

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



Fifteenth meeting of the Conference of the Parties  
Doha (Qatar), 13-25 March 2010

Interpretation and implementation of the Convention

Species trade and conservation issues

TORTOISES AND FRESHWATER TURTLES

1. This document has been prepared by the Secretariat.
2. At its 11th meeting (CoP11, Gigiri, 2000), the Conference of the Parties adopted Resolution Conf. 11.9 on the *Conservation of and trade in tortoises and freshwater turtles*, and amended it at its 12th and 13th meetings (CoP12, Santiago, 2002; CoP13, Bangkok, 2004).
3. In paragraph m) of Resolution Conf. 11.9 (Rev. CoP13), the Conference of the Parties urges *range States of tortoises and freshwater turtles that authorize trade in these species to include in their periodic reporting under Article VIII, paragraph 7 (b), of the Convention information on progress in implementing this Resolution.*
4. At its 14th meeting (CoP14, The Hague, 2007), the Conference of the Parties adopted the following Decisions:

***Directed to Parties***

14.126 *Parties should liaise with the World Customs Organization to promote the establishment and use of specific headings within the standard tariff classifications of the Harmonized System for tortoises and freshwater turtles and for products thereof.*

***Directed to the Secretariat***

14.127 *The Secretariat shall submit a written summary of the information on the implementation of Resolution Conf. 11.9 (Rev. CoP13) that is contained in biennial reports from Parties for consideration at the 15th meeting of the Conference of the Parties (CoP15).*

14.128 *The Secretariat shall, subject to external funding, contract the Tortoise and Freshwater Turtle Specialist Group of the IUCN Species Survival Commission to undertake a study which would assist in the implementation of Resolution Conf. 11.9 (Rev. CoP13).*

***Directed to the Animals Committee***

14.129 *The Animals Committee shall review the study and make recommendations at CoP15.*

Regarding Decision 14.126

5. The Conference of the Parties has previously called for WCO to create specific headings for certain CITES-listed taxa in the standard tariff classifications of the Harmonized System. Those requests that were channelled through the CITES Secretariat have not been implemented to date. This might be because WCO normally deals with the Customs authorities of its member countries on these matters, and not with CITES authorities. The Secretariat reported at CoP14 (see document CoP14 Doc. 57) that the process for

creating new codes within the standard tariff classifications of the Harmonized System takes about seven years from the time of proposal to its coming into effect.

#### Regarding Decision 14.127

6. For reasons of efficiency, the Secretariat incorporated the report, mentioned in Decision 14.127 within the Memorandum of Understanding (MoU) between the Secretariat and the IUCN Species Survival Commission, Tortoise and Freshwater Turtle Specialist Group (IUCN-TFTSG) mentioned in Decision 14.128. Under the terms of reference of the MoU for this work, the Secretariat requested IUCN-TFTSG to examine and analyse details from biennial reports on progress in the implementation of Resolution Conf. 11.9 (Rev. CoP13) from the range States (see paragraph 8 below). At the time of writing (October 2009), biennial reports were available for 14 out of 25 Asian Parties with native tortoises or freshwater turtles for the years 2003-2004, and 12 out of 26 for the years 2005-2006. The relevant information from these reports is included under paragraphs a) to l) of the preliminary report on progress on conservation of and trade in CITES-listed tortoises and freshwater turtles in Asia in Annex 2 of this document.
7. Owing to the main focus of the IUCN-TFTSG study on East and tropical South East and South Asian range States, the Secretariat, after consultation with the IUCN-TFTSG, examined the remaining biennial reports from Iraq, Israel, Jordan, Lebanon, Saudi Arabia, the Syrian Arab Republic, Turkey and the United Arab Emirates. Apart from several turtle confiscations by the United Arab Emirates and one brief mention by Jordan (no details given), the Secretariat found no other items concerning tortoises and freshwater turtles, and no mention anywhere of measures to implement Resolution Conf. 11.9 (Rev. CoP13). A number of these range States reported progress in upgrading general CITES legislation or hosting CITES meetings. Since these activities were not reported in the biennial reports with regard to tortoises and freshwater turtles, the Secretariat did not consider them as specific activities under Resolution Conf. 11.9 (Rev. CoP13) but of a more general CITES implementation nature.

#### Regarding Decision 14.128

8. In order to assist in the implementation of Resolution Conf. 11.9 (Rev. CoP13), the Secretariat requested the IUCN-TFTSG to prepare a study on conservation of and trade in CITES-listed tortoises and freshwater turtles in Asia. The main objectives of the study are to give an overview of turtle species traded in Asia focusing on changes in the trade since CoP11, and to examine the origin of specimens in trade, production systems and trade trends. The Secretariat asked the IUCN-TFTSG to review the existence and effectiveness of the national management strategies and regional action plans and to review existing non-detriment finding methodology and the effects of the Review of Significant Trade on trade trends. The Secretariat also requested the IUCN-TFTSG to identify problems and make recommendations to address these and other actions outlined in Resolution Conf. 11.9 (Rev. CoP13) specific to Asian tortoises and freshwater turtles.
9. Following the raising of adequate funding and finalization of the MoU between the Secretariat and IUCN-TFTSG, the latter started its work in May 2009. The Secretariat takes this opportunity to thank the Government of the United States of America for providing funds for this study.

#### Regarding Decision 14.129

10. On 1 September 2009, IUCN-TFTSG submitted the draft of the preliminary study on conservation of and trade in CITES-listed tortoises and freshwater turtles in Asia to the Chair of the Animals Committee. This was an advance draft that needed verification and additional input. After consultation with the Animals Committee members and the Secretariat, the Chair of the Animals Committee concluded that it would be impossible for the Animals Committee to review the study and make recommendations in time for the CoP15 document submission deadline of 14 October 2009.
11. The Chair of the Animals Committee and the Secretariat agreed that, in order to give the Animals Committee adequate time to consider the findings of the study, it would be more appropriate to postpone consideration of this study until its final version was available to the Animals Committee. The Chair of the Animals Committee and the Secretariat agreed that the final study should be submitted as an information document for the present meeting.

## Recommendations

12. The Secretariat recommends that Parties assess the need to maintain the reporting obligations specified in Resolution Conf. 11.9 (Rev. CoP13). If necessary, Parties may wish to re-evaluate how and in what detail the range States of Asian tortoises and freshwater turtles report progress towards implementation of Resolution Conf. 11.9 (Rev. CoP13).
13. The Secretariat recommends that the Parties consider the preliminary report on progress on conservation of and trade in CITES-listed tortoises and freshwater turtles in Asia in Annex 2 to this document.
14. The Secretariat recommends that if the Conference does not come to a conclusion on this matter at the present meeting, the Conference of the Parties adopt the draft decision contained in Annex 1 of this document.

DRAFT DECISION OF THE CONFERENCE OF THE PARTIES

**Directed to the Animals Committee**

- 15.xx The Animals Committee shall review the study from the IUCN Species Survival Commission, Tortoise and Freshwater Turtle Specialist Group (IUCN-TFTSG) mentioned in Decision 14.128 and make recommendations at CoP16.

**Implementation of Decision 14.128**  
**A study of progress on conservation of and trade in CITES-listed**  
**tortoises and freshwater turtles in Asia**

This preliminary report has been submitted by the IUCN/SSC Tortoise & Freshwater Turtle Specialist Group.\*

## **Background**

Worldwide some 313 species of tortoises and freshwater turtles inhabit tropical, subtropical and some temperate regions, of which about 90 inhabit Asia (Fritz & Havas, 2007). The IUCN Red List records 128 non-marine turtle species as threatened, placing tortoises and freshwater turtles among the most threatened groups of vertebrates.

Tortoises and freshwater turtles have been an integral part of CITES from its very beginning: about 50 tortoise and freshwater turtle species were listed in the Appendices in 1975, all tortoises were included in Appendix II in 1977, and additional species were added over time, accelerating by 2000. Currently, 139 tortoise and freshwater turtle species are included in Appendices I (20 species), II (89) and III (30). Through listing proposals, inclusion in the Review of Significant Trade, and other developments, tortoises and freshwater turtles have become increasingly significant within CITES, and formulation and implementation of appropriate trade regulation has demanded significant resources from Party authorities, the Secretariat and others. Annexes 3 and 4 provide overviews of developments concerning tortoises and freshwater turtles in CITES.

Decision 14.128, directed to the Secretariat, states that:

*The Secretariat shall, subject to external funding, contract the Tortoise and Freshwater Turtle Specialist Group of the IUCN Species Survival Commission to undertake a study which would assist in the implementation of Resolution Conf. 11.9 (Rev. CoP13).*

Funding was sought and obtained by the Secretariat from the United States of America, but due to administrative delays the study was only initiated in May 2009. As a result of the very short time available, this report must be considered provisional, with more detailed reporting to be completed after the submission deadline for documents for CoP15, and the final report to be presented to the Conference of the Parties as an Information Document.

## **Study objectives and methods**

CITES Resolution Conf. 11.9 (Rev. CoP13) urges Parties trading in tortoises and freshwater turtles to enact and implement a suite of measures. The present study uses available CITES documentation and other sources of information to review Parties' progress implementing these measures, and draws on a wider body of literature and documentation to evaluate the wider context of Asian turtle trade, identify shortcomings and obstacles to effective management of turtle trade, and recommend priority actions to address these.

The geographical scope of the present study was initially focused on all Parties in the Asian region with native tortoise or freshwater turtle species, and Asian Parties exporting tortoises or freshwater turtles. Limited analysis could be carried out in the available time with regard to Parties reporting significant tortoise or freshwater turtle exports to Asian Parties; the final document will look in more detail at the impacts of turtle exports from other regions to Asia, particularly from North America and Madagascar. The study was limited to data relevant to turtle trade in the 12-year window from 1997 to the present.

Trade data for CITES-listed species were obtained from the trade database maintained by UNEP-WCMC, with additions from CoP13 Doc.33 (Conservation of and trade in tortoises and freshwater turtles). Data on exports of turtles from the United States of America were obtained from the LEMIS database maintained by USFWS.

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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.*

Available CITES Biennial Reports from Asian Parties were reviewed for information on management, trade and enforcement actions concerning tortoises and freshwater turtles.

Scientific names of tortoises and freshwater turtles follow the *Checklist of Chelonians of the World* (Fritz & Havas, 2007), the CITES Standard Reference for turtles.

## Results

The following is a preliminary summary of actions and progress referable to the various specific recommendations urged by Resolution Conf. 11.9 (Rev. CoP13), listed according to the various lettered subsections of that Resolution.

