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

Sixteenth meeting of the Conference of the Parties
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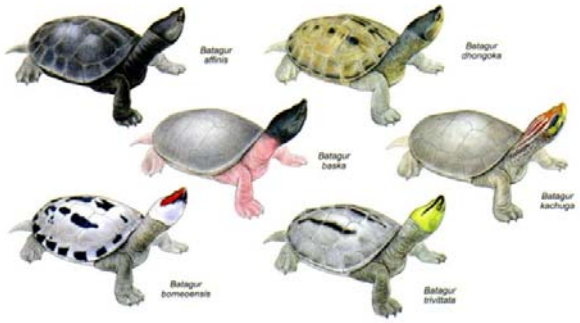
CONSIDERATION OF PROPOSALS FOR AMENDMENT OF APPENDICES I AND II

A. Proposal

Inclusion of the following taxa of the Family Geoemydidae in Appendix II: Cyclemys spp., *Geoemyda japonica, G. spengleri, Hardella thurjii, Mauremys japonica, M. nigricans, Melanochelys trijuga, Morenia petersi, Sacalia bealei, S. quadriocellata*, and *Vijayachelys silvatica*. This proposal is in accordance with Article II paragraph 2(a) of the Convention, satisfying Criterion B, Annex 2a of Res. Conf. 9.24 (Rev CoP15). This proposal seeks a zero quota on wild specimens for commercial purposes for the following taxa: *Batagur borneoensis, B. trivittata, Cuora aurocapitata, C. flavomarginata, C. galbinifrons, C. mccordi*, C. mouhotii, *C. pani, C. trifasciata, C. yunnanensis, C. zhoui, Heosemys annandalii, H. depressa, Mauremys annamensis*, *and Orlitia borneensis*.

For a complete list of species see Table 1



By Stephen D Nash

B. Proponent

People's Republic of China and the United States of America[1]

C. Supporting statement

1. Taxonomy

1.1 Class: Reptilia

1.2 Order: Testudines

1.3 Family: Geoemydidae Theobald 1868a

1.4 Genus, species or subspecies: The Family Geoemydidae contains 21 genera and 66 species as currently recognized in the CITES Standard References (Fritz & Havas, 2007, excluding Appendix[2]; Praschag *et al.*, 2008).

Of these, 6 species are already included in Appendix I (*Batagur affinis, B. baska, Geoclemys hamiltonii, Melanochelys tricarinata, Morenia ocellata,* and *Pangshura tecta*), and 30 species are already

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[1] *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.*

[2] *Fritz & Havas (2007) recognize a total of 65 valid species in the family Geoemydidae; an additional 5 names, widely recognized to be based on animals of hybrid origin (See Fritz & Havas, 2007, page 163) continue to be retained for CITES purposes, as specified in Res. Conf 12.11 (Rev. CoP15) page 5.*

included in Appendix II (all members of the genus *Batagur* that are not on Appendix I [4 species]; genus *Cuora* [10 species]; *Heosemys annandalii, H. depressa, H. grandis, H. spinosa; Leucocephalon yuwonoi; Malayemys macrocephala, M. subtrijuga; Mauremys annamensis*, *M. mutica; Notochelys platynota; Orlitia borneensis*; all members of the genus *Pangshura* that are not on Appendix I [3 species]; *Siebenrockiella crassicollis, S leytensis*).

This proposal seeks to include **8 genera with 15 species** in Appendix II:

Genus *Cyclemys* [5 species in genus; presently none included in the Appendices]
- *Cyclemys atripons*
- *Cyclemys dentata*
- *Cyclemys shanensis*
- *Cyclemys oldhamii*
- *Cyclemys pulchristriata*

Genus *Geoemyda* [2 species in genus]
- *Geoemyda japonica* [presently not included in the Appendices]
- *Geoemyda spengleri* [presently on Appendix III – China]

Genus *Hardella* [1 species in genus; presently not included in the Appendices]
- *Hardella thurjii*

Genus *Mauremys* [10 to 12 species in genus; 2 already in App.II; species *M. caspica, M. leprosa, M. rivulata, M. reevesii, M. sinensis, M. megalocephala,* '*M. iversoni',* and '*M. pritchardi'* excluded from this proposal]
- *Mauremys japonica* [presently not included in the Appendices]
- *Mauremys nigricans* [presently in Appendix III – China]

Genus *Melanochelys* [2 species in genus; 1 already in App.I]
- *Melanochelys trijuga* [presently not included in the Appendices]

Genus Morenia [2 species in genus; 1 already in App.I]
- *Morenia petersi* [presently not included in the Appendices]

Genus *Sacalia* [2 or 3 species; '*Sacalia pseudocellata'* excluded from this proposal]
- *Sacalia bealei* [presently in Appendix III – China]
- *Sacalia quadriocellata* [presently in Appendix III – China]

Genus *Vijayachelys* [1 species; presently not included in the Appendices]
- *Vijayachelys silvatica*

This proposal seeks a zero quota on wild species for commercial purpose for the following **15 species already in Appendix II**:

Batagur borneoensis
Batagur trivittata
Cuora aurocapitata
Cuora flavomarginata
Cuora galbinifrons
Cuora mccordi
Cuora mouhotii
Cuora pani
Cuora trifasciata
Cuora yunnanensis
Cuora zhoui
Heosemys annandalii
Heosemys depressa

Mauremys annamensis
Orlitia borneensis

This proposal specifically **excludes** the following genus, and 6 to 11 specific species of genera otherwise included:

Genus *Rhinoclemmys* [9 species; *R. nasuta, R annulata, R. areolata, R. diademata,R. funereal, R. melanosterna, R. pulcherrima, R. punctularia, R. rubida*],
Mauremys caspica, M. leprosa, M. rivulata excluded, and *M. reevesii, M. sinensis, M. megalocephala, M. iversoni, M. pritchardi* retained on Appendix III – China,
Ocadia glyphistoma and *O. philippeni* retained on Appendix III – China,
Sacalia pseudocellata retained on Appendix III – China

1.5 Scientific synonyms: Geoemydidae Theobald 1868a:9
Batagurina Gray 1869a:185
Bataguridae Gray 1870f:17

1.6 Common names: English: Eurasian pond/river turtles (and Neotropical wood turtles)
French: Tortues d'eau douce Eurasienne
Spanish: Tortuga de agua dulce Euroasiática
See TTWG 2011 for suggested English names for specific species.

1.7 Code numbers: NA

2. Overview

Turtles are the world's most endangered vertebrates with almost half being categorized on the IUCN Red List of Threatened Species as critically endangered, endangered, or vulnerable. They are at high risk of extinction because of their combination of biological life history traits. Harvest as well as habitat degradation and loss are their greatest threats (TCC, 2011).

The plight of Asian turtles has been a focus of CITES since CoP10 (1997) when *Callagur (~Batagur) borneoensis* was included in Appendix II. Subsequent CITES Actions for Asian turtles include:

* 1999 - Phnom Penh workshop (*Conservation and Trade of Freshwater Turtles and Tortoises in Asia*) participants recommend listing all turtle species in CITES Appendices because of the non-discriminatory nature of food trade (switching species as they become depleted or rare) and for look-alike reasons;

* 2000 –9 species listed in App. II and adoption of Res. Conf. 11.9;

* 2002 - CITES Kunming workshop (*Technical workshop on conservation of and trade in freshwater turtles and tortoises*) participants recommend all Asian Turtles be included in the CITES appendices (AC18 Inf. 12);

* 2003 - AC19 forms turtle working group and adopts its recommendations, including the Kunming workshop recommendation that Parties prepare listing proposals for all unlisted Asian species to App. II (and until that happens, place them on App. III);

* 2004 - CoP adopts the AC Chair's report, including Asian species listing recommendations from Kunming workshop.

  - CoP13 adopts Decisions 13.36 and 13.37 directed to the Secretariat regarding reporting and liaison with the WCO.
  - *Pyxis arachnoides* uplisted to App. I.
  - Five Asian species added to App. II.
  - Revisions to Resolution Conf. 11.9 adopted.

- 17 Asian species added to App. III (China);

* 2005 - 1 species removed from App. III (China);

* 2006 - 13 North American species added to App. III (U.S.);

* 2007- Decs. 14.126-14.129 directed to the Secretariat, Parties and AC adopted by CoP. Includes direction to the Secretariat to commission the IUCN trade study review on the implementation of Conf. 11.9 (Rev. CoP13);

* 2010 - CoP adopts Decs. 15.79 - 15.83 directed to the AC, SC and the Parties; Decisions covered the IUCN trade study, implementation of Conf. 11.9 (Rev. CoP13), and Customs codes;

* 2011 - AC25 establishes turtle working group and adopts its recommendations based on IUCN trade study;

  - SC61 forms turtle working group to consider IUCN trade study and AC recommendations;

* 2012 - AC26 adopts additional recommendations and draft Decisions;

  - SC62 endorses AC recommendations and adopts its own, including a number of draft Decisions for CoP16 consideration.

