

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



Seventeenth Meeting of the Conference of the Parties
Johannesburg (South Africa), September 24 to October 5, 2016

CONSIDERATION OF PROPOSALS FOR AMENDMENTS TO APPENDICES II

A. Proposal

Inclusion of the following six species of the Family Trionychidae in Appendix II: *Cyclanorbis elegans*, *Cyclanorbis senegalensis*, *Cycloderma aubryi*, *Cycloderma frenatum*, *Trionyx triunguis*, and *Rafetus euphraticus*. This proposed inclusion is in accordance with Article II paragraph 2(a) of the Convention, satisfying Criterion B, Annex 2a of Res. Conf. 9.24 (Rev CoP16).

For a complete list of species see Table 1.

B. Proponent

Burkina Faso, Chad, Gabon, Guinea, Liberia, Mauritania, Nigeria, Togo, and the United States of America*¹

C. Supporting statement

1. Taxonomy

1.1 Class: Reptilia

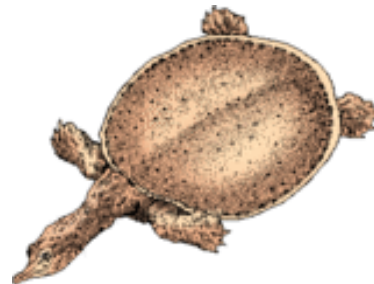
1.2 Order: Testudines

1.3 Family: Trionychidae Gray 1825

1.4 Genus, species or subspecies affected by this Proposal:

The Family Trionychidae contains 14 genera and 30 species, as currently recognized in the CITES Standard Reference (Fritz and Havas, 2007, excluding Appendix).

This proposal seeks to include 3 remaining genera and **6 species in Appendix II:**
Genus *Cyclanorbis* [2 species: *C. elegans*, *C. senegalensis*]



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Genus *Cycloderma* [2 species: *C. aubryi*, *C. frenatum*]

Genus *Trionyx* [1 species: *T. triunguis*]

Genus *Rafetus* [1 species: *R. euphraticus*]

This proposal specifically **excludes** the following genera and species:

Genus *Apalone* (*A. ferox*, *A. mutica*, and *A. spinifera*) [expected to be listed by the United States under Appendix III by Fall 2016] other than *A. spinifera atra* [retain in Appendix I];

Pelodiscus sinensis (excluded from this proposal because it is the subject of the mass farming to supply the trade);

All other Trionychidae that are now on the CITES Appendices as of CoP16 (CoP16 Prop 38, 2013)

1.5 Scientific synonyms:

See Fritz and Havas, 2007, and TTWG 2014 for synonyms of family, genus and species names.

1.6 Common names:

English:	Softshell turtles
Spanish:	Tortugas de caparazón blando
French:	Tortues à carapace molle

See Table 1 and TTWG 2014 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).

Softshell turtles of the family Trionychidae have a nearly world-wide distribution with a current total of 30 species found in Asia, Africa, the Middle East, and North America. They are among the most highly valued freshwater turtle species in international trade, traded mainly for consumption in and to eastern Asia. Trade occurs as live animals, as well as parts and derivatives (dried shell and cartilage, dried meat). In addition, these species are widely captured for local subsistence consumption and domestic trade. Trade in softshell turtles is generally non-specific for any particular species – they are interchangeable as a food/medicinal sources (e.g. Asian *Lissemys* are closely related to African *Cyclanorbis* and *Cycloderma*). As Asian softshell turtle species are depleted and as their trade is increasingly regulated and restricted through CITES and domestic measures, the trade has started to shift to other turtle sources in the US, Africa, and Middle East to meet the commercial demand (Fig 1).

This proposal focuses on Trionychidae (softshell turtles) native to Africa and, the Middle East. Trade in turtles 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. Ultimately, Asian consumption (primary market) moves further outside the region to

Africa, America, and the Middle East in order to fill market demand (Fig. 1). Softshell turtles continue to meet the criteria for inclusion in those Appendices. In this proposal **six species** are proposed for inclusion on Appendix II.

An IUCN Red List assessment for six species of Trionychidae (*Cyclanorbis elegans* [draft Critically Endangered], *Rafetus euphraticus* [draft Endangered], *Cyclanorbis senegalensis* [draft Vulnerable], *Cycloderma aubryi* [draft Vulnerable], *Cycloderma frenatum* [draft not evaluated], and *Trionyx triunguis* [draft Vulnerable]) was done in 2013 at a “*Conservation Status of the Tortoises and Freshwater Turtles of Sub-Saharan Africa*” Workshop that was held in Togo. These six species 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. These 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 Asian demand in international trade for softshell 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. At CoP16 in 2013 ten Asian species of Trionychidae received higher protection thereby giving protection to all Asian species of this family under CITES. This higher protection left vulnerability for African Trionychidae trade due to trade switching of species. Thus this proposal would serve to evoke a precautionary approach to regulate African Trionychidae trade.

3. Species characteristics

3.1 Distribution

The Family Trionychidae has a nearly world-wide distribution with species found in Asia, Africa, the Middle East, and North America (Ernst and Barbour, 1989; Fritz and Havas, 2007). The species of Trionychidae for which this proposal seeks inclusion in the Appendices occur in the following range states: Africa (37 countries): Angola, Benin, Burkina Faso, Cameroon, Central African Republic, Chad, Congo, Congo - Democratic Republic of the, Côte d'Ivoire, Egypt, Equatorial Guinea, Eritrea, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Liberia, Malawi Mali, Mauritania, Mozambique, Namibia, Niger, Nigeria, Senegal, Sierra Leone, Somalia, South Sudan, Sudan, Tanzania - United Republic of, Togo, Uganda, Zambia, Zimbabwe Middle East (6 countries): Iran, Iraq, Israel, Lebanon, Syrian Arab Republic, and Turkey. For more detailed information on country range of each species, see Table 1.