*a) all Parties, especially range States and exporting and importing States of Asian tortoises and freshwater turtles, to enhance and increase enforcement efforts with regard to existing legislation as a matter of urgency.*

A substantial number of enforcement cases were reported by Parties involving tortoises and freshwater turtles. Confiscations and other enforcement actions have taken place in nearly every Asian country where turtles are traded, concerned offences ranging from exceeding permitted quantities to repeat smuggling of Appendix I species, and involved from single animals to over 9000 turtles per case. Yet despite these efforts, market surveys and other trade observations continue to document widespread illegal trade in tortoises and freshwater turtles in Asia, particularly the illegal export of live turtles from Myanmar for the consumption trade, as part of the high-end pet trade throughout the region, and the trade in turtle shells and bones to East Asia (Nijman & Shepherd, 2007; Chen *et al.*, 2009; Gong *et al.*, 2009)

*b) all Parties, especially range States and exporting and importing States of Asian tortoise and freshwater turtles, to enhance cooperation amongst wildlife-law enforcement agencies at national and international levels concerning control of trade in tortoises and freshwater turtles, and between enforcement agencies and national CITES authorities.*

International cooperation between CITES Authorities was reported in the context of collaboration to improve information exchange, permit verification and enforcement coordination, as well as consultation with the country of origin on the disposal of confiscated specimens including collaboration to repatriate animals where appropriate. These cooperative actions occur at many levels, from formal missions to personal communications by phone, fax, email and at meetings, and are part of the normal activities of CITES authorities. It appears that trade concerning Asian tortoises and freshwater turtles is widely recognized as one of the main wildlife trade challenges in Asia that is addressed as an integrated part of systematic implementation of CITES, including recent initiatives such as the ASEAN Wildlife Enforcement Network (CoP13 Doc.33).

*c) all Parties, especially range States of Asian tortoises and freshwater turtles, to assess current efforts to manage native tortoise and freshwater turtle populations, and to improve those efforts as necessary, e.g. by establishing quotas that take into consideration the particular biology of tortoises and freshwater turtles.*

China suspended the commercial export of tortoises and freshwater turtles (except for two widely farmed species) in June 2000, and placed restrictions on turtle imports in June 2001. In July 2002 China imposed an import ban on turtles less than 10 cm carapace length, and in 2003 it restricted trade in turtles to the import and export of live and butchered specimens of *Pelodiscus sinensis*, *Trachemys scripta elegans*, and *Macrochelys temminckii*. In conjunction with CoP13, China placed all native freshwater turtle species that were not already included in Appendices I or II on Appendix III, effective 17 February 2005, and withdrew the Appendix III listing for *Pelodiscus sinensis* effective 23 June 2005. (CoP13 Doc.33).

Several Parties maintained, established and/or adjusted harvest and export quotas for tortoise and freshwater turtle species during the period 1997-2009; these are summarized in Annex 5.

The Management Authority of Peninsular Malaysia reported in early 2004 its plans to suspend trade in wild-collected tortoises and freshwater turtles later in 2004 (CoP13 Doc.33: 6). Peninsular Malaysia communicated zero quotas for wild-collected freshwater turtles to the Secretariat in 2007, and imposed zero quotas for live freshwater turtles for 2008 and 2009. This change closed the possibility of exporting live captive-bred freshwater turtles from 2008 onwards, and theoretically opened the possibility of export of parts and derivatives from wild-collected turtles. However, the latter trade is considered not significant, and no permits for such trade had been issued to date (Loo Kean Seong, Law and Enforcement Division, Department of Wildlife and National Parks, in litt, 10 Sept. 2009).

In their biennial reports, Asian Parties did not specify details on management efforts concerning collection and trade management. Reports on tortoise and freshwater turtle management efforts concerned conservation programs for tortoise and freshwater turtle species that are considered threatened in their survival and legally protected from commercial exploitation. These include *Batagur baska* in Cambodia and in Malaysia, *Geochelone platynota* and *Kachuga trivittata* in Myanmar, and *Chitra chitra* in Thailand. Detailed studies of the biology, status and exploitation of *Cuora amboinensis* in Indonesia and Malaysia have been conducted as foundation for Non-Detriment Findings (NDF) required under CITES Article IV, and were reported at the CITES NDF workshop (AC24 Doc. 9; Schoppe, 2008a, 2008b).

The challenges in formulating NDFs for tortoises and freshwater turtles, at the trade volumes reported for many of these species, is indicated by the fact that 12 species have been or remain subject to the Review of Significant Trade (RST) (see Annex 4), indicating concern about whether or not the authorized trade levels are sustainable and not detrimental, and concern regarding the scientific basis for the findings and issuance of export permits. During the RST process, national populations of several of these species in several Parties were excluded from the Review as these Parties' trade levels were not considered cause for concern. However, as the Review progressed for species from other Parties whose trade levels continued to give cause for concern, little substantive justification for these trade volumes has emerged. Consequently, Parties have either found themselves referred to the Standing Committee for further measures, or succeeded in being removed from the RST process by simply declaring a voluntary ban on further exports, or declaring a very substantial reduction in permitted trade levels without providing substantive data that past or current trade levels were based on scientific data that indicated a sustainable level of offtake. The scientific basis for approval of commercial high volume export remains very weak for most turtle species.

*d) all Parties to develop and implement research programmes to identify the species involved in trade, to monitor and assess the impact of trade on wild populations, and to evaluate the conservation risks and benefits of large-scale commercial breeding of tortoises and freshwater turtles.*

Extensive research has taken place in China on the scale of commercial turtle farming, the species involved in farming including which species have successfully produced F2 and F3 generations in captivity as well as the species which do not or barely reproduce in captivity, and the impact of turtle aquaculture on wild populations of turtles (ESIEMO PR China, 2002b; Shi *et al.* 2007, Zhou *et al.*, 2005, 2008).

A number of Parties, listed below, reported supporting other aspects of research and conservation of tortoise and freshwater turtle populations.

**Indonesia** initiated a program for the conservation of the Roti snake-necked turtle (*Chelodina mccordi*, App.II) by releasing 50 captive-bred animals of commercial origin into native habitat.

**Malaysia (Peninsular)** continues its *Batagur baska* conservation program in Perak, established in 1968, by continuing to incubate wild-collected eggs, and eggs from captive adults, and rearing juveniles for one or more years before releasing them to their native river in order to supplement the remaining wild population, and at two other facilities established in 1981 in Kedah and Terengganu, as well as maintaining a long-term partnership with local NGO and University partners to conserve *Batagur* and *Callagur* in their natural habitat in Terengganu and Melaka [CoP13 Doc. 33 p. 6].

**Myanmar** reported a reintroduction project of Myanmar Star Tortoises, *Geochelone platynota*, at Minzontaung Wildlife Sanctuary in the country's central dry zone. It also carried out a survey of the Myanmar Roofed Turtle (*Kachuga trivittata*) in collaboration with WCS and captive breeding of the species at Yadanabon Zoo, Mandalay. (Myanmar, biennial report 2003-2004).

In **Thailand**, the SA continued to support a breeding program for the Striped Giant Softshell Turtle, *Chitra chitra* (Thailand, biennial reports 2003-2004, 2005-2006).

*e) all Parties whose national legislation is not sufficient to control effectively the unsustainable harvest of and trade in tortoises and freshwater turtles to enact legislation to protect and manage these species appropriately.*

The Council of Ministers of **Cambodia** on 27 July 2009 approved a subdecree entitled "Endangered Fisheries Production". Prepared by the Fishery Administration, Ministry of Agriculture, the subdecree declares almost all native species of freshwater turtles as endangered, consequently prohibiting their capture and trade. The Cambodian Forest Administration had earlier added *Manouria impressa* to the list of protected wildlife species.

**Singapore** enacted the revised Endangered Species (Import and Export) Act in March 2006. The Act empowers the Agri-food and Veterinary Authority to issue permits for import, export, re-export and introduction from the sea, for any CITES species included in the Schedules. The Schedules list all species in CITES Appendices I, II and III by name, including all CITES-listed turtles.

**Viet Nam** issued Decree 32/2006/ND-CP, dated 30 March 2006, on Management of Endangered, Precious, and rare Species of Wild Plants and Animals, which replaced Decree 48 of 2002. Decree 32/2006/ND-CP added *Manouria impressa*, *Mauremys annamensis* and *Platysternon megacephalum* to Category IIB, but excluded *Pelochelys bibroni*, which is thus no longer protected despite its previous inclusion in Category I of Decree 48/2002. Viet Nam also adopted Decree No. 159/2007/ND-CP setting out penalties for forest and wildlife crimes.

No other Parties reported enacting legislation that specifically covers conservation and management of tortoises and freshwater turtles; **Peninsular Malaysia** reported in its 2003-2004 and 2005-2006 biennial reports that it is in the process of revising its legislation concerning CITES, including jurisdiction over turtle conservation and trade.

*f) all Parties, especially in the Asian region, to increase public awareness of the threats posed to tortoises and freshwater turtles from unsustainable harvest and unregulated trade, to encourage non-governmental organizations to develop, produce and distribute posters and other educational and informative materials on this subject, and to facilitate, where necessary, the compilation, dissemination and translation into local languages of information on tortoises and freshwater turtles for their use by enforcement officers, drawing on existing identification and enforcement guides, and focusing on identification, local names, distribution and illustrations.*

**China** produced a turtle and tortoise poster as part of a 2005-2006 series of six public awareness posters focusing on priority species groups in CITES trade, published in both Chinese and Vietnamese (China, biennial report 2005-2006). China had already produced an *Identification Manual for Common Turtles and Tortoises*, in Chinese and English-language versions, in March 2002 (ESIEMO PR China, 2002a). This was recently followed by the *Identification Manual for Traded Turtles in China* in December 2008 (Shi *et al.*, 2008)

**Hong Kong SAR** produced a leaflet 'Protect Endangered Freshwater Turtles' in 2004 (Hong Kong SAR biennial report 2003-2004).

**Indonesia** conducted a local workshop on CITES implementation and conservation of the Roti Island Snake-necked Turtle (*Chelodina mccordi*) in Roti Island, East Nusa Tenggara Province, 12-13 December 2005. The workshop was conducted by the CITES MA of Indonesia and TRAFFIC SE Asia. (Indonesia, biennial report 2005-2006).