While the Family Geoemydidae can be found in Asia, Europe, the Middle East and Central and South America with a current total of 71 species, it is the Asian species that have been the subject of significant CITES attention and action over the past 15 years because of their exceptionally high risk of overexploitation associated with international trade. This proposal focuses on Geoemydidae (Eurasian pond/river turtles) native to Southeast Asia (59 species). Trade in Asian turtle species continues to follow a boom and bust pattern in which exploitation and trade shift from one species to another when: 1) a species becomes so depleted or rare that it is no longer commercially exploitable; or 2) a species becomes the subject of stricter regulation, and as such is less exploitable (Fig. 1). Of the 59 Asian species of Geoemydidae, 6 are already included in Appendix I, 30 in Appendix II, and 12 in Appendix III. They continue to meet the criteria for inclusion in those Appendices though some should be considered for uplisting to Appendix II. In this proposal, **fifteen species** in Appendix II are proposed to remain in Appendix II with a zero quota on wild species for commercial purpose and **fifteen species** are proposed for inclusion in Appendix II. *Mauremys reevesii* and *M. sinensis* are excluded because they are the subject of the mass farming to supply the trade. Given the extensive farming of these species, harvest of wild specimens to supply the trade or to supply parental stock for farms is believed to be low and not of conservation concern (see Table 1 for complete list of species and section 11 for all exclusions).

Fifteen species of Geoemydidae (2 are draft Critically Endangered; 5 are Endangered/draft Endangered; 1 is Vulnerable; 6 are Data Deficient/Near Threat; 1 is not evaluated) qualify for inclusion in Appendix II under Annex 2a, Criterion B because it is known, or can be inferred or projected, that regulation of trade in the species is required to ensure that the harvest of specimens from the wild is not reducing the wild population to a level at which its survival might be threatened by continued harvesting or other influences. Theses turtles are vulnerable to overexploitation because of biological characteristics/life history traits including adult longevity, late maturity, limited annual reproductive output, and high juvenile/egg mortality (Congdon *et al*, 1993; Ernst and Lovich, 2009; AC25 Doc. 19. 2011). Given these characteristics/traits, the high-volume trade in Asian turtles and their parts for consumption as food and traditional medicines must be managed and regulated to ensure the long-term sustainability of the species. Even species that are currently thought to have large population sizes or low levels of exploitation are vulnerable due to the boom and bust nature of the turtle trade.

3. Species characteristics

Although this proposal seeks inclusion in the Appendices of species of the Asian region biological examples draw from the family as a whole.

3.1 Distribution

The Family Geoemydidae is found in Asia, the Middle East, and South America (Ernst and Barbour, 1989; Fritz & Havas, 2007). The species of Geoemydidae for which this proposal seeks inclusion in the Appendices occur in the following range countries:, Bangladesh, Brunei Darussalam, Cambodia,

China (including Taiwan Province, Hong Kong SAR and Macao SAR), Indonesia, India, Japan, Lao People's Democratic Republic, Maldives, Burma (Myanmar), Malaysia, Nepal, Pakistan, Philippines, Sri Lanka, Thailand, United Kingdom Overseas Territories - Indian Ocean, and Viet Nam. For more detailed information on the range of each species, see Table 1.

3.2 Habitat

This family of semiaquatic pond turtles is often found in lowland marshes, rivers, oxbow lakes, cannels, lakes, and ponds. Members of the genus *Batagur* utilize deep river habitat that also extends into estuaries. The genera *Cuora* and *Rhinoclemmys* as well as *Leucocephalon yuwonoi* and *Melanochelys tricarinata* have adapted to more terrestrial habitats often inhabiting moist tropical rainforest floors (Ernst and Barbour, 1989; Moll and Moll, 2004; Bonin et al, 2006).

3.3 Biological characteristics

Species of this family are all semiaquatic to terrestrial; most semiaquatic species will emerge to bask, or to nest on land.

Species of Geoemydidae are largely carnivorous or omnivorous feeding on fish, aquatic snails, muscles, crab, shrimp, other water dwelling invertebrates, and amphibians. However some species such as *Rhinoclemmys* spp., *Pangshura smithii*, *Pangshura tentoria*, and *Batagur borneoensis* are more herbivorous (Ernst and Barbour, 1989; Bonin et al 2006).

Turtles have evolved a remarkable life history strategy characterized by slow growth and late maturity (usually on the order of 10-15 years), longevity (typically living for six or more decades, and generation times often at 25-30 years) 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 (AC25 Doc. 19). Specifically pond turtles can lay multiple clutches per year with *Heosemys spinosa* and *Leucocephalon yuwonoi* typically laying 1 egg/clutch and not more than three; *Cuora and Cyclemys* laying 2-4 eggs/clutch; *Pangshura* laying 3-12 eggs/clutch; and *Batagur* laying 15-35 (Ernst and Barbour, 1989; Bonin *et al.*, 2006). In short, the key to turtle life history is to reach maturity, live for a long time, and produce a relatively modest number of eggs each year, so that over a lifetime enough eggs are produced to ensure that a few will successfully hatch and some of these will survive to adulthood (AC25 Doc. 19). If we compare this with commonly managed larger mammals (see Fig. 2) then we see just how turtle life history traits limit significant off take (e.g. taken from North American species but applicable to all turtles).

3.4 Morphological characteristics

Species of the family Emydidae (New World pond turtles) have similar characteristic to Geoemydidae (Old World pond turtles) because both families are hard shelled turtles differentiated by characteristics of their lower jaw morphology and articulation (Ernst and Barbour, 1989). Geoemydidae range in size from 12-18 cm (examples of small species include: *Cuora aurocapitata*, *Geoemyda japonica)* to 50-80 cm (examples of larger species include: *Orlitia borneensis, Batagur borneoensis)* carapace length (Bonin *et al*, 2006).

3.5 Role of the species in its ecosystem

Turtles are major components of freshwater ecosystem food webs, playing important roles in energy flow, nutrient cycling, dispersal of aquatic vegetation, indication of pollution, and maintenance of water quality (Moll and Moll, 2004; Ernst and Lovich, 2009)

4. Status and trends

4.1 Habitat trends

Mauremys annamensis has suffered from loss of its lowland habitats which have almost entirely been lost or severely degraded and fragmented. Conversion to agricultural and, particularly for rice cultivation, as well as increasing urban developments in these highly populated areas is to blame. A detailed study of the habitat of *Cuora mccordi* showed that the species is semiaquatic and inhabits bamboo and broadleafed forests in an area of less than 50 km² which is a remnant of its former

habitat that was largely destroyed by local collectors. In the 1970s it was said that “it was easier to find this species than stones” (TCC, 2011).

4.2 Population size

Few extensive studies on population assessment and monitoring have been conducted on turtles in the Family Geoemydidae. For most Asian turtle species in trade the size of populations is inferred from the volume of international trade and/or the prevalence of specimen availability in food and pet markets. There are only a few turtle species in Asia for which there are definitive known population sizes. There are less than 100 know individuals of *Cuora zhoui* that exist and to date their native habitat remains unknown. The wild population of *Cuora aurocapitata* is between 50-150 individuals. *Cuora mccordi* may be extinct in the wild. Field surveys turned up one specimen in 2009 and none in 2010.The last strong hold for wild *Batagur kachuga* remains in the Chambal River in India with approximately 500 adult females (TCC, 2011). The examples of greatly diminished turtle populations demonstrate the vulnerability of turtles to overexploitation. With the exploitation of one species no longer viable, the unyielding demand for turtles has to be met through harvest of the remaining Asian species in the family. Exploitation of members of the genus *Cuora* clearly illustrates this point. Studies show that harvest, even if one-time event, can cause a turtle population to significantly decline and remain impacted for decades (UF, 2012).

4.3 Population structure

Sexual Dimorphism is known to occur in many species of turtles and is important to their biology, behavior and evolution. This naturally affects population social structure*. Hardella thurjii* show extreme sexual dimorphism with females three times larger than males (Das and Bhupathy, 2009) Males of *Mauremys reevesii, M. megalocephala, Cyclemys dentata, Pangshura tecta, P. tentoria, Batagur trivittata,* and *Morenia petersi* are also smaller than females (Ernst and Barbour, 1989). A review of species accounts shows no data reported on sex ratios for Geoemydidae.

