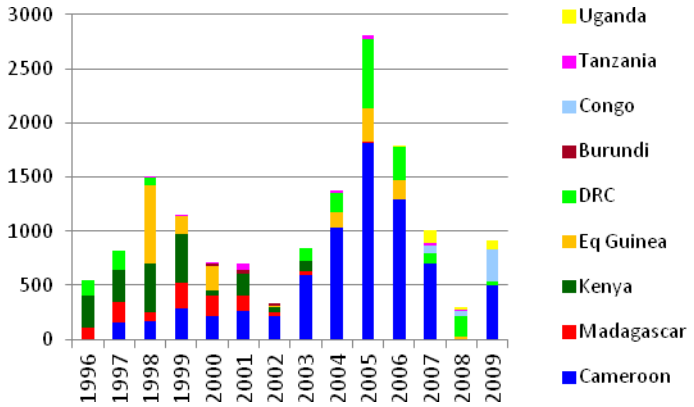
Global trade in bark has shown two distinct peaks since 1996 - in the late 1990s and again in the mid 2000s with a major peak in 2005 (according to importers' records), followed by a decline to 2008, with volumes increasing again in 2009. Over this period there have been shifts in supply. Kenya was a 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 the 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 the Congo to process for re-export.

Many of the changes in the past five years have undoubtedly been heavily influenced by the review process, along with the actions of the EU Scientific Review Group (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 Scientific Review Group (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. This appears to have taken place already in eastern Africa, with export from United Republic of Tanzania beginning just as export from Kenya ceased, and export from Uganda beginning as export from United Republic of Tanzania (and several other countries) ceased.

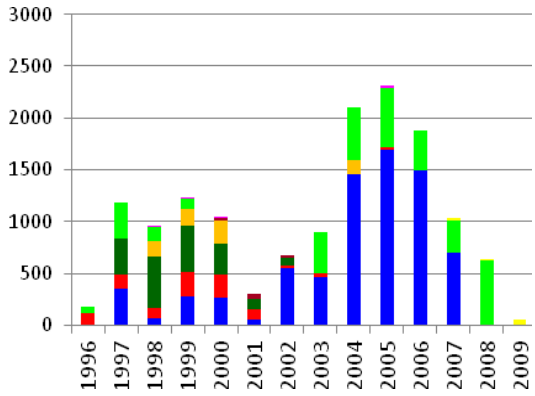
Standing Committee recommendations to suspend imports from Democratic Republic of the Congo, Equatorial Guinea and United Republic of Tanzania from 3 February 2009 are currently in force.

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

a)



b)



Market developments and other species

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

There are no known substitutes amongst CITES-listed species. Other botanicals used to treat the same condition are extracts of fruits of saw palmetto *Serenoa repens,* of rye *Secale cereale* and of the bulbs of African stargrass *Hypoxis hemerocallidea* (syn. *H. rooperi*). A recent Cochrane review (metastudy) of saw palmetto found no significant difference between it and placebo in alleviating symptoms associated with benign prostatic hyperplasia, or in improving urine flow rates among those suffering from the condition (Tacklind *et al*, 2010). Preliminary reviews of the other three species indicate that *Prunus africana* and *H. hemerocallidea* both produced improvement in symptoms and flow rates compared to placebo, while *Secale cereale* produced improvement in symptoms but not flow rates compared to placebo. However, none of these species (including *P. africana*) has been subject to evaluation of similar quality to that carried out for saw palmetto (Dedhia and McVary, 2008).

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.

Much of the work carried out to date on *Prunus africana* has 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.

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