TRAFFIC and Singapore Zoo published *An Identification Guide to the Tortoises and Freshwater Turtles of Brunei Darussalam, Indonesia, Malaysia, Papua New Guinea, Philippines, Singapore and Timor Leste* in December 2007 (Auliya, 2007). A comprehensive pictorial guide to Asian turtles was commercially published by Chimaira Verlag in 2006 (Vetter & van Dijk, 2006)

Chelonian Research Foundation and the IUCN Tortoise and Freshwater Turtle Specialist Group have begun publication of a series of detailed species accounts reviewing biology and conservation of tortoises and freshwater turtles, including detailed status and life history data where available; these accounts would provide essential biological information to be used when making a non-detriment finding (NDF). The published accounts are accessible by following the links at [www.iucn-tftsg.org/cbftt/](http://www.iucn-tftsg.org/cbftt/).

The IUCN Red List of threatened species is updating the assessments for tortoise and freshwater turtle species on an ongoing basis, and recently revised accounts contain a summary of status and conservation data, including generation times and other information that is relevant when making NDFs. Turtle species data can be accessed by searching for a specific species at [www.iucnredlist.org](http://www.iucnredlist.org)

*g) all Parties to explore ways to enhance the participation of collectors, traders, exporters, importers and consumers in the conservation of and sustainable trade in tortoises and freshwater turtle species.*

It appears that no such enhanced participation has been reported by Parties.

*h) all Parties, especially in the Asian region, to collaborate on all aspects of conservation and management of, trade in, and implementation of the Convention for, tortoises and freshwater turtles, taking into consideration the*



*recommendations formulated at the technical workshop on Conservation of and trade in tortoises and freshwater turtles held in Kunming, China, 25-28 March 2002.*

Activities by Parties under other sections of Resolution Conf. 11.9 (Rev. CoP13) may also address the recommendations from the technical workshop.

*i) all Parties, particularly those in the Asian region, to develop plans of action, in compliance with Resolution Conf. 10.7, that can be executed without delay in the event that live specimens of tortoises and freshwater turtles are confiscated.*

Details of contingency plans to deal with confiscated tortoises and freshwater turtles that are in place in China, Hong Kong SAR and Japan were summarized in document CoP13 Doc. 33. No other parties have reported details of such plans of action that they may have developed.

A list of rescue facilities has been compiled by the Species Survival Network (SSN) and, as notified in Notification to the Parties No. 2009/009, is available online at [www.ssn.org/cites\\_rescue\\_intro\\_EN.htm](http://www.ssn.org/cites_rescue_intro_EN.htm).

**Myanmar** hosted a workshop on placement of confiscated tortoises and freshwater turtles in Mandalay in January 2009, whose results included detailed protocols to evaluate animals' suitability for inclusion in assurance colonies or return to native habitat, selection of suitable release sites and habitat, and upgrading and establishment of facilities to temporarily house and process confiscated animals.

*j) range States of tortoises and freshwater turtles to develop management strategies concerning CITES-listed tortoises and freshwater turtles, including regional action plans for the conservation of Asian tortoises and freshwater turtles, in collaboration with the Secretariat, industry representatives, interested governmental and non-governmental organizations and other stakeholders as appropriate.*

It appears that no such comprehensive management strategies have yet been established. A South and Southeast Asian regional Action Plan for the conservation of large riverine turtles of the genera *Batagur*, *Callagur* and *Kachuga* is currently taking shape through the efforts of the Turtle Survival Alliance, San Diego Zoological Society, Universiti Terengganu Malaysia, Wildlife Conservation Society, IUCN-TFTSG, and other participants.

*k) all Parties to ensure that all shipments of live tortoises and freshwater turtles are transported in compliance with relevant IATA guidelines.*

No specific reports are available of Parties which have encountered challenges in this respect. However, as evidenced by the conditions in which animals are found during confiscations, inadequate shipping of live tortoises and freshwater turtles and non-compliance with IATA guidelines remain serious concerns.

*l) all Parties to facilitate the development of partnerships between interested nongovernmental organizations or other bodies to develop and operate rescue centres for seized or confiscated tortoises and freshwater turtles, in cooperation with range States and relevant government agencies.*

Efforts in this respect were described under paragraph i), above.

*m) range States of tortoises and freshwater turtles that authorize trade in these species to include in their periodic reporting under Article VIII, paragraph 7 (b), information on progress in implementing this Resolution;*

Following CoP12, a specific reporting format was developed and circulated by the Secretariat. Reports were received by the Secretariat only from the Management Authorities of China, Hong Kong SAR, Japan and Malaysia, and the information contained in these country reports was summarized by the Secretariat and presented in CoP13 Doc. 33. No further country reports were received by the Secretariat after the deadline for submission of documents for CoP13. At CoP13, Parties voiced that the additional reporting burden involved was undesirable, and it was agreed that further reporting of progress on implementation of Res. Conf. 11.9 should be part of regular biennial reports.

Review of available biennial reports shows that activities concerning tortoises and freshwater turtles have been absorbed into regular CITES implementation and reporting activities, with specific actions concerning tortoises and freshwater turtles being reported in a minority of biennial reports. The available information is included in the preceding results under paragraphs a) to l). Comparison of the biennial reports and the information contained in the four specific turtle reports (as summarized in CoP13 Doc.33) demonstrates the great utility of

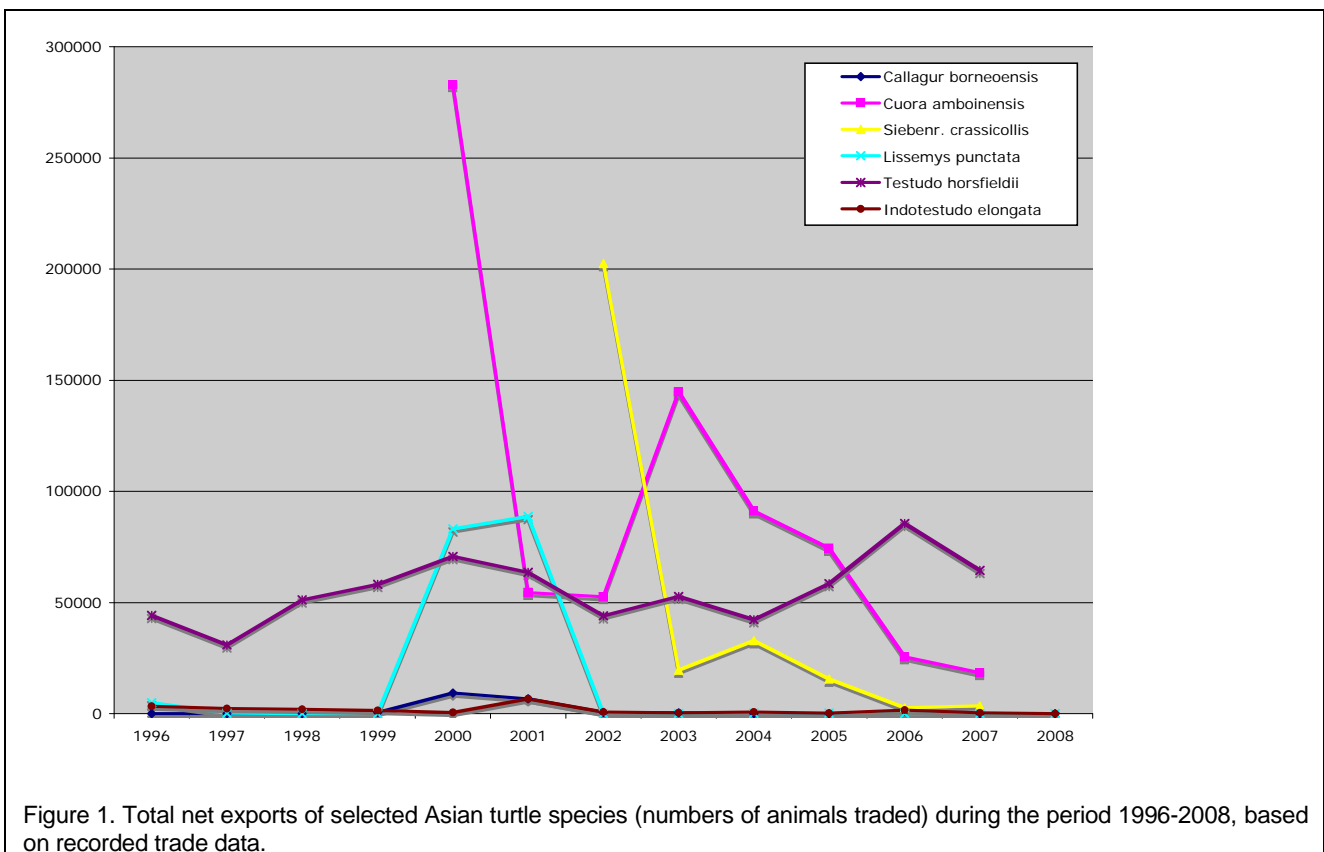
the original specific reporting format on progress in turtle conservation and management, which remain some of the best sources of information on actions taken by Asian CITES Authorities for tortoises and freshwater turtles.

It must be pointed out, however, that at the time of writing, 6 weeks before the deadline for submission of documents for CoP15, biennial reports were available for only 14 of 25 Asian Parties with native tortoises and/or freshwater turtles for the years 2003-2004, and only 12 of 26 for the years 2005-2006. As such, information contained in biennial reports represents valuable historical data but is available too late to be of significant assistance to evaluate this dynamic trade.

## Discussion

### Trends in trade volumes

Trade volumes of selected Asian tortoise and freshwater turtle species are graphed in Figures 1 and 2, displaying net exports (in number of individuals) per species for all countries and from all sources combined. Species were selected if reported annual trade exceeded 800 individuals in at least 2 separate years. Numbers of traded animals of all source codes (W, C, R and U) were combined, because the only Asian turtle species understood to be produced in closed-cycle farming without significant effect on wild populations are *Mauremys reevesii* and *Pelodiscus sinensis* (ESIEMO PR China, 2002b; Shi *et al.*, 2004; Zhou *et al.*, 2008). Declared trade in parts and derivatives is reported and included only for a *Mauremys reevesii*; published average weight of a turtle plastron (Chen *et al.*, 2009) was used to calculate the number of turtles involved in trade of plastron shipments recorded by weight, at a ratio of 1 kg equals 10 turtles. Trade in weight-declared quantities of live animals only occurred for *Lissemys punctata*; these were conservatively converted as 1 kg weight equals 1 live turtle.