4.4 Population trends

Few population studies have been conducted on turtles in this Family. For most Asian turtle species in trade population trends can be inferred from the levels of international trade and/or the trend of specimen availability in food and pet markets. Local market availability can be an indicator of population status. Local market research has shown that locally available species are usually sold cheaply, are found in larger quantities, and have a high turnover rate (Shepherd and Nijman 2007). Commodities found in larger quantities in markets are often more generally available in the wild, especially where barriers to trade are low (such as the ease and cost of collection). Decreased availability of a species in markets is often a function of their availability in the wild and can be an indicator of population decline. This is an accepted principle of market forces and is commonly used in evaluating food markets when examining the availability and price of staple foods. “The underlying assumption is that a rise in the prices of major staples is generally indicative of food scarcity, and vice versa (Kumar 1989, p.22).” This concept has also been applied to reptiles, where hunting success can be considered an indicator of the population status of a species, as with the *Caiman yacare* (Van Damme *et al.* 2007). Inferring population status from the availability of aquatic resources is similarly used in fishery-dependent data. For instance, decrease in catch per unit effort (CPUE) is one among several common indicators of decline in fisheries (Meusch *et al.*, 2003).It is generally understood that exploited populations of Asian turtle species, including ones in the Family Geoemydidae, are in decline. Accounts from field collectors unanimously report that more effort is required now to find a turtle than in the past. Local middlemen and exporters pay increasingly higher prices as supplies to their businesses decline (van Dijk et al, 2000).

Examples include *Batagur baska* populations that were previously abundant in river deltas and estuaries of Orissa and West Bengal in India and the Ayeryawady Delta in Burma (Myanmar) during the 19th and early 20th centuries, but have now all but vanished. Many *Cuora spp.* populations have all but vanished to a point at which specimens are known better from Asian markets rather than from the wild -these include *C. yunnanensis, C. zhoui*, and *C. mccordi*. Wild populations of *Mauremys nigricans* appear to have crashed over the last few decades, and biologists in southern China have not located wild animals for several years (TCC, 2011)

4.5 Geographic trends

Not only have downward population trends been noted in Asian species in the Family Geoemydidae, but there has been a total disappearance of turtles from once known marshes and forests, such as the disappearance of *Cuora trifaciata* from the Chinese Provinces/SAR of Fujian, Hong Kong, Guangdong, Hainan, and Guangxi; the disappearance of *Mauremys annamensis* from the coastal lowland wetlands and rivers of some provinces of central Vietnam; or the disappearance of *Batagur baska* from the river deltas and estuaries of Orissa and West Bengal in India and the Ayeryawady Delta in Burma (Myanmar) (TCC, 2011). *Geoclemys hamiltoni* was formerly distributed thoughout Bangladesh but is now confined to the south central and southern regions and it has disappeared from the wetlands of the Khulna District because of heavy exploitation (Das and Bhupathy, 2010).

5. Threats

5.1 Eurasian pond/river turtles like all Testudines are vulnerable to overexploitation, because of biological characteristics/life history traits such as adult longevity, late maturity, limited annual reproductive output, and high juvenile/egg mortality. This life history strategy leads to a high probability that at some time during their long lifespan, some hatchlings will survive to maturity. However, turtles' life history strategy fails as a result of human exploitation. Human exploitation of adults leads to too few eggs being laid to survive to maturity. Likewise human exploitation of eggs leads to too few hatching to survive to maturity. Population collapse is the ultimate result (Congdon *et al,* 1993; Ernst and Lovich, 2009; AC25 Doc. 19. 2011)

Global turtle trade in the last 15 years has followed a well-known pattern – once a species is depleted or regulated the trade shifts to other available species (Fig 1.). With continued human development and growth turtle populations also face pressure from habitat degradation and loss (Zhou and Jiang, 2008).

Fifty two percent of the turtles in the *Top 25 Endangered Freshwater Turtles at Extremely High Risk of Extinction* (TCC, 2012) belong to the Family Geoemydidae according to the IUCN/TFTSG (TCC, 2011). Fifty nine percent of the Family Geoemydidae is in the threat categories (VU, EN,CR) of the IUCN Red List of Threatened Species with 20-34 percent being at the highest level of threat - **Critically Endangered** (or draft CR). Below are some specific examples of the threats that species face.

5.2 *Genus Batagur*: Five species of the genus *Batagur* (6 species total) are considered to be in the *Top 25 Endangered Freshwater Turtles at Extremely High Risk of Extinction* according to the IUCN/TFTSG (TCC, 2011). The international workshop on the *Conservation of Asian Tortoises and Freshwater Turtles: Setting Priorities for the Next Ten Years* which was held in Singapore in February 2011considers this to be one of two priority Genera because of the high percent (83%) of species in the genus that are IUCN Red List - **Critically Endangered**. *Batagur* are hunted for their meat and eggs because of their large body size and congregated seasonal nesting habit (ease of locating). Additional threats include dam projects, commercial sand and gold mining, all which alter turtle habitat to a point that the habitat is no longer suitable for the turtles to use (TCC, 2011; Horne *et al,* 2012).

5.3 Genus *Cuora*: Nine species of the genus Cuora (12 species total) are considered to be in the *Top 25 Endangered Freshwater Turtles at Extremely High Risk of Extinction* or the *Top 40 Freshwater Turtles at Very High Risk of Extinction* according to the IUCN/TFTSG (TCC, 2011). The international workshop on the *Conservation of Asian Tortoises and Freshwater Turtles: Setting Priorities for the Next Ten Years* which was held in Singapore in February 2011(see Section 11 for details) considers this to be one of two priority Genera because of the high percent (90%) of species in the genus that are IUCN Red List - **Critically Endangered**. *Cuora* are collected for the international pet trade, the investment trade for turtle farming, and for traditional medicine. This is also coupled with habitat destruction for most members of the genus (TCC, 2011; Horne *et al*, 2012).

5.4 *Mauremys annamensis*: This species is considered one of the *Top 25 Endangered Freshwater Turtles at Extremely High Risk of Extinction*. It is threatened by severe loss of lowland habitat by degradation and fragmentation due to land conversion to agricultural land and urban development. Peak wildlife trade to largely Asian markets of this species in the 80's and early 90's greatly diminished populations making this species rare in the wild. It is still sought after for international trade but also for local consumption and traditional medicines in Vietnam (TCC, 2011).

5.5 *Leucocephalon yuwonoi*: This species is considered one of the *Top 25 Endangered Freshwater Turtles at Extremely High Risk of Extinction.* It is threatened by habitat destruction (commercial logging, small scale agriculture, oil palm plantations) and collection for the commercial meat and pet trade. Like many of the *Cuora* it was first discovered in an Asian market before knowing about its existence in the wild in Sulawesi (TCC, 2011).

5.6 *Siebenrockiella leytensis*: This species is considered one of the *Top 25 Endangered Freshwater Turtles at Extremely High Risk of Extinction.* It was rediscovered, after a 70 year absence from science, in Philippine food markets. Threats include slash and burn agriculture, logging, and habitat degradation. However its biggest threat comes from its perceived rarity, which stimulates demand in the international pet trade (TCC, 2011).

6. Utilization and trade

6.1 National utilization

China has a long history of national utilization of turtles and tortoises as reflected in many ancient pharmaceutical and medical books. Among the most significant demands is for traditional medicines; the whole body, shell, and shell gel (calipee) are used to cure weakness, vertigo, insomnia, etc. An analysis of turtle import and export data from China shows a shift from net exporter to net importer which indicates either domestic demand is increasing or the domestic resource is decreasing or both (Zhou and Jiang, 2008). Buddhists have kept turtles in temple ponds as signs of longevity (Zhou and Jiang, 2008). In Bangladesh turtles (including *Hardella thurjii, Moreina petersi, Cuora amboinensis*) are used as a source of protein for low-income non-Muslims and tribal peoples. Hunters can collect 5-10 turtles per day by muddling or harpooning (plus those caught in fishing nets or by hook) and it is believed that there are over 50,000 individuals involved full time in these activities around the country (van Dijk *et al*, 2000). National utilization of Asian turtles is extensive and is consistent with international uses of those same species.

In the late 1990s and early 2000s, at least 13,000 metric tons of live turtles were exported from South and Southeast Asia to East Asia each year (5000 tons wild from ID, 1500 tons wild from BD, 4000 tons farmed softshell from TH, and 2500 tons farmed & wild from MY). Many Asian turtle are known to be significantly impacted by the trade. High monetary value can stimulate demand as is the case with *Cuora trifasciata*. In the eighties the species sold for $50-100 USD but by 1999/2000 the price had gone to $1500/kg because it was thought to cure cancer which has now brought this species to the brink of extinction. *Cuora amboinensis* exported from Indonesia to East Asian food markets was estimated to number at one million per year in 2000. At the same time *Cuora galbinifrons* was found in over 80% of shipments coming out of Vietnam and represented the third most encountered species in those shipments. Export statistics for specific turtle species from various countries show short periods of rapid increases in trade volumes exported, followed by equally rapid declines in total volumes exported over a period of a few years. Regular shifts in known trade routes and the species offered for sale in East Asian food markets demonstrate that new areas and species to supply the trade are exploited as existing supply areas and species are exhausted. All indications are that one area after another in South and Southeast Asia is depleted of its native turtle species to supply the demand from East Asia (van Dijk *et al,* 2000, TCC, 2011).

Ten years later (2011) according to participants at the Conservation of Asian Tortoises and Freshwater Turtles: Setting Priorities for the Next Ten Years in Singapore, the trade in wild- caught turtles and turtle products (e.g., meat, shell, eggs, and cartilage) is still the number one problem facing global turtle populations.

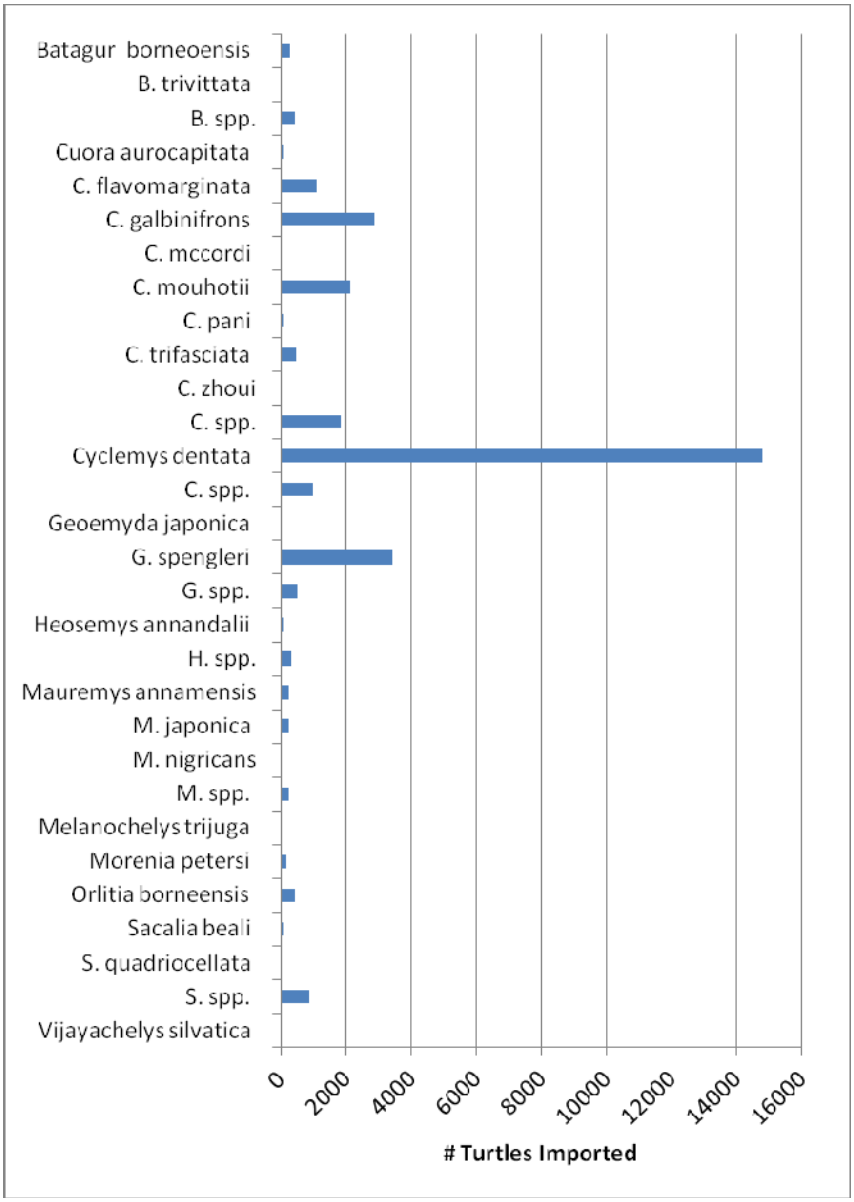
6.2 Legal trade

The figure below shows all available CITES Trade data for all Geoemydids that are being proposed for listing/or zero quota. Quantities indicate only the number of live specimens, which is the majority of this trade data. CITES trade data shows both import quantities entering the destination and exports quantities leaving from the major exporting range states. Higher reported import numbers suggest problems in the control of exports from the range countries.

Species	Import Quantity	Export Quantity	Major (Re-) Exporter	Years	Note
Batagur borneoensis	8625	16611	MY MM	1996-2011	
Cuora aurocapitata	102	13	ID HK	2002-2010	ID one ship of 100
Cuora flavomarginata	1393	1296	CN HK	2000-2011	
Cuora galbinifrons	2504	558	LA HK	1999-2010	
Cuora mccordi	73	89	DE	2004-2011	
Cuora mouhotii	2	3	HK	2009-2010	
Cuora pani	87	56	CH DE	2001-2010	
Cuora trifasciata	645	196		2000-2011	+ 3274 Kg Powder from TW
Cuora zhoui	33	7	HK CN	2000-2007	
Geoemyda spengleri	1204	24	CN TH	2004-2009	
Heosemys annandalii	33976	70394	VN LA	2003-2011	
Heosemys depressa	15	3	HK	2003-2010	
Mauremys annamensis	110	121	CN DE	2003-2009	
Orlitia borneensis	39951	15340	MY ID	2003-2010	
Sacalia bealei	2	---	AR	2010	
Sacalia quadriocellata	522	2	MM	2006-2009	

In addition to the species listed above, the numerical values for the two farmed species are presented for comparison. Between 2004 and 2011 there were 25,656 live *Mauremys sinensis* exported predominantly from China (including Taiwan Province). Import data show 86,079 live turtles being imported. Between 2005 and 2011 there were 61,104 live *Mauremys reevsii* exported predominantly from China and Japan. Import data show 60,052 live turtles being imported. However there is also a large trade in parts and derivatives for *M. reevsii* which includes extract, derivatives, bones, shells, carvings and soup. Derivative trade accounts for more than 97000 kg of derivative during this time period.

For species not yet listed under CITES, the volume of legal trade in largely unknown. However, the figure below shows a summary of LEMIS (U.S. Law Enforcement Database) import data of Geoemydidae entering the United States for those species (all available data) being considered for Appendix II or Appendix II with zero quota. Over 100,000 Geoemydid turtles have been imported between 1999 and 2010. The species are primarily being exported by Indonesia (54%), China (14%), and Malaysia (14%) and ninety four percent are declared as wild caught.



6.3 Parts and derivatives

Shells have been used for thousands of years as currency, luxury adornments, and materials for carving oracles and art products. The utilization of turtles and tortoises (whole body, shell, or shell gel, produced by boiling turtle shells) as traditional medicine (Zhou and Jiang, 2008). Some species like *Cuora trifasiata* are used to produce jellies and extracts allegedly capable of curing cancer (TCC, 2011).See 6.2 for data on parts and derivatives from *Mauremys reevsii.*

6.4 Illegal trade

Illegal trade in both live animals and parts and products has been documented and appears to involve animals from across the Asia region. There currently is, and for many years has been, a high volume of illegal trade in live turtles; however, illegal trade appears to be shifting toward parts and processed products (often easier to conceal) such as ground turtle paste, calipee, and bone powder (AC25 Doc. 19; SC61). Yet such shipments have rarely been entered into the CITES Trade Database, indicating that this aspect of the trade is largely illegal (Altherr & Freyer, 2000). There are significant challenges with identification of turtle species traded alive and with processed turtle parts and products in trade. There is an epidemic of smuggled turtles openly for sale in several Asian countries (AC25 Doc. 19). Some of these countries do not have the effective regulatory tools in place to allow officials to deal with illegal trade.

6.5 Actual or potential trade impacts

This proposal focuses on Asian species of the Family Geoemydidae because they are currently at highest risk and are a priority for conservation action. Trade in Asian turtle species follows a boom and bust pattern where exploitation and trade shift from one species to another when: 1) a species becomes so depleted or rare that it is no longer commercially exploitable; or 2) a species becomes the subject of stricter regulation, and as such is less exploitable (see Fig. 1). Therefore, the inclusion of these Asian species at the higher taxon level is needed to ensure sustainable trade in the species.