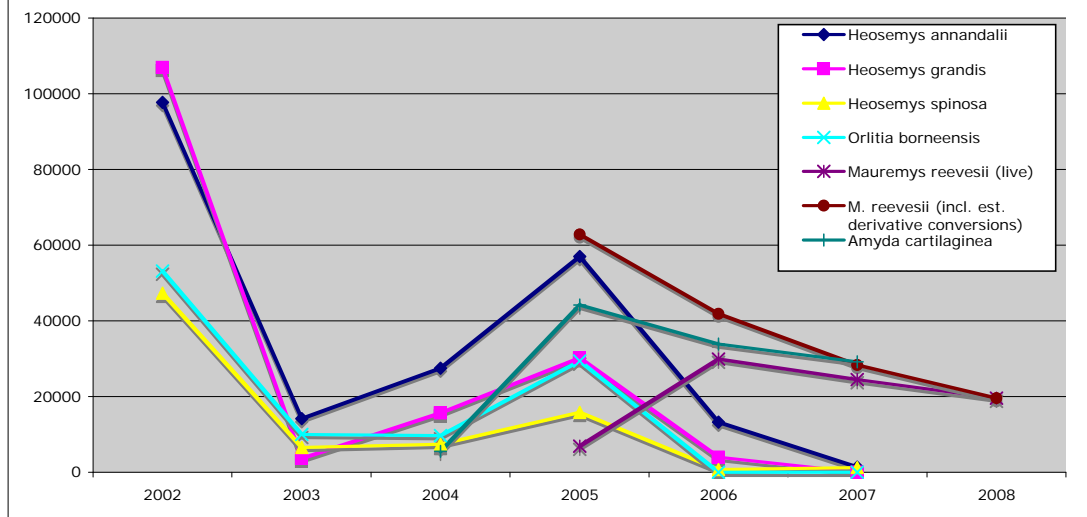


Figure 2. Total net exports of selected Asian turtle species (numbers of animals traded) during the period 2002-2008, based on recorded trade data.

There are obvious challenges when analyzing trends in declared turtle trade volumes. One is the fairly short data series available, five or six years for many species, as a result of their relatively recent inclusion in the CITES Appendices and the time taken by Parties to compile and submit their annual report data. These data sets are further constrained by the likelihood of a lag time between the inclusion of a species in the Appendices and the complete collection and submission of trade volume data for that species by all trading parties (probably resulting in an under-reporting of total trade volume in the first year after inclusion), as well as the slow compilation and submission of trade data (so that most recent total trade volumes do not include data from all Parties). Available trade data are not detailed enough to separate turtle trade reliably into the different market segments, specifically pet trade, consumption trade, and trade for medicinal usage; thus, supplementary data (including market survey and pet trade information from importing Parties) are brought into consideration when interpreting trade patterns. Finally, there remain concerns about the quality and completeness of overall trade data with regard to accurate identification of animals, the trade in parts and derivatives, and illegal and unreported trade.

Despite data constraints, a number of general trends are evident, particularly in the species for which 8-year or longer data sets are available (tortoises, *Lissemys*, *Callagur*, *Cuora*). Four distinct trade patterns emerge:

1. A clear pulse of increasing, then declining trade volume is evident for *Callagur* in the period 1999-2003, coinciding with a similar but more extreme pulse in exports of *Lissemys punctata* during 2000-2001. This pattern is also shown to some degree by *Indotestudo elongata*.

2. Some tortoise and freshwater turtle species show high trade volumes that have continued at about the same order of magnitude throughout the years within the study period for which trade data were available. This is shown by *Amyda cartilaginea*, listed in Appendix II in 2004 and the most voluminously traded CITES-listed Asian freshwater turtle by 2007, and *Mauremys reevesii*, an Appendix III species since 2004 which is extensively farmed and used for parts and derivatives. Trade levels of *Testudo horsfieldii* (App.II) exported from Central Asia to the global pet trade and occasionally into the food trade have remained steadily high.

3. Other tortoise and freshwater turtle species have shown trade volumes that started high at the time of their inclusion in Appendix II, but have declined steadily in subsequent years. This pattern is clearly shown by *Siebenrockiella crassicolis* and the three *Heosemys* species. *Cuora amboinensis* was traded at around 300,000 animals annually at the time of inclusion in 2000, and its high trade volumes have gradually and irregularly declined by an order of magnitude,

4. Some species have shown steady trade at modest levels of a few 100 to less than 1000 animals annually. This is predominantly shown by tortoises (*Indotestudo*, *Manouria*) exported into the global pet trade.

High volume trade, here considered as annual net export of over 5000 animals or over 10 tons per year, is understood to represent trade driven primarily by demand for consumption, with the known exception of *Testudo horsfieldii* which is exported mainly for the pet trade. In the case of *Callagur* and *Indotestudo elongata*, the available data seem to have captured a full cycle of rapidly increasing, demand-driven exploitation, followed

by an equally rapid decline in large-volume trade, with trade subsequently trailing off to relatively low numbers which probably represent continuing pet trade. Many other species seem to have been included in the Appendices at or after the peak pulse in their trade [in fact, the trade pulse was the primary rationale for inclusion of these species], and CITES trade records capture only the second, declining part of their trade pulse.

The key questions are, what leads to the substantial decline in reported trade volume for many freshwater turtle species, and why do some species not show this trend? Declining trade volumes have been suggested to reflect the local depletion of wild turtle populations, so that a steady supply of wild-collected turtles of a particular species is no longer available and the species disappears from high-volume trade. It has been demonstrated that such 'boom and bust' cycles of overexploitation have occurred widely concerning freshwater turtles, from *Malaclemys terrapin* in the USA in the 1920s (Carr, 1952: 168) to *Leucocephalon yuwonoi* (IUCN TFTSG & ATTWG, 2000) in Indonesia in the 1990s and *Callagur* in Indonesia and Malaysia a few years later. By this rationale, the steady trade volumes of (other) widespread species may not represent a long-term sustainable offtake across a wide area inhabited by these species, but has been interpreted as a series of overlapping pulses of overexploitation of different populations of the same species (van Dijk *et al.*, 2000), creating an overall steady trade volume as these different populations are sequentially exploited. From a trade perspective, it may be more economically advantageous to develop new source areas and exploit large standing populations, rather than to continue to exploit established areas through established trade channels, when declining populations result in reduced catch per unit effort. As such, sequential trade focus may coincidentally avoid total extirpation of local populations as they shift to new source areas to supply turtles at unit market prices that make further collection and shipment of animals from already depleted remnant populations economically unrewarding. This is rarely a conscious, conservation-inspired decision by collectors and traders, and instead an unintended (but welcome) consequence of economic realities.

Support for the concept of sequential exploitation of new species and geographic source areas is indicated when combining net export data for Southeast Asian turtles (which is understood to reflect predominantly trade from Southeast to East Asian countries) with net exports of turtles from the United States to Asia. Figure 3 documents successive increases of trade volumes of Snapping Turtle (*Chelydra serpentina*), Florida Softshell (*Apalone ferox*) and Spiny Softshell Turtle (*Apalone spinifera*) as trade volumes for wild-collected *Cuora amboinensis* and other Asian hardshelled turtles (*Heosemys*, *Orlitia*, *Siebenrockiella*) and softshells (*Amyda*, *Lissemys*) progressively decline, in a context of overall increasing turtle trade volume in Asia. The majority of exports of *Chelydra* and *Apalone* had declared source codes C, R or F, indicating that the animals came from some sort of managed production system; it is not unreasonable to accept that these animals were juveniles destined for rearing by the Chinese aquaculture industry.

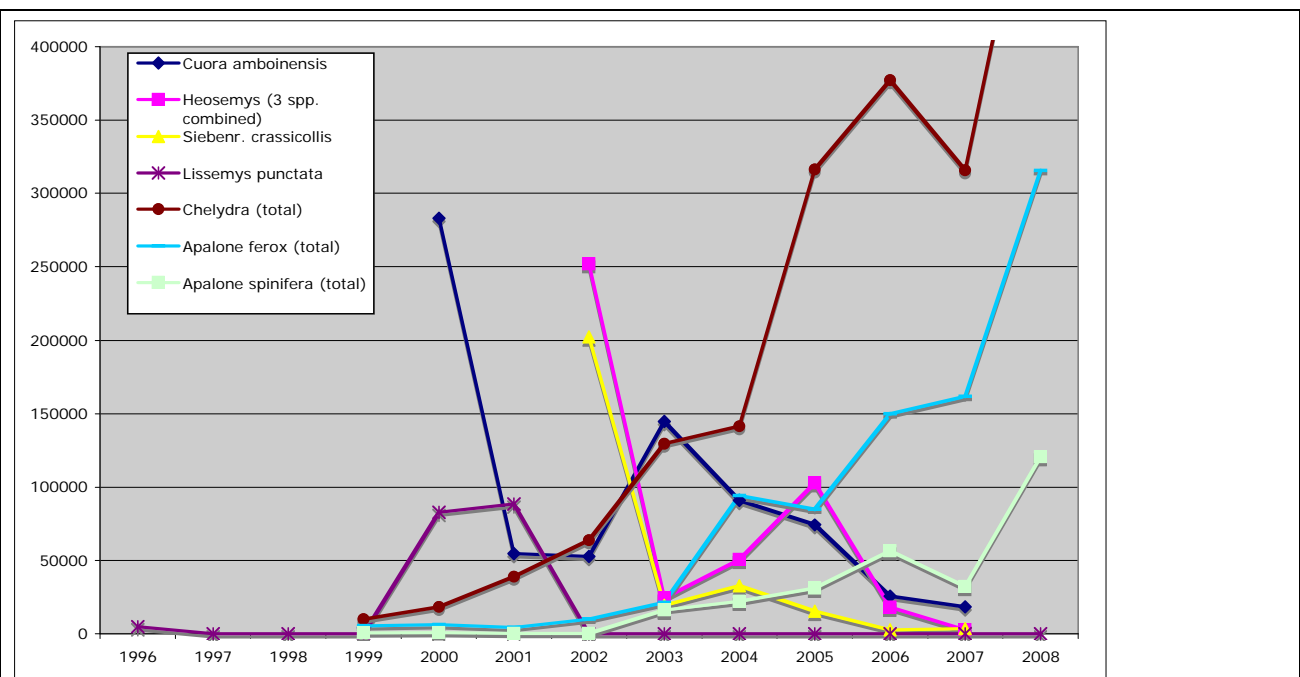


Figure 3. Total net exports of selected Asian turtle species and USA species exported to Asia during the period 1999-2008 (numbers of animals traded), based on reported trade data. USA exports are charted as animals with declared source code W [wild], R [ranch], F [farmed] and C [captive] combined.

An alternative explanation could be that declining trade volumes of Asian turtles do not reflect declining populations, but are a result of increased regulation and enforcement. By inclusion in CITES, a species may transfer in status under domestic legislation from an unregulated to a regulated resource, and with regulation comes restriction on quantities that may be exploited and exported. Malaysia specifically reported that the establishment of administrative quotas led to significant declines in levels of authorized trade (CoP13 Doc.33: 5). The particular challenges of making non-detriment findings for tortoises and freshwater turtles, in some cases reinforced by findings of the Review of Significant Trade process, has led a number of Parties to take precautionary actions, including setting reduced or zero quotas.

Presently available data do not have enough resolution to demonstrate the validity of one interpretation over another, and indeed, what applies to one species or area may not apply in different circumstances. Analysis is further complicated by the fact that not all Asian turtle-exporting countries work with a quota system, but instead make case-by-case determinations, and by the great differences that exist in enforcement efforts between countries and between years. It will require scientifically robust long-term data sets from the locations where offtake from wild populations occurs, combined with population monitoring of exploited and non-exploited populations. The Reptile and Amphibian Working Group at the CITES NDF Workshop called for MAs to collect and evaluate such data, as only a thorough understanding of what populations are exploited at what intensity, combined with long-term monitoring of the effects of exploitation, can differentiate between high trade volumes representing possibly sustainable offtake from a large and stable wild population, and high trade volumes representing sequential depletion of different wild populations.

### **Turtle life history & annual survivorship rates**

Factors threatening tortoise and freshwater turtle populations and species include habitat loss and degradation, specific exploitation for food, pets/ornamentals and medicine, and impacts from invasive or subsidized native species. Correspondingly, a few turtle species [*Pelodiscus sinensis*, *Trachemys scripta*, and arguably *Mauremys reevesii*] have been produced in large quantities in controlled environments and have been widely traded, with some establishing extralimital populations and in some cases representing an invasive species threat themselves.

Turtles evolved not only a unique body design, with a bony shell providing effective protection against many natural predators, but also a remarkable life history strategy characterized by slow growth and late maturity (usually on the order of 10-15 years), longevity (typically living for several decades) and successful reproduction throughout life without senility, relatively modest annual reproductive output (one to over 100 eggs per mature female per year, depending on species), very low survivorship of eggs and juveniles, but increasingly high average annual survivorship of subadults and adults. In short, the key to turtle life history is to reach maturity and live for a long time to put a modest number of eggs into the ground each year, so that over a lifetime enough eggs are produced to ensure that a few will successfully hatch and survive to adulthood.

As a result of their specialized body plan and life history strategy, turtle populations can and do sustain their greatest natural losses in the egg and early juvenile stages, but experience very low natural adult mortality. Few natural generation times are known for tortoise and freshwater turtle species, but available estimates and calculations include about 10-12 years for *Deirochelys reticularia* (Buhlmann et al., 2008), at least 25 years for *Chelydra serpentina* (Steyermark et al., 2008), about 25-30 years for *Clemmys guttata* (Litzgus, 2006) and 36-47 years for *Emydoidea blandingii* (Congdon et al., 2000).

Targeted exploitation of adult turtles for human consumption and trade, therefore, introduces a novel factor in turtle population dynamics and significantly reduces a population's reproductive output over time and associated recruitment; once depleted, a turtle population recovers very slowly, typically requiring several decades to recover, if it recovers at all. At least seven turtle species have gone extinct in historical times, all from islands in the Indian Ocean, as well as two additional subspecies from the Galapagos Islands and one subspecies from northern Mexico. Targeted exploitation by humans was the primary cause for all but two of these ten extinctions, with its impact on depleted populations further leveraged by the impacts from introduced predators, habitat degradation and destruction, and natural disasters. This clearly demonstrates that sustainable exploitation of adult tortoises from the wild, at least, is fraught with difficulty and the result of anything but the most precautionary offtake levels may lead to extinction of populations and species. This is reinforced by the fact that of 28 turtle species listed as Critically Endangered in the IUCN Red List, targeted exploitation by humans has been a driving or major contributing factor for 18 of these species.

### **Harvest management and Non-detriment Findings (NDFs) for tortoise and freshwater turtle species**

As noted in earlier reviews (CoP13 Doc.33, page 8), dedicated management of collection and trade of wild-collected tortoises and freshwater turtles appears nearly non-existent in Asia. Where management is attempted

it generally takes the form of allocating provincial and/or national harvest and export quotas, whose level tends to be set initially to reflect previous trade volumes, and is subsequently adjusted based on realized export volumes or pressure from commercial or conservation interests. Proper management protocols should be based on a knowledge of approximate population size and density, an understanding of population dynamics to estimate annual recruitment rates and mortality rates from natural causes and subsistence exploitation, as well as the dynamics of habitat loss, habitat restoration and habitat creation across the landscape, and calculating levels of possible offtake for commercial trade, in a context of monitoring actual trade levels and population stability. Such management protocols do not appear to exist for any Asian tortoise or freshwater turtle population or species.

Experience with trade management efforts for a tortoise and a freshwater turtle species greatly informed the Reptile and Amphibian working group at the recent CITES Non-Detriment Finding (NDF) workshop in Mexico (AC24 Doc.9; [http://www.conabio.gob.mx/institucion/cooperacion\\_internacional/TallerNDF/taller\\_ndf.html](http://www.conabio.gob.mx/institucion/cooperacion_internacional/TallerNDF/taller_ndf.html)). The working group recognized that turtles are subject to a wide variety of production and utilization systems and practices, and considered that the NDF process needs to be practical and also have various degrees of rigour as appropriate. Details of the factors that should or could be considered when making an NDF for tortoise or freshwater turtle trade, and a suggested decision tree comprising a provisional risk assessment followed by a rigorous analysis of available data, are presented in AC24 Doc. 9.1 Annex 3.

The only Asian turtle species for which a detailed analysis of status and trade impacts has been made and published is *Cuora amboinensis* in Indonesia and Malaysia (Schoppe, 2008a & b, 2009a & b). Results of this analysis highlighted the scarcity of comprehensive status and trade data across the species' exploited geographical range, and documented steep localized boom and bust cycles where such data were locally available. Concern about trade in this and 11 other species has led to their inclusion in the Review of Significant Trade, from which Parties were generally only released when they pragmatically reduced or eliminated their export quotas, rather than providing substantive documentation that authorized trade levels were based on sustainable offtake. Clearly, substantial improvements are needed in the data incorporated into NDFs, the process of making and recording NDFs, and the implementation of management measures by many Parties trading tortoises and freshwater turtles.

Further analysis of management of tortoise and freshwater turtle offtake and making non-detriment findings will be forthcoming as this study progresses.

## **Enforcement issues**

Illegal trade in Asian tortoises and freshwater turtles remains at significant levels. This includes trade volumes exceeding authorized trade levels in particular species, turtle exports from Parties which have closed collection and trade of some or all native turtle species, imports of turtle species which are protected in their country of origin, and trade in imported specimens of species whose local populations are protected under domestic native species legislation.

Schoppe (2009a) documented continuing, and therefore illegal, exports of *Cuora amboinensis* (App.II) from Peninsular Malaysia after the country imposed a zero export quota in 2005, destined mainly for the food trade to China and Hong Kong, with a smaller percentage exported to Singapore. The total illegal export trade of this species was conservatively estimated as exceeding 20,000 adult animals in 2008. A parallel study of the species in Indonesia (Schoppe, 2009b) estimated illegal undeclared exports from Indonesia to comprise 10 to 100 times the legal volume of 18,000 live animals.

Market and farm surveys in East Asia continue to document ongoing trade in protected turtle species, including trade in a variety of Appendix I species (Cheung & Dudgeon, 2006), and trade in species that are strictly protected from commercial exploitation and trade under national legislation in their entire range of occurrence, or at least protected in the country where the animals are traded (Goh & O'Riordan, 2007).

Of particular concern is the recent pulse in illegal trade of Indian Star Tortoises (*Geochelone elegans*, App. II) for the pet trade, typically smuggled in shipments of several hundred juveniles from South India to Southeast Asia and beyond. Numerous such shipments have been confiscated in India, where the species is protected from commercial trade, and in some of the destination countries, but the ease at which the animals are observed in local public pet trade (Shepherd *et al.*, 2004; Cheung & Dudgeon, 2006; Goh & O'Riordan, 2007; Shepherd & Nijman, 2008) indicates that enforcement efforts have failed to halt these activities.

In recent years, this widespread but illegal trade in Indian Star Tortoises appears to have facilitated expansion of the pet star tortoise trade to include substantial numbers of the Radiated Tortoise (*Astrochelys radiata*, App.I)

and Ploughshare Tortoise (*A. yniphora*, App.I) from Madagascar, which have been recorded in Asia in recent pet market surveys (Cheung & Dudgeon, 2006; Nijman & Shepherd, 2007; Shepherd & Nijman, 2008) and confiscations. Other Appendix I species have also been reported from pet markets (Cheung & Dudgeon, 2006; Gong *et al.*, 2009),

Disposal of confiscated live tortoises and freshwater turtles remains challenging. Single shipments can be large enough to overwhelm the capacity of rescue and holding facilities, creating problems for further confiscations. Repatriation of confiscated turtles is often cost-prohibitive considering the transport costs inherent in the confiscation volumes. While adherence to the CITES and IUCN Guidelines for the disposal of confiscated specimens and for re-introductions is recommended, confiscated specimens of rare tortoise and freshwater turtle species represent valuable potential additions to conservation breeding colonies managed by the Turtle Survival Alliance, zoos, aquaria, and studbook programs. These organizations also have extensive expertise with husbandry and veterinary care of turtles and represent valuable sources of potential advice and support to Authorities when dealing with confiscations.

A significant trade monitoring and enforcement challenge is posed by the trade in parts and derivatives of tortoises or freshwater turtles. Large quantities of intact turtle plastra, broken shell bones, and dried cartilaginous pieces from Trionychid softshell turtles are in trade within East Asia and from South and Southeast Asia to East Asia (Jenkins, 1995; Chauhan, 2000; Noureen & Khan, 2007a, 2007b; Kendrick & Ades, 2009; Chen *et al.*, 2009; Schoppe, 2009b). Imports into Taiwan alone averaged 228 metric tons per year during 1999-2008 (Chen *et al.*, 2009), representing roughly 2 million turtles, although at least part of this trade is thought to represent byproducts from the trade in live turtles for consumption and may partly derive from farmed production. While Taiwanese import data demonstrate that much of these imports represent CITES-listed species (see table 3 in Chen *et al.*, 2009) that are not farmed in significant quantities anywhere, almost no trade in shells and other parts is reported to CITES by Parties, as evidenced by data in the WCMC trade database. While much of this trade in turtle bone is destined for consumption as part of traditional medicine at retail level in the importing jurisdiction, part of it is used as raw ingredients for industrial-scale preparation of standardized medicinal preparations and may subsequently be exported. With the exception of recorded exports from China of bones and preparations derived from (farmed) *Mauremys reevesii* (App.III), no such trade data have been officially reported. This indicates a significant unreported trade in parts and derivatives of CITES-listed turtles and requires attention from CITES regulatory authorities in order to monitor and supervise this trade, as well as awareness and training of enforcement personnel to recognize this trade and enforce the permit requirements.