7. Legal instruments

7.1 National

The table below lists national legal instruments of the parties that responded to our consultation

Country	Law/Regulation/Action	Year	Note
Bangladesh	Conservation Act	2012	All Geoemydid turtle species under Schedule I are considered *protected animals*
China	State Forestry Administration Order: List of National Protected Terrestrial Wild Animals which are Beneficial , or with Important Economic and Scientific Research Values	2000	The species listed in CITES appendix I or II are considered as Category I or II national protected animals in China, and most of these native Chinese turtles, which are not listed in the CITES Appendices, are in the List of National Protected Terrestrial Wild Animals which are Beneficial, or with Important Economic and Scientific Research Values
India	Wildlife Protection Act	1972	Of the 16 species of Geoemydid in India: 6 Schedule I, 1 Schedule IV – which means they are protected from any kind of trade by listing in a Schedule as well as 8 non listed
Indonesia	Minister of Forestry decree No. 447/2003	1999, 2003	All domestic traders should be registered by Provincial Office of Conservation and Natural Resources (BKSDA) based on the harvest quota allowed. *Batagur affinis* and *Ortilitia borneensis* are protected from commercial trade under Government Decree No. 7/1999
Japan	Cultural Assets Preservation Act		Export of living individuals of *Cuora flavomarginata evelynae* & *Geoemyda japonica* is prohibited without permission. *Mauremys japonica* is not protected
Pakistan	Moratorium on commercial trade of all reptiles		Provincial wildlife authorities in collaboration with Pakistan Wetlands Program took various steps for conservation of fresh water turtles e.g. amendments in provincial wildlife legislations to declare all fresh water turtle species as protected
Singapore	National Parks Act, Parks and Trees Act; Wild Animals and Birds Act; Endangered Species (Import and Export) Act		*C. dentata* - Listed as rare in Singapore and Critically Endangered in the Singapore Red Data Book. Commercial harvest is prohibited. *H spinosa and N platynota* – protected and no commercial trade. *C amboinesis* – allowed as pet but no commercial harvest
Thailand	Wild Animal Protection and Reservation Act	1992	Native turtles and tortoises are protected species under this Act, therefore

Country	Law/Regulation/Action	Year	Note
			commercial harvest, trade and all kind of exploitation, including import and export, are not allowed
UK - British Indian Ocean Territory	The protection and preservation of Wild Life Ordinance; The Trade in Endangered Species (Control) Ordinance	1970; 2007	Only *M. trijuga* ocurrs here. Legislation to protect wildlife (including turtles), prohibit the purchase, sale or export of wildlife, and prohibit the introduction of wildlife.
Viet Nam	Group IIB of Governmental Decree No 32/2006/ND-CP	2006	Four (*Cuora trifasciata, Heosemys – anandalii, annamensis, grandis*) of the 16 species of Geoemydidae in Viet Nam are protected by this legislation.

7.2 International

Forty eight species (4 of these are actually hybrids) of the family Geoemydidae are currently listed in the CITES Appendices (Appendix I=6, Appendix II=30, Appendix III=12). There are no other international trade controls or management measures (see Table 1 for species status).

8. Species management

8.1 Management measures

None known.

8.2 Population monitoring

There is no systematic range wide population monitoring known to occur for Asian turtle species. Virtually no long-term data sets exist for turtles except a few North American species.

8.3 Control measures

8.3.1 International

Non known except for CITES which controls trade for some of the species in this proposal (see Table 1)

8.3.2 Domestic

Some species are protected at the range State and provincial level (see Section 7.1 Legal Instruments, National). However, domestic protection appears to be inadequate to control the harvest pressure cause by international trade.

8.4 Captive breeding and artificial propagation

It is possible for large scale captive breeding of turtles to alleviate pressure on wild populations; such is the case for *Mauremys reevesii* and *Mauremys sinensis* which are excluded from this proposal. However, some captive breeding operations rely heavily on wild-sourced parental stock or need more attention on genetic management and containment to ensure that wild populations are not affected by disease and genetic pollution or outcompeted by non-natives. For the species being proposed for a change in CITES status in this proposal, little captive breeding is occurring and it is primarily to establish assurance colonies rather than for commercial production.

8.4.1 Breeding Programs:

The Turtle Survival Alliance (TSA) formed in 2001 and was originally an official Task Force of the IUCN-TFTSG but is now an independent NGO. The TSA focuses on captive management and prevention of turtle extinctions through range-country and international breeding programs (establishing in situ/ex situ assurance colonies). Many confiscated Geoemydids

enter the TSA network of smaller private assurance colonies. TSA has programs throughout the world including the following breeding programs for Geoemydidae (http://turtlesurvival.org/):

Species	Country	Location	Organization	Notes
Batagur baska	Bangladesh	Bhawal National Park near Dhaka.	Bangladeshi NGO CARINAM and the Forest Department	Facility has 14 males and 7 females. In 2012 they produced 5 nests with 92 eggs of which 27 hatchlings emerged and 25 survived.
Batagur baska	India	West Bengal	Sundarbans Tiger Reserve at Sanjekhali and Madras Crocodile Bank Trust	Captive colony of 10 turtles had their facility improved by TSA and produced 25 hatchlings. The MCBT will receive a male to join its 2 femals.
Batagur kachuga & Batagur dhongoka	India	Garhaita Turtle Rehabilitation Center and Deori turtle centers	Madhya Pradesh Forest Department	In-situ turtle rearing sites. Both these facilities (16 X 5 X 1.5 m) are equipped with floating basking and nesting platforms and can rear thousands of small turtles.
Batagur trivittata	Burma (Myanmar)	Yadanabon Zoo and Lawkananda		50 sub-adults at Lawkananda and a colony of over 400 individuals at Yadanabon Zoo
Heosemys depressa	Burma (Myanmar)	Arakan forest turtle facility in Gwa, Rakhine Region at the Taung-Nyo Forest Reserve.	Taung-Nyo Forest Reserve	13 Animals (6 males & 7 females). The turtle enclosure measures 32 feet by 32 feet. Two shallow concrete pools were constructed for turtles to drink and soak.
Siebenrockiella leytensis	Philippines	The Katala Institute for Ecology and Biodiversity Conservation (KIEBC) in Antipuluan, Narra, Palawan	Katala Foundation Incorporated a Palawan-based NGO	40 animals at the facility

8.4.2 *Individuals:*

There are hundreds of individual breeders/hobbyists around the world who have had success breeding many of the turtles identified in this proposal. However, these animals are not known to be systematically used to support conservation in the wild. Individual breeding efforts also have complications when it comes to stock genetics and diseases that can be introduced to wild populations.

8.4.3 *Farms:*

Fewer farming operations concern themselves with hard-shelled freshwater turtles, mainly because most hardshelled turtle species grow and reproduce significantly slower than soft-shelled turtle species while fetching similar or lower market prices per kg. Farming hard-shelled turtles is thus a market that cannot compete directly against softshell farming in the

general food trade (AC19Doc 15.2 [Rev. 1]). A large danger with farming is that farmers are always seeking wild breeders because successive generations of farm-raised turtles show a marked decrease in reproductive capability. This reliance on wild-collected individuals indicates that turtle farming is not a sustainable practice (Shi H. T. et al, 2007). *Mauremys reevesii* and *Mauremys sinensis* are mass farmed in China. However, given the extensiveness of the farming of these species, harvest of wild source specimens or parental stock which would be of conservation concern, is believed to be low. A reported trade shift away from imported wild caught stock to in country [China] farmed stock (e.g. *Pelodiscus sinensis* and *Mauremys reevesii*) supports this (Horne et al, 2012).

In 2008 there were 1499 officially recognized turtle farms in China (for each recognized farm there are many more that operate covertly). Forty-six percent of these responded to a survey which showed that these farms produced 566 thousand *Mauremys reevesii* / year (value $6.4 million) from a captive stock of 2.8 million adults and 1.8 million *Mauremys sinensis* / year (value $13 million) from a captive stock of 1.5 million adults. The farms also produced 50,000 *Cuora mouhotii*, 46,000 *Mauremys mutica*, 21,000 *Cuora trifaciata*, and 10,000 *Geoemyda spengleri* / year (Shi H. T., 2008). Japan is not known to have produced significant quantities of freshwater turtles in a long time. Operation in Thailand peaked in 1996 with 6 million turtles produced per year. By 2002 there were only a handful of the 10,000+ farms left because China had imposed stricter import regulation in 1999 as the result of *Samonella* contamination. Chinese domestic turtle production also reached its peak at this point and prices started to drop. Malaysia also experienced this same reduction in farming. Only Viet Nam continued to increase softshell turtle production because of domestic market demand (AC19Doc 15.2 [Rev. 1]).

8.5 Habitat conservation

In China over 700 reserves protect 6% of total national area but major lowland turtle habitats like large rivers and freshwater marshes are under-represented in these protected areas. Viet Nam has 11 National Parks and 91 protected areas covering 4.1% of the country. Unfortunately, large amounts of forested area have been lost for timber since 1945 – impacting forest dwelling species. Thailand has over 100 protected areas that represent 12% of its land. Not all native turtles are confirmed to occur in protected areas. Lao has 20 National Biodiversity Areas that cover 12.5% of the country. These areas are multiple use areas and allow for villagers to live in their boundaries with little to no protection for resources found there. However, given their vastness and low population densities they probably serve to keep turtle populations inaccessible to collectors (van Dijk *et al.*, 2000).

9. Information on similar species

Asian Species in the Family Geoemydidae are similar in appearance and there are similarities in how they are used in international trade, as food, medicine, to supply aquaculture operations and for pets. This proposal submits that because of the similarity of their biological vulnerabilities and in the ways that they are used in international trade, these species warrant inclusion in CITES at a higher taxa level under Annex 2a Criterion B.

The Geoemydid turtles in this proposal are similar in appearance to other Geoemydid turtles around the World. However there is little evidence to indicate that *Rhinoclemmys* or European/Middle Eastern *Mauremys* species are traded internationally in any significant volume (see section 6.5).

Species of the family Emydidae have similar characteristic to Geoemydidae because both families are hard shelled pond turtles with more terrestrial box turtles occurring in each. Their ranges do not overlap because Emydidae are only naturally found in the New World (exception Genus *Rhinoclemmys*). Tortoises or Testudinidae have hard shells, are highly terrestrial, and overlap with Geoemydidae but can be distinguished by the fact that the shells are more dome shaped and that the feet lack webbing which is a trait of a more aquatic lifestyle.

10. Consultations

Consultation letters on transferring the Appendix II species to Appendix I have been sent to all 22 range countries with the following responses regarding Geoemydidae. (with respect to species found in that country). After consultation, the proposal was amended so that Appendix I species remain in Appendix II but with a zero quota on wild specimens for commercial purpose:

Bangladesh: Bangladesh indicated that it generally agrees with the proposal to transfer or include species in the CITES Appendices or advocates higher protection (i.e. Appendix I).

India: India support all proposed Geoemydid higher taxa listings with the exception of moving *Cuora mouhotii* to Appendix I but instead putting it in Review of Significant Trade.

Indonesia: Indonesia supports five of the eight Geoemydid turtle species. Not *Cyclemys dentata* (not enough data), *Leucocephalon yuwonoi* (exclude from sig trade, zero quota for 5 yrs), and *Cuora amboinensis* (exclude from sig trade).

Japan: Japan does not have enough information which can tell necessity of up-listing about each species. However, they inform us that they take this proposal positively.

Nepal: Nepal supports the proposals for COP16.

Pakistan: Pakistan extends its support for the proposal.

Singapore: Singapore provided data on trade, biology, and illegal harvest.

Thailand: Thailand indicated that it has no problem in implementing its own law for these species.

United Kingdom or its Overseas Territories, Crown Dependencies and Sovereign Base Areas – Indian Ocean: While only *Melanochelys trijuga* (Indian Black Turtle) is in this area but the UK sees merit in considering a higher taxa listing for two of the most exploited families of freshwater turtles.

Viet Nam: Viet Nam, generally, supports this proposal but will be submitting its own proposals for *C. galbinifrons* and *M. annamensis* and can therefore not co-sponsor this proposal.

11. Additional remarks

Exclusions:

The Genus *Rhinoclemmys* (i.e. nine species) as well as the species *Mauremys caspica Mauremys leprosa,* and *Mauremys rivulata* are excluded from this proposal because they face a lower trade risk as a consequence of a reduced regional utilization. The economic constraints associated with producing, collecting, and shipping species of this South American Genus also lowers their trade risk. According to the numerous references (Cheung & Dudgeon, 2006; Shepherd & Nijman, 2007, 2008; Gong *et al.*, 2009) to turtles in the Asian markets few South American or European/Middle Eastern Geoemydids (only pet trade) are listed.

Mauremys reevesii and *Mauremys sinensis* are also excluded from this proposal because of the mass farming that is undertaken for these species in China. Given the extensiveness of the farming of these species, harvest of wild source specimens or parental stock which would be of conservation concern, is believed to be low (see Section 8.4 for specific details; Shi H.T. *et al*, 2007; Shi H.T. et al, 2008). *Mauremys megalochephala* is considered a molluscivorous morph of *M. reevesii* and therefore also remains Appendix III.

CITES currently recognizes on Appendix III five species of Asian turtles (Geoemydidae) that are known hybrids. These turtles are therefore excluded from this proposal and remain Appendix III.

Nominal taxon	Hybrid between
Mauremys iversoni (Pritchard & McCord, 1991)	*Cuora trifasciata x Mauremys mutica*
Mauremys pritchardi (McCord, 1997)	*Mauremys mutica x Mauremys reevesii*
Ocadia glyphistoma (McCord & Iverson, 1994)	*Mauremys sinensis x Mauremys annamensis*
Ocadia philippeni (McCord & Iverson, 1992)	*Mauremys sinensis x Cuora trifasciata*
Sacalia pseudocellata (McCord & Iverson, 1992)	*Cuora trifasciata x Sacalia quadriocellata*

IUCN information:

Eighteen of the thirty species (60%) of Geoemydids turtle proposed for listing/ zero quota are Critically Endangered (or draft Critically Endangered) and 6 species (20%) are Endangered (or draft Endangered) according to the Red List of Threatened Species. See Table 1 for a complete listing of IUCN status.

International Workshop

An international workshop on the *Conservation of Asian Tortoises and Freshwater Turtles: Setting Priorities for the Next Ten Years* was held in Singapore in February 2011. Nearly 70 delegates from 17 countries – including 14 Asian nations – attended. This was a follow up to the Asian turtle meetings convened in Phnom Penh, Cambodia in 1999 to discuss the plight of turtles since that initial effort. Significant strides have been made since the 1999 workshop; however, the trade in wild caught turtles and turtle products (e.g., meat, shell, eggs, and cartilage) is still the number one problem facing global turtle populations. Among the recommendations of the workshop were updates to the CITES statuses of turtles. Thirteen species were recommended for inclusion in Appendix II and 25 species were recommended for transfer from Appendix II to I. Among these were the following Geoemydidae: Appendix I – *Batagur borneoensis, Cuora aurocapitata, Cuora flavomarginata, Cuora galbinifrons*, *Cuora mccordi, Cuora pani, Cuora trifasciata, Cuora yunnanensis, Cuora zhoui, Heosemys annandalii, Heosemys depressa, Leucocephalon yuwonoi*, *Mauremys annamensis, Mauremys mutica*, *Orlitia borneensis*, *Siebenrockiella leytensis* and for Appendix II – *Cyclemys spp, Geoemyda spengleri* , *Hardella thurjii, Melanochelys trijuga, Morenia petersi, Sacalia spp, Vijayachelys silvatica* (Horne *et al,* 2011). The Appendix II inclusions are consistent with this proposal. The Appendix I inclusions are largely modified to stay in Appendix II with zero quota on wild species for commercial purpose, with the exception of *Leucocephalon yuwonoi, Mauremys mutica*, and, *Siebenrockiella leytensis,* which remain in Appendix II without the restriction of zero quota.

The *IUCN 5th World Conservation Congress* held in Korea in September 2012 calls on CITES parties to “Evaluate that turtle species subject to international trade are appropriately included in the CITES Appendices” with particular emphasis on making Non-Detriment Findings, ensuring stricter domestic measures safeguard turtles, and that laws are enforced.

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Table1. Table showing current CITES and proposed CITES status for all Geoemydidae species world-wide.
Note: Shaded boxes show the proposed listings/zero quotas for this family.