Further analysis of illegal, unregulated and unrecorded trade of tortoises and freshwater turtles in Asia will be forthcoming as this study progresses.

### **Farming and Aquaculture**

Farming of freshwater turtles has expanded greatly in China and Viet Nam in the past decade, but reportedly little in other Asian countries. An overview of the history and trends of turtle farming in Asia up to 2002 was provided in Annex 1 of document AC19 Doc. 15.2 (Rev. 1), supplemented by document CoP12 Inf. 8 submitted by China. A detailed description of captive production systems for *Testudo horsfieldii* in Uzbekistan was provided in Annex 4e of document AC24 Doc. 8.1.

In addition, a number of books and peer-reviewed and popular articles (Shi *et al.*, 2001, 2004, 2007, 2008; Zhou *et al.*, 2005, 2008) have documented and illustrated further details of turtle aquaculture in China. The dominant segment of the Chinese turtle aquaculture industry appears to be developing towards closed-cycle farming of native species, particularly *Pelodiscus sinensis*, *Mauremys reevesii*, *M. sinensis*, and *Cuora trifasciata* (Shi *et al.*, 2008; Zhou *et al.*, 2008). Another large segment comprises captive rearing of hatchling or small juvenile turtles imported from abroad, mainly *Trachemys scripta*, *Chelydra serpentina*, *Apalone* species, and *Macrochelys temminckii* from the United States. Indications are that the Chinese rearing aquaculture of *Trachemys* and *Chelydra*, and perhaps *Apalone*, is maturing towards partial closed-cycle farming of these species (Zhou *et al.*, 2008). The third segment of turtle aquaculture efforts comprise other species, native as well as exotic, which are generally of higher unit value but whose captive production remains subject to technical difficulties of relatively high mortality and reduced productivity of captive animals. Consequently, adult breeding animals continue to be sought from wild populations, generating an ongoing demand and high prices for wild-origin animals of these species and thus continuing to exert exploitation pressures on remnant wild populations that are considered to threaten the survival of these species (Zhou *et al.*, 2005, 2008; Shi *et al.*, 2007). Clearly, while turtle aquaculture meets a significant proportion of consumer demand for turtles, it also represents a degree of threat to some turtle species. Further analysis of turtle farming and aquaculture will be forthcoming as this study progresses.

## Conclusions and Recommendations

Many Asian freshwater turtle species seem to have followed a common trajectory in CITES: 1) a species is proposed and adopted for inclusion in Appendix II based on records or observations of significant international trade quantities; 2) after a few years of trade data have been included in the CITES-WCMC Trade Database that species is selected for the Review of Significant Trade, and then 3) Parties often succeed in having themselves removed from the Review by announcing a voluntary cessation of commercial exports.

Due to their life history characteristics, turtles and tortoises are highly vulnerable to over-exploitation, and sustainable offtake of wild populations is exceedingly difficult to achieve. It is not evident that any Party has conclusively demonstrated that substantial offtake of tortoises or freshwater turtles from its wild populations is sustainable over the long term. Detailed status information throughout a species' range, combined with life history and ecological data establishing parameters on which to base levels and quantities of sustainable offtake, are not available for a single Asian turtle species, and are only available for a few populations outside Asia. Thus, management of turtle offtake remains empirical and reactive, and confounded by conflicting interpretations of trade levels as sustainable offtake of a regenerating population versus depletion of the standing crop of a species with limited understanding of the dynamics of turtle population recovery.

1. More and better data need to be collected to understand population and trade dynamics. Non-detriment findings need to incorporate these data and need to draw on technical expertise outside the national authorities to formulate science-based robust quotas and permitted trade levels.

Trade in shells, bones and cartilage of tortoises and freshwater turtles is widespread and substantial across Asia, potentially at levels threatening populations and species, yet is barely recorded in CITES trade data. Correspondingly, trade in medicinal preparations and other parts and derivatives is barely registered and likely greatly underreported.

2. Better understanding of the scope and scale of the trade in parts and derivatives is required, including its impact on populations of Asian tortoises and freshwater turtles, and requires prioritized attention from CITES regulatory authorities to monitor and supervise this trade, as well as awareness and training of enforcement personnel to recognize this trade and enforce its permit requirements.

Turtle farming in Asia has expanded greatly in recent years and is now a mature, diversified industry. Much of Asian turtle aquaculture involves closed-cycle production of a limited number of native and exotic species, but initiatives to produce additional species have met with mixed results and at present rely heavily on intake of additional animals collected in the wild. Aquaculture thus represents a potential threat to such species.

3. Further evaluation and regulation of the turtle aquaculture industry by national authorities is warranted.

Inclusion of freshwater turtle species in CITES Appendix II in the past 10 years appears to have gradually resulted in lower volumes of permitted trade compared to pre-CITES authorized trade volumes, in accordance with improved domestic regulation and the adoption of increasingly reduced quotas by Range State Parties over the years, as well as improved regulation of turtle imports by other Parties, and increased enforcement of these regulations resulting from their higher profile as CITES-listed species.

4. Parties may wish to evaluate whether it is warranted to extend this set of measures to other traded freshwater turtle species by including them in the CITES Appendices, with the intention that this will result in more precautionary offtake levels and improved implementation of conservation measures in all Parties involved in trade. Asian turtle taxa currently not included in the CITES Appendices, but subject to significant trade volumes of wild-collected animals, include the genus *Cyclemys* and the species *Hardella thurjii*, *Morenia petersi*, *Aspideretes leithii*, *Dogania subplana* and *Nilssonina formosa*. Additionally, the North American genera *Chelydra* and *Apalone* feature prominently in the Asian turtle trade and may warrant consideration for listing in the Appendices.

Due to the life history characteristics of late maturity, low fecundity, high juvenile mortality, and long reproductive life-spans, wild turtle populations are highly susceptible to over-exploitation, and sustainable harvest from wild populations is exceedingly difficult if not impossible to achieve. Trade in most Asian turtle species has historically far exceeded sustainable levels, though now decreased by CITES measures as they have been implemented, and continues at an apparently unsustainable high rate, in particular considering the substantial illegal and unreported trade volumes.



5. The Parties need to significantly enhance the monitoring, management, enforcement, and public awareness efforts concerning their wild turtle populations, export and import trade.
6. Alternatively, Parties may choose to give serious consideration to prohibiting all mass trade in wild-sourced turtles and tortoises within their jurisdiction, with allowance only for trade from certified turtle farming facilities that have developed successful closed-cycle operations, and perhaps limited quantities from closely supervised management schemes focused on offtake of juvenile turtles.
7. As the specific reporting format on trade in turtles and tortoises as originally included in Res. Conf. 11.9 has provided highly valuable information and may be more effective than the inclusion of information into the general biennial reports, Parties may wish to re-evaluate how and in what detail they report progress towards implementation of CITES Res. Conf. 11.9 (Rev. CoP13).
8. Confiscated specimens of rare tortoises and freshwater turtles may have great value for conservation efforts. Substantial expertise and resources exist within IUCN, the public zoo and aquarium community, and the NGO community to assist Parties to deal with confiscated tortoises and freshwater turtles. Parties are urged to engage these partners when evaluating disposal options such as repatriation or addition to in-situ or ex-situ conservation breeding programs.

It is evident that while progress has been made towards trade regulation, sustainable production systems, and conservation measures, the challenges inherent in ensuring the survival of Asian tortoises and freshwater turtles in the wild remain highly significant. In addition to further analyses to be generated by the present study, on-going evaluation will be needed.

9. Non-governmental organizations and the academic sector need to continue researching, recording, analyzing and disseminating status and conservation information.
10. In the course of this study, it has become evident that there remain significant problems relating to management and enforcement of trade in CITES-listed tortoises and freshwater turtles outside the Asian region, in particular for species from Madagascar, and detailed studies of trade problems for turtles outside Asia are warranted.

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**Summary of CITES regulations and actions concerning Asian turtle trade during the period 1997-2009.**

CoP10, 1997: Inclusion of *Callagur borneoensis* in App. II by consent.

CoP11, 2000: Inclusion of genus *Cuora* (9 species) in App. II by consent.

Technical Workshop on Conservation of and Trade in Tortoises and Freshwater Turtles was held in Kunming, China, 25-28 March 2002.

CoP12, 2002: Inclusion of *Platysternon megacephalum*, *Annamemys annamensis* [now *Mauremys annamensis*], genus *Heosemys* (4 species; *H. leytensis* now in *Siebenrockiella*), *Hieremys annandalii* [now *Heosemys annandalii*], genus *Kachuga* (6 species, including genus *Pangshura*), *Leucocephalon yuwonoi*, *Mauremys mutica*, *Orlitia borneensis*, *Pyxidea mouhotii* (now *Cuora mouhotii*), *Siebenrockiella crassicollis*, genus *Chitra* (3 species) and genus *Pelochelys* (3 species) in App. II by consent. [12 proposals, 24 species]

November 2004: P.R. China placed all 18 remaining non-listed native turtle species on Appendix III; *Pelodiscus sinensis* was withdrawn in May 2005 [Notification 2004/074; Notification 2005/029]

CoP13, 2004: Inclusion of *Carettochelys insculpta*, *Chelodina mccordi*, *Malayemys subtrijuga* (incl. *M. macrocephala*), *Notochelys platynota*, and *Amyda cartilaginea* in App. II by consent. [5 proposals, 6 species].

Adoption of Fritz & Havas Checklist of Turtles as Standard Reference for Turtles.