Comon name	Scientific Name	Range States	Current CITES Status	Proposed CITES listing	IUCN Status	Note
Southern River Terrapin	*Batagur affinis*	KH ID MY MM TH VN	Appendix I	Appendix I	NE, draft CR	No change
Northern River Terrapin	*Batagur baska*	BD IN MM TH	Appendix I	Appendix I	CR (2000), draft CR	No change
Painted Terrapin	*Batagur borneoensis*	BN,MY,TH,ID,	Appendix II	Appendix II + zero quota	CR, draft CR	Zero quota / AC review
Burmese Roofed Turtle	*Batagur trivittata*	MM	Appendix II	Appendix II + zero quota	EN, draft CR	Zero quota / AC review
Yellow-headed Box Turtle	*Cuora aurocapitata*	CN	Appendix II	Appendix II + zero quota	CR (2000), draft CR	Zero quota / AC review
Yellow-margined Box Turtle	*Cuora flavomarginata*	CN, JP	Appendix II	Appendix II + zero quota	EN (2000), draft CR	Zero quota / AC review
Indochinese Box Turtle	*Cuora galbinifrons*	CN,VN,LA	Appendix II	Appendix II + zero quota	CR (2000), draft CR	Zero quota / AC review
McCord's Box Turtle	*Cuora mccordi*	CN	Appendix II	Appendix II + zero quota	CR (2000), draft CR	Zero quota / AC review
Keeled Box Turtle (northern & Southern)	*Cuora mouhotii (including C m mouhotii & C m obsti)*	IN,MM,LA, VN,CN,TH	Appendix II	Appendix II + zero quota	EN (2000), draft CR	Zero quota / AC review
Pan's Box Turtle	*Cuora pani*	CN	Appendix II	Appendix II + zero quota	CR (2000), draft CR	Zero quota / AC review
Chinese Three-striped Box Turtle	*Cuora trifasciata*	CN,HK, VN,LA	Appendix II	Appendix II + zero quota	CR (2000), draft CR	Zero quota / AC review
Yunnan Box Turtle	*Cuora yunnanensis*	CN	Appendix II	Appendix II + zero quota	CR (2010)	Zero quota / AC review
Zhou's Box Turtle	*Cuora zhoui*	VN,CN	Appendix II	Appendix II + zero quota	CR (2000), draft CR	Zero quota / AC review
Spotted Pond Turtle	*Geoclemys hamiltonii*	BD IN NP PK	Appendix I	Appendix I	VU (2000), draft EN	No change
Yellow-headed Temple Turtle	*Heosemys annandalii*	KH VN TH MY? MM?	Appendix II	Appendix II + zero quota	EN, draft EN or CR	Zero quota / AC review
Arakan Forest	*Heosemys*	MM	Appendix II	Appendix II	CR, draft	Zero quota /

Comon name	Scientific Name	Range States	Current CITES Status	Proposed CITES listing	IUCN Status	Note
Turtle	*depressa*			+ zero quota	EN or CR	AC review
Annam Pond Turtle	*Mauremys annamensis*	VN	Appendix II	Appendix II + zero quota	CR, draft CR	Zero quota / AC review
Tricarinate Hill Turtle	*Melanochelys tricarinata*	BD IN NP	Appendix I	Appendix I	VU (2000), draft VU	No change
Burmese Eyed Turtle	*Morenia ocellata*	CN MM	Appendix I	Appendix I	VU (2000), draft VU	No change
Indian Roofed Turtle	*Pangshura tecta*	BD IN NP PK	Appendix I	Appendix I	LC (2000), draft NT	No change
Malaysian Giant Turtle	*Orlitia borneensis*	ID,MY	Appendix II	Appendix II + zero quota	EN (2000), draft CR	Zero quota / AC review
Three-stripped Roof Turtle	*Batagur dhongoka*	BD IN NP	Appendix II	Appendix II	EN (2000), draft EN	No change
Red-crowed Roofed Turtle	*Batagur kachuga*	BD IN NP	Appendix II	Appendix II	CR, draft CR	No change
Western Black-bridged Leaf Turtle	*Cyclemys atripons*	TH,KH	Non CITES	Appendix II	NE, draft DD	Listing
Asian Leaf Turtle	*Cyclemys dentata*	MY,ID,BN,MY, PH	Non CITES	Appendix II	LR/NT (2000), draft DD	Listing
	Cyclemys shanensis[3]	IN,MM,TH, LA,VN	Non CITES	Appendix II	NE	Listing
Southeast Asian Leaf Turtle	*Cyclemys oldhamii*	IN,MM,TH,BN, MY,KH,CN	Non CITES	Appendix II	NE, draft DD	Listing
Eastern Black-bridged leaf Turtle	*Cyclemys pulchristriata*	VN,KH	Non CITES	Appendix II	NE, draft DD	Listing
Ryukyu Black-breasted Leaf Turtle	*Geoemyda japonica*	JP	Non CITES	Appendix II	EN (2000)	Listing
Black-breasted Hill Turtle	*Geoemyda spengleri*	CN,VN	Appendix III	Appendix II	EN (2000), draft EN	Listing
Crowned River Turtle	*Hardella thurjii*	BD,IN,NP,PK	Non CITES	Appendix II	VU (2000), draft EN	Listing

[3] *The taxonomy of the genus Cyclemys was revised by Fritz et al. (2008), who synonymized C. shanensis and described three new species, C. enigmatica, C. fusca, and C. gemeli; the genus content used in this proposal is as provided by the CITES Standard Reference for Testudines (Fritz & Havas, 2007)*

Comon name	Scientific Name	Range States	Current CITES Status	Proposed CITES listing	IUCN Status	Note
Giant Asian Pond Turtle	*Heosemys grandis*	KH LA MY MM TH VN	Appendix II	Appendix II	VU (2000), draft EN	No change
Spiny Turtle	*Heosemys spinosa*	BN ID MY PH SG TH	Appendix II	Appendix II	EN (2000), draft EN	No change
Malayan snail-eating turtle	*Malayemys macrocephala*	KH MY MM TH	Appendix II	Appendix II	NE, draft VU	No change
Mekong snail-eating Turtle	*Malayemys subtrijuga*	KH LA TH VN	Appendix II	Appendix II	VU (2000), draft VU	No change
Japanese Pond Turtle	*Mauremys japonica*	JP	Non CITES	Appendix II	NT (2000)	Listing
Yellow Pond Turtle	*Mauremys mutica*	CN VN LA JP	Appendix II	Appendix II	EN, draft CR	No change
Red-necked Pond Turtle	*Mauremys nigricans*	CN	Appendix III	Appendix II	EN, draft CR	Listing
Chinese Stripe-necked Turtle	*Mauremys sinensis*	CN LA VN	Appendix III	Appendix III	EN (2000), draft EN	No change, Mass Farm Production
Indian Black Turtle	*Melanochelys trijuga*	BD,IO,IN,MV, MM,NP,LK	Non CITES	Appendix II	LR/LC (2000), draft NT	Listing
Indian Eyed Turtle	*Morenia petersi*	BD,IN,NP	Non CITES	Appendix II	VU (2000), draft VU	Listing
Malayan Flat-shelled turtle	*Notochelys platynota*	BN ID MY SG TH	Appendix II	Appendix II	VU (2000), draft VU	No change
Brown Roofed Turtle	*Pangshura smithii*	BD IN NP PK	Appendix II	Appendix II	NT (2000), draft NT/LC	No change
Assam Roofed Turtle	*Pangshura sylhetensis*	BD IN	Appendix II	Appendix II	EN (2000), draft EN	No change
Indian Tent Turtle	*Pangshura tentoria*	BD IN NP	Appendix II	Appendix II	LC (2000), draft LC	No change
Beal's Eyed Turtle	*Sacalia bealei*	CN	Appendix III	Appendix II	EN (2000), draft CR	Listing
Four-eyed Turtle	*Sacalia quadriocellata*	CN,LA,VN	Appendix III	Appendix II	EN, draft EN	Listing
Black Marsh Turtle	*Siebenrockiella crassicollis*	BN KH ID LA MY TH VN	Appendix II	Appendix II	VU (2000), draft EN	No change
Phillipine Forest Turtle	*Siebenrockiella leytensis*	PH	Appendix II	Appendix II	CR (2000)	No change
Cochin Forest Cane Turtle	*Vijayachelys silvatica*	IN	Non CITES	Appendix II	EN (2000), draft EN	Listing