**Summary of Asian tortoises and freshwater turtles in the Review of Significant Trade during the period 2000-2009.**

*Cuora amboinensis*: Selected for review at AC17 [July 2001]. Reviewed at AC18 [April 2002] based on available information provided in AC18 Doc. 7.1 Annex 2 p.67, and placed in Category 1 for Indonesia, Malaysia, and Viet Nam, with detailed questions to be posed, and placed in Category 3 for SG with some clarification sought regarding regulations regarding transit and re-export [AC18 Summ.Rec. p.71-72]. Responses from Indonesia, Malaysia and SG were presented at AC19 [Aug 2003]; no response was received from Viet Nam. Indonesia provided information on distribution and status but not on the basis of the quota or how it is set. Malaysia reported that the quota is based only on exports in previous years, and observed stocks in collection centers. Singapore reaffirmed its implementation of CITES-compatible regulation of all consignments of turtles. The AC concluded that it was clear that Article IV was not being complied with by Indonesia and Malaysia, and thus retained Indonesia, Malaysia and Viet Nam in Category 1, and recommended that their cases be brought forward to the SC [AC19 Summ.Rec p.60-61]. SC54 [Oct 2006] considered the cases of Indonesia and MY based on further information provided by these parties and summarized in SC54 Doc. 42 p.6. Indonesia reported having reduced its annual quotas from 500,000 specimens before inclusion in Appendix II to 90,000 specimens in 1999 and 18,000 since 2001, and referred to preparations for a status assessment and field study to be carried out by TRAFFIC Southeast Asia (i.e., Schoppe, 2008a, 2009b); Indonesia was removed from the RST following these actions [SC54 Doc. 42 p.6; SC54 Summ.Rec. p. 33]. Malaysia reported that the species was widespread and generally abundant. Several hundred thousands of animals were exported annually before its inclusion in Appendix II. Malaysia established export quotas in 2001 and 2002 (50,000 specimens), which were reduced to 15,000 specimens in 2003 and 2004, and zero for wild-caught specimens in 2005 (to be reviewed only after Malaysia had developed clear methodology for making NDFs for export of turtles and tortoises). Malaysia reported having initiated surveys in 2005 and referred to forthcoming assistance from TRAFFIC Southeast Asia in determining non-detrimental levels of export (i.e., Schoppe, 2008b, 2009a), and further measures to secure the conservation and sustainable utilization of the species included the promotion of captive breeding, active collaboration with China to combat illegal trade and revising its legal protection status. Malaysia was removed from the RST following these actions [SC54 Doc. 42 p.6; SC54 Summary Record p. 33; AC21 WG2 p.1-2]. No response was received from Viet Nam, which remained in Category 1, with AC24 [April 2009] recommending that action be taken by the Secretariat with the AC Chair [AC24 Doc. 7.2 p.3, AC24 Summ.Rec. p.6]. At SC58 [July 2009] the Secretariat noted that reported trade data do not appear to give cause for concern, and that the SC should therefore remove Viet Nam from the RST, while requesting the country to pay particular attention to the correct implementation of the convention for this species [SC58 Doc. 21.1 p.13]. However, the SC recommended that, until the recommendations of the AC have been implemented to the satisfaction of the Secretariat and the AC Chair, all Parties suspend trade in *Cuora amboinensis* with Viet Nam. The SC also instructed the Secretariat to report on these issues at SC61 and to contact and work with Viet Nam to address the AC's recommendations, so that they could be resolved in a manner that addressed the conservation concerns for these species [SC58 Sum. 3 (Rev. 1) (07/07/2009) p. 1].

*Cuora flavomarginata*: Selected for review at AC17 [July 2001]. Reviewed at AC18 [April 2002] based on available information provided in Doc. 7.1 Annex 2 p.89-101, and placed in Category 2 for China and Category 3 for Japan [AC18 Summ.Rec. p.72]. At AC19 [Aug 2003] China reported that it had suspended commercial export of this species since June 2000; consequently China was placed in Category 3 and was removed from the RST [AC19 Summ.Rec. p.61]. This concluded the RST of *Cuora flavomarginata*.

*Cuora galbinifrons*: Selected for review at AC17 [July 2001]. Reviewed at AC18 [April 2002] based on available information provided in AC18 Doc. 7.1 Annex 2 p.102-112, and placed in Category 2 for all range States [AC18 Summ.Rec.p.72]. Range States were asked if there had been any reported trade since the completion of the desk based review, and to clarify the legal conditions pertaining to exports of turtles from the Parties. At AC19 [Aug 2003] the AC was informed that China had suspended commercial export of this species since June 2000; consequently China was placed in Category 3 and was removed from the RST [AC19 Summ.Rec. p.61]. No replies were received from Lao PDR and Viet Nam, and the AC recommended that they be placed in Category 1 [AC19 Summ.Rec. p.61]. AC24 [April 2009] recommended that action be taken by the Secretariat with the AC Chair [AC24 Doc. 7.2 p.3, AC24 Summ.Rec. p.6]. At SC58 [July 2009] the Secretariat suggested that, in view of the unsatisfactory conservation status of this species and the indication of some continuing exports from Lao PDR and Viet Nam, the Standing Committee should request

the Secretariat to pursue contacts with these countries about the implementation of Article IV, paragraphs 2 (a) and 3 for this species and report to SC59 [SC58 Doc. 21.1 p.14-15]. However, the SC recommended that, until the recommendations of the AC have been implemented to the satisfaction of the Secretariat and the AC Chair, all Parties suspend trade in *Cuora galbinifrons* with Lao PDR and Viet Nam. The SC also instructed the Secretariat to report on these issues at SC61 and to contact and work with Lao PDR and Viet Nam to address the AC's recommendations, so that they could be resolved in a manner that addressed the conservation concerns for these species [SC58 Sum. 3 (Rev. 1) (07/07/2009) p. 1].

*Lissemys punctata*: Selected for review at AC17 [July 2001]. Reviewed at AC18 [April 2002] based on available information provided in AC18 Doc. 7.1 Annex 2 p.113-127, and placed in Category 2 for Bangladesh; questions were formulated [AC18 Summ.Rec.:72] and a letter sent by the Secretariat; no response was received, and at AC19 the AC recommended that Bangladesh be placed in Category 1 [AC19 Summ.Rec. p.61]. Revisiting the case, AC24 [April 2009] recommended that action be taken by the Secretariat with the AC Chair [AC24 Doc. 7.2 p.3, AC24 Summ.Rec. p.6]. The Secretariat and the AC Chair concluded that the AC's recommendations for *Lissemys punctata* from Bangladesh had been implemented, and after consultation with the SC Chair, the Secretariat notified Bangladesh that this species had been removed from the RST [SC58 Doc. 21.1 p.5], bringing the review to a close.

*Callagur borneoensis*: Selected for review at AC 20 [March 2004] [AC20 Summ.Rep. p.28] for all four range states Brunei Darussalam, Indonesia, Malaysia and Thailand, based on the information prepared by UNEP-WCMC [AC20 Doc. 8.5 p.163-164]. The species was discussed at AC21 [May 2005]: replies to correspondence from the Secretariat were received from Indonesia and Malaysia, but not from Brunei Darussalam and Thailand; Indonesia reported a zero quota and was excluded from RST; the other three Parties were retained in the RST [AC21 WG2 Doc.1 (Rev.1) p.6]. Biology, status and trade were reviewed at AC22 [AC22 Doc. 10.2 Annex 4, p.40-46]. No exports have been recorded from Brunei Darussalam; Malaysia reported having set zero quotas for 2005 and 2006; and in Thailand the species is fully protected from exploitation. Authorized trade levels from these three Parties were thus all considered Least Concern [AC22 Summ.Rec. p.14], and these Parties were therefore removed from the RST at AC22, which concluded the RST of *Callagur borneoensis*.

*Testudo graeca*: Selected for review at AC21 [May 2005] for reported wild-origin exports from Lebanon only [AC21 Summ.Rec. p.26]. No reply was received to the Secretariat's letter of June 2005 [AC22 Doc. 10.3 Annex 1, p.2] and AC22 [July 2006] agreed not to eliminate *Testudo graeca* from Lebanon from the RST. Pertinent information was provided to AC23 [April 2008] by IUCN [AC23 Doc. 8.4 Annex 1, p.3-6], including that commercial export of wild and captive-bred specimens had been banned since June 2004. This ban remains in place and will not be lifted until appropriate regulations are in place. Trade in the species was thus considered to be of least concern, leading to the elimination of the population of Lebanon from the RST and concluding the RST for *Testudo graeca* [AC23 Summ.Rec. p.12].

*Heosemys annandalii*, *H. grandis*, and *H. spinosa*: Selected at AC23, excluding the populations of Malaysia (which confirmed a zero export quota). Recorded trade in all three species involve large numbers [AC23 Summ.Rec. p.14]. Following correspondence from the Secretariat in May 2008, responses were received from Indonesia, Myanmar, the Philippines and Thailand, documenting their respective trade regulation or species protection measures in force [AC24 Doc. 7.4 (Rev. 1) p.5], and these Parties were thus removed from the Review [AC24 Summ.Rec. p.12]. No responses were received from Brunei Darussalam, Cambodia, Lao PDR and Viet Nam, and these Parties were retained in the RST [AC24 Doc. 7.4 (Rev. 1) p.5; AC24 Summ.Rec. p.12].

*Indotestudo forstenii*: Selected at AC23. The species' sole range state, Indonesia, reduced its quota to 270 for 2008. A population survey was being conducted [AC23 Summ.Rec. p.14]. AC24 was provided with detailed information on Indonesia's trade in this species, which at 270 individuals per year, some apparently originating from four breeding operations [AC24 Doc. 7.4 (Rev. 1) p.6], was considered no cause for concern and it was removed from the Review at AC24 [AC24 Summ.Rec. p.13], closing the RST for this species.

*Testudo horsfieldii*: This species was subject to earlier studies of trade and production systems [Theile, 2001: AC17 Inf. 8]. Selected at AC23 because the species is heavily traded, and mainly adult specimens are found in trade. China, which strictly protects its native population, was excluded from the Review [AC23 Summ.Rec. p.14]. Following correspondence from the Secretariat in May 2008, responses were received from Azerbaijan (not a range state), Kazakhstan (no authorized capture or export at present), Kyrgyzstan (not protected, no captive breeding/ranching facilities, sharp decline for which commercial export is perceived to be a major cause) and Uzbekistan (commercial export affecting the species; ranched specimens represent an increasing proportion of total exports [17,000 of 22,000 quota in 2008]). No

responses were received from Afghanistan, Armenia (neither Party at time of inquiry nor range state), Islamic Republic of Iran, Pakistan, Russian Federation, Tajikistan and Turkmenistan (non-Party) [AC24 Doc. 7.4 (Rev. 1) p.6]. Following deliberations at AC24, Armenia, Azerbaijan, Kazakhstan and Turkmenistan were removed from the review, while Afghanistan, Islamic Republic of Iran, Kyrgyzstan, Pakistan, Russian Federation, Tajikistan and Uzbekistan were retained in the RST [AC24 Summ.Rec. p.13]. The AC also decided to bring the matter of very substantial exports from Ukraine (not a range state) to the attention of the SC [AC24 Summ.Rec. p.14].

*Amyda cartilaginea*: Selected at AC23; only Indonesia was requested to demonstrate its non-detriment finding [AC23 Sum.Rec. p.14], as Malaysia imposed a zero export quota for 2008 and no exports have been recorded from other Parties. Indonesia provided detailed information on trade quantities, size limitations and usage of traded animals, but was unable to estimate population numbers other than considering this a common species. Demand for the species for consumption is increasing, while no registered breeders are on record in Indonesia [AC24 Doc. 7.4 (Rev. 1) p.6-7]. At AC24 Indonesia was retained in the RST because there were no population estimates available, the numbers exported were high and the export quota had recently been substantially increased [AC24 Summ.Rec. p.11].

*Orlitia borneensis*: Evaluated for inclusion in RST at AC 23 [April 2008] but not retained in Review; however, the AC requested the Secretariat to seek clarification from Lao PDR and Viet Nam regarding their reported trade in this species [AC23 Summ.Rec. p.14]. No responses were received and the species was retained at AC24 [April 2009], where the AC recommended that the Secretariat inform the SC accordingly to take appropriate action [AC24 Summ.Rec. p.6, p.11]. The available session reports from SC58 do not indicate that this case was discussed.

Annex 5: Export Quotas for specimens of Asian Tortoises and Freshwater Turtles reported to the CITES Secretariat  
 Anexo 5: Cupos de exportación para especímenes de tortuga asiática (especies de agua dulce y de la tierra) fueron reportados a la Secretaría de CITES  
 Annexe 5: Quotas d'exportation relatifs aux spécimens d'espèces des tortues asiatiques rapportées aux Secrétariat CITES

Party / Parte / Partie	Species / especies / espèces	Specimens / Especímenes / Type	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Indonesia / Indonésie	<i>Amyda cartilaginea</i>	live/vivos/spécimens vivants						27'000	27'000	27'000	25'200	25'200	
Indonesia / Indonésie	<i>Callagur borneoensis</i>	live/vivos/spécimens vivants	180	180									
Indonesia / Indonésie	<i>Cuora amboinensis</i>	live/vivos/spécimens vivants	6'000	18'000	18'000	18'000	18'000	18'000	18'000	18'000	18'000	18'000	
Indonesia / Indonésie	<i>Heosemys spinosa</i>	live/vivos/spécimens vivants				2'000	1'800	1'800	1'800	1'800	450	450	
Indonesia / Indonésie	<i>Indotestudo forstenii</i>	live/vivos/spécimens vivants	450	450	400	500	475	475	475	475	270	270	
Indonesia / Indonésie	<i>Leucocephalon yuwonoi</i>	live/vivos/spécimens vivants				100	100	100	100	100			
Indonesia / Indonésie	<i>Malayemys subtrijuga</i>	live/vivos/spécimens vivants							475	475	180	180 (max 15 cr	
Indonesia / Indonésie	<i>Manouria emys</i>	live/vivos/spécimens vivants	450	450	450	500	475	475	475	475			
Indonesia / Indonésie	<i>Notochelys platynota</i>	live/vivos/spécimens vivants							1'350	1'350	450	450 (max 15 cr	
Indonesia / Indonésie	<i>Pelochelys bibroni</i>	live/vivos/spécimens vivants				90	90	90	90	90	90	90	
Indonesia / Indonésie	<i>Pelochelys cantorii</i>	live/vivos/spécimens vivants				100	90	180	180	180	90	90 (max 15 cm	
Indonesia / Indonésie	<i>Siebenrockiella crassicolis</i>	live/vivos/spécimens vivants				4'500	4'500	4'500	4'500	4'500	4'500	4'500	
Malaysia - Peninsular / Malasia - peninsular / Malaisie - péninsulaire	<i>Amyda cartilaginea</i>	wild-taken / recolectados en el medio sivestre / spécimens sauvages								0			
Malaysia - Peninsular / Malasia - peninsular / Malaisie - péninsulaire	<i>Amyda cartilaginea</i>	live/vivos/spécimens vivants									0	0	
Malaysia - Peninsular / Malasia - peninsular / Malaisie - péninsulaire	<i>Callagur borneoensis</i>	wild-taken / recolectados en el medio sivestre / spécimens			1'000	600				0			
Malaysia - Peninsular / Malasia - peninsular / Malaisie - péninsulaire	<i>Callagur borneoensis</i>	live/vivos/spécimens vivants									0	0	
Malaysia - Peninsular / Malasia - peninsular / Malaisie - péninsulaire	<i>Chitra chitra</i>	wild-taken / recolectados en el medio sivestre / spécimens sauvages								0			
Malaysia - Peninsular / Malasia - peninsular / Malaisie - péninsulaire	<i>Chitra chitra</i>	live/vivos/spécimens vivants									0	0	
Malaysia - Peninsular / Malasia - peninsular / Malaisie - péninsulaire	<i>Cuora amboinensis</i>	wild-taken / recolectados en el medio sivestre /		50'000	50'000	15'000	15'000	0		0			
Malaysia - Peninsular / Malasia - peninsular / Malaisie - péninsulaire	<i>Cuora amboinensis</i>	live/vivos/spécimens vivants									0	0	
Malaysia - Peninsular / Malasia - peninsular / Malaisie - péninsulaire	<i>Heosemys annandalii</i>	wild-taken / recolectados en el medio sivestre / spécimens			--	6'000				0			
Malaysia - Peninsular / Malasia - peninsular / Malaisie - péninsulaire	<i>Heosemys annandalii</i>	live/vivos/spécimens vivants									0	0	
Malaysia - Peninsular / Malasia - peninsular / Malaisie - péninsulaire	<i>Heosemys grandis</i>	wild-taken / recolectados en el medio sivestre / spécimens			--	6'000				0			
Malaysia - Peninsular / Malasia - peninsular / Malaisie - péninsulaire	<i>Heosemys spinosa</i>	live/vivos/spécimens vivants									0	0	
Malaysia - Peninsular / Malasia - peninsular / Malaisie - péninsulaire	<i>Heosemys spinosa</i>	wild-taken / recolectados en el medio sivestre / spécimens			--	6'000				0			
Malaysia - Peninsular / Malasia - peninsular / Malaisie - péninsulaire	<i>Indotestudo elongata</i>	live/vivos/spécimens vivants	500	500	500	500	500	500	500	450	200	200	
Malaysia - Peninsular / Malasia - peninsular / Malaisie - péninsulaire	<i>Malayemys macrocephala</i>	wild-taken / recolectados en el medio sivestre / spécimens sauvages				0				0			
Malaysia - Peninsular / Malasia - peninsular / Malaisie - péninsulaire	<i>Malayemys macrocephala</i>	live/vivos/spécimens vivants									0	0	
Malaysia - Peninsular / Malasia - peninsular / Malaisie - péninsulaire	<i>Manouria emys</i>	live/vivos/spécimens vivants	200	200	500	500	500	500	400	350	150	150	
Malaysia - Peninsular / Malasia - peninsular / Malaisie - péninsulaire	<i>Manouria impressa</i>	live/vivos/spécimens vivants										0	
Malaysia - Peninsular / Malasia - peninsular / Malaisie - péninsulaire	<i>Notochelys platynota</i>	wild-taken / recolectados en el medio sivestre / spécimens sauvages				0				0			
Malaysia - Peninsular / Malasia - peninsular / Malaisie - péninsulaire	<i>Notochelys platynota</i>	live/vivos/spécimens vivants									0	0	
Malaysia - Peninsular / Malasia - peninsular / Malaisie - péninsulaire	<i>Orlitia borneensis</i>	wild-taken / recolectados en el medio sivestre / spécimens			--	6'000				0			
Malaysia - Peninsular / Malasia - peninsular / Malaisie - péninsulaire	<i>Orlitia borneensis</i>	live/vivos/spécimens vivants									0	0	
Malaysia - Peninsular / Malasia - peninsular / Malaisie - péninsulaire	<i>Pelochelys cantorii</i>	wild-taken / recolectados en el medio sivestre / spécimens sauvages								0			
Malaysia - Peninsular / Malasia - peninsular / Malaisie - péninsulaire	<i>Pelochelys cantorii</i>	live/vivos/spécimens vivants									0	0	
Malaysia - Peninsular / Malasia - peninsular / Malaisie - péninsulaire	<i>Siebenrockiella crassicolis</i>	wild-taken / recolectados en el medio sivestre / spécimens			--	15'000				0			
Malaysia - Peninsular / Malasia - peninsular / Malaisie - péninsulaire	<i>Siebenrockiella crassicolis</i>	live/vivos/spécimens vivants									0	0	
Kazakhstan / Kazajstán	<i>Testudo horsfieldii</i>	live/vivos/spécimens vivants	39'000	40'000	40'000								
Tajikistan/Tayikistán/Tadjikistan (Non-Party/No Parte/Non-Partie)	<i>Testudo horsfieldii</i>	wild-taken / recolectados en el medio sivestre /		20'000							17'000	17'000	17'000
Uzbekistan/Uzbekistán/Ouzbékistan	<i>Testudo horsfieldii</i>	eggs / huevos / oeufs									5'000	5'000	5'000
Uzbekistan/Uzbekistán/Ouzbékistan	<i>Testudo horsfieldii</i>	live/vivos/spécimens vivants	35'000								22'000	27'000	
Uzbekistan/Uzbekistán/Ouzbékistan	<i>Testudo horsfieldii</i>	live (wild-taken & ranched) / vivos (recolectados		30'000	30'000								
Uzbekistan/Uzbekistán/Ouzbékistan	<i>Testudo horsfieldii</i>	wild-taken / recolectados en el medio sivestre / spécimens sauvages				25'000	23'000	22'000	22'000	22'000			
Uzbekistan/Uzbekistán/Ouzbékistan	<i>Testudo horsfieldii</i>	live, ranched / vivos, criados en granjas / spécimens vivants élevés e				5'000	7'000	13'000	14'000	13'000	17'000	17'000	
Uzbekistan/Uzbekistán/Ouzbékistan	<i>Testudo horsfieldii</i>	live, captive-bred / vivos, criados en cautividad / spécimens vivants, élevés en captivité									2'000		
Uzbekistan/Uzbekistán/Ouzbékistan	<i>Testudo horsfieldii</i>	live (confiscated animals) / vivos (animales confiscados) / spécimens				1'150							