Comon name	Scientific Name	Range States	Current CITES Status	Proposed CITES listing	IUCN Status	Note
Southeastern Asian Box Turtle	*Cuora amboinensis*	BD BN KH IN LA MY MM PH TH TL VN	Appendix II	Appendix II + RST	VU (2000), draft VU	No change – RST Recommended
Sulawesi Forest Turtle	*Leucocephalon yuwonoi*	ID	Appendix II	Appendix II + RST	CR, draft CR	No change – RST Recommended
	Mauremys iversoni	CN	Appendix III	Appendix III	Not Listed	HYBRID
	Mauremys megalocephala	CN	Appendix III	Appendix III	Not Listed	molluscivorous morph of reevesii
	Mauremys pritchardi	CN, ?MM	Appendix III	Appendix III	Not Listed	HYBRID
Reeves Turtle	*Mauremys reevesii*	CN HK KP KR	Appendix III	Appendix III	EN (2011)	Mass Farm Production
	Ocadia glyphistoma	?CN, ?VN	Appendix III	Appendix III	Not Listed	HYBRID
	Ocadia philippeni	CN	Appendix III	Appendix III	Not Listed	HYBRID
	Sacalia pseudocellata	CN	Appendix III	Appendix III	Not Listed	HYBRID
Caspian Turtle	*Mauremys caspica*	AM AZ BH GE IR IQ KW RU SA SY TR TM	Non CITES	Exclude	Not Listed, draft LC	Lower Trade Risk
Mediterranean Pond Turtle	*Mauremys leprosa*	DZ FR LR MR MA PT ES TN	Non CITES	Exclude	Not Listed, draft VU	Lower Trade Risk
Western Caspian Turtle	*Mauremys rivulata*	AL BA BG HR CY GR IL JO LB MK ME RS SY TR	Non CITES	Exclude	NE, draft LC	Lower Trade Risk
Large-nose Wood Turtle	*Rhinoclemmys nasuta*	CO EC	Non CITES	Exclude	NT (1996), draft NT	Lower Trade Risk
Brown Wood Turtle	*Rhinoclemmys annulata*	CO CR EC HN NI PA	Non CITES	Exclude	NT (1996), draft DD	Lower Trade Risk
Furrowed Wood Turtle	*Rhinoclemmys areolata*	BZ GT HN MX	Non CITES	Exclude	NT (2007)	Lower Trade Risk
Maracaibo Wood Turtle	*Rhinoclemmys diademata*	CO VE	Non CITES	Exclude	Not Listed, draft VU	Lower Trade Risk
Black Wood Turtle	*Rhinoclemmys funerea*	CR HN NI PA	Non CITES	Exclude	NT (1996)	Lower Trade Risk
Columbian Wood Turtle	*Rhinoclemmys melanosterna*	CO EC PA	Non CITES	Exclude	Not Listed, draft LC	Lower Trade Risk

Comon name	Scientific Name	Range States	Current CITES Status	Proposed CITES listing	IUCN Status	Note
Painted Wood Turtle	*Rhinoclemmys pulcherrima*	CR HN NI PA SV GT HN MX NI	Non CITES	Exclude	Not Listed	Lower Trade Risk
Spot-legged Turtle	*Rhinoclemmys punctularia*	BR GF GY SR TT VE	Non CITES	Exclude	Not Listed, draft LC	Lower Trade Risk
Mexican Spotted Wood Turtle	*Rhinoclemmys rubida*	GT MX	Non CITES	Exclude	NT (2007)	Lower Trade Risk

Figure 1. Effects of CITES Actions:
Exports by Specimen. (Credit: IUCN Tortoise and Freshwater Turtle Specialist Group; CITES CoP15).

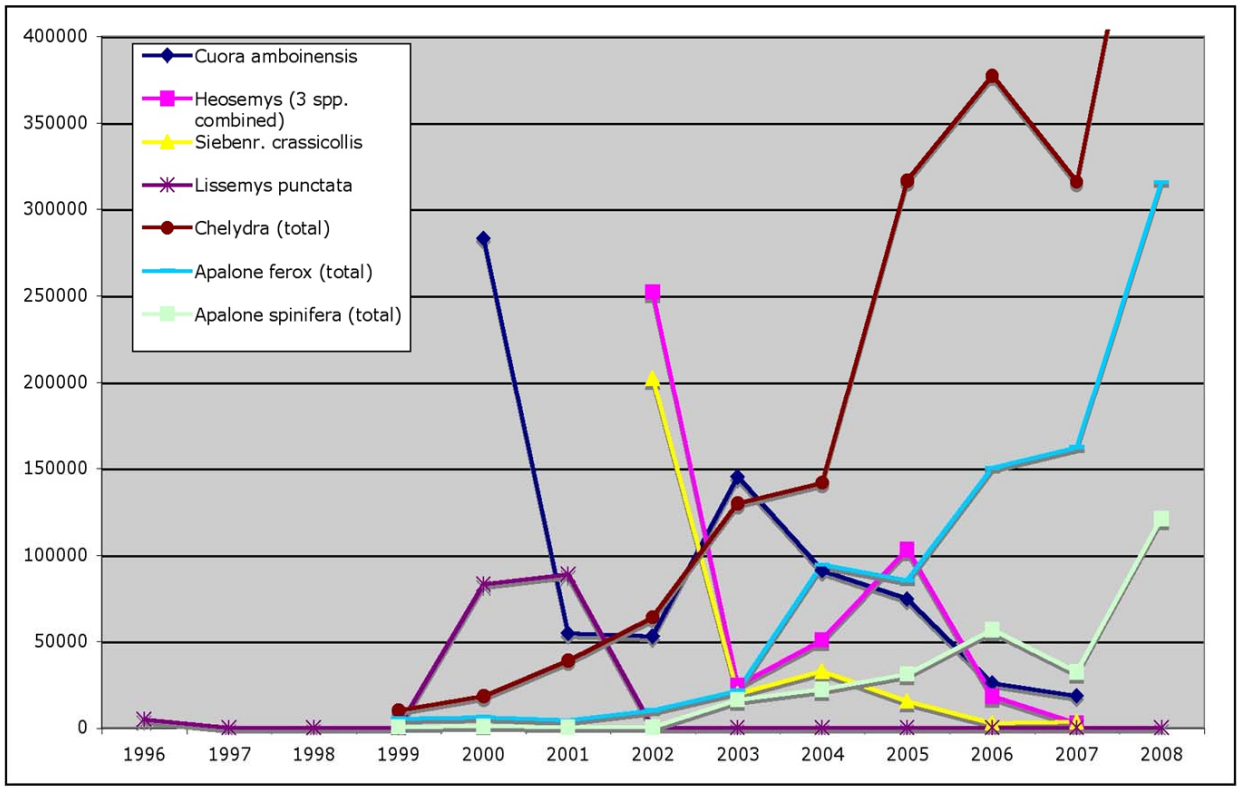
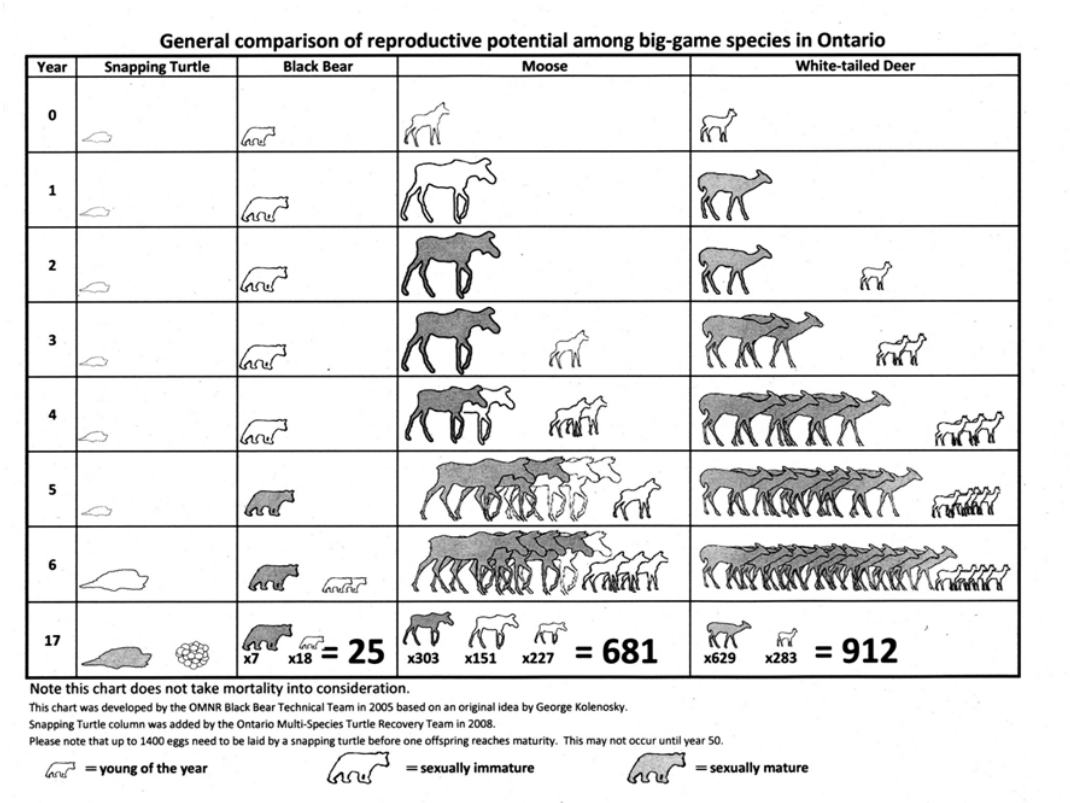


Figure 2. Comparison of reproductive output of a North American Snapping turtle to Managed North American Game Species: Bear, Moose, and Deer. (Credit Ron Brooks Co-Chair of OMSTARRT (Ontario Multi-Species of Turtles at Risk Recovery Team)).



Credit Ron Brooks Co-Chair of OMSTARRT
(Ontario Multi-Species of Turtles At Risk Recovery Team)