In Turkey *Rafetus euphraticus* is limited to the Fırat and Dicle rivers and its branches in the south east Anatolia (Y Kaska - Pamukkale University pers. comm.). In Israel original populations of *Trionyx triunguis* are found in the rivers that drain into the Mediterranean Sea, where there are records of their occurrence since prehistoric times (Bate, 1934). In the 1960's a small number of individuals were translocated to expand the range of the species due to pollution in the Mediterranean Rivers. This translocation led to the establishment of a new (invasive) population in the Hula Valley in the upper Jordan River, which is not connected to the Mediterranean rivers, and which apparently had never had any softshell turtles there (S. Nemtzov & D. Milstein – INPA, pers. comm.).

3.2 Habitat

All Trionychid turtles are highly aquatic and restricted to freshwater rivers and lakes at low to moderate altitudes; a few species occasionally venture into brackish or saline coastal waters. Most softshell turtles prefer slow moving streams and rivers with muddy or sandy bottoms, but they can also be found in ponds, marshes, and lakes (Ernst and Barbour, 1989; Bonin et al., 2006). *Trionyx triunguis* can be more pelagic and is more common as by-catch than sea turtles for Turkish shrimp trawlers (Branch, 1998; Moll and Moll, 2004).

3.3 Biological characteristics

Species of this family are all semiaquatic to highly aquatic; a few species emerge to bask, while many species do not emerge from water except to nest. They are also largely carnivorous (Moll and Moll, 2004) feeding on fish, aquatic snails, mussels, crab, shrimp, other water dwelling invertebrates, and amphibians. Some species such as *Cyclanorbis senegalensis*, *Cyclanorbis elegans* and *Cycloderma aubryi* are more omnivorous and eat detritus and fallen fruits as well (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). Softshell turtles can lay multiple clutches per year with *Cyclanorbis* laying 10-12 eggs/clutch; *Cycloderma* laying 15-35 eggs per clutch; and *Trionyx triunguis* laying 25-100+ eggs/clutch (Ernst and Barbour, 1989; Bonin et al., 2006). 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 (Congdon et al, 1993; Ernst and Lovich, 2009, and AC25 Doc. 19, 2011). If we compare turtles with commonly managed large mammals (see Fig. 2), turtles, because of their life history traits, are clearly vulnerable to significant off take (e.g. taken from North American species but applicable to all turtles).

3.4 Morphological characteristics

The distinguishing characteristic of this group is that the shell lacks horny scutes and is instead covered with leathery skin. Their necks are long and retractable; the legs are very paddle-like with three claws on each front foot. Many members of this family have long proboscis-like snouts (Ernst and Barbour, 1989). African/Middle Eastern Trionychidae range in size from 40-50 cm (*Rafetus euphraticus* on the smaller end of the range) to 120 cm carapace length (*Trionyx triunguis* on the larger end of the range). *Cycloderma* and *Cyclanorbis* are in between in size at around 60 cm carapace length (Bonin et al., 2006).

3.5 Role of species in their ecosystem

Turtles are major components of riverine food webs, playing important roles in energy flow, nutrient cycling, dispersal of riparian vegetation, and maintenance of water quality. This is

evidenced by the use of *Cyclanorbis senegalensis* in African wells to keep them free of algae, insect larvae, and putrefying matter (Moll and Moll, 2004). Softshell turtles (including *R. euphraticus* and *T. triunguis*) often act as ecosystem scavengers (Moll and Moll, 2004; Bonin et al., 2006).

4. Status and trends

4.1 Habitat trends

Many species in the family Trionychidae are found in river systems and are therefore susceptible to alteration of riverine habitat. Gold mining, sand mining, and river dam projects all alter turtle habitat. Mining causes loss or disturbance to nesting habitat (sandy beaches). The physical building of dams may impact nesting, but dams have much further reaching impact both up river and down river. The alteration of water flow causes inundation to nesting areas (drowning eggs or covering nesting sites). Water flow can change the clarity of water also impacting quality of turtle habitat and ability to hunt (ambush predators). Examples of riverine species impacted by lower habitat quality include: *Rafetus euphraticus* and *Trionyx triunguis* (Moll and Moll, 2004; Med-RLA, 2006).

4.2 Population size

Few population studies have been conducted on turtles in the Family Trionychidae. For most 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. Unfortunately neither of these data are readily available for African softshell turtles. *Cycloderma frenatum* is believed to be common in the southern shallow half of Lake Malawi but rare in the deeper northern waters of the lake (Broadley and Sachsse, 2011). *Rafetus euphraticus* exists in most rivers and marshes of Khuzestan Province in southwestern Iran (Ghaffari et al. 2008). In Turkey there are limited data for *R. euphraticus* due to the very low number of adult specimen recorded but it is believed that less than 50 adults occur (Y. Kasa - Pamukkale University, pers. comm.). The Ministry of Environment in Iraq has documented *R. euphraticus* presence and spread in the Iraqi aquatic environment in various regions of Iraq, highly increasing especially in the southern marshes, water bodies, and rivers (A.O. Salman – MoE, pers. comm.). *Trionyx triunguis* has become rare in Syria, Lebanon, Israel, and Africa; it is almost extinct in Egypt (Turkozan, 2008). The Mediterranean population has become critically endangered possibly as the result of shrimp trawler by-catch (Moll and Moll, 2004). In Turkey there is more available data on *T. triunguis* and the population is relatively widely distributed (with at least 15 sub-populations) but in general it is believed that the largest sub-population is less than 400 -500 individuals. The population seems to be stable over the last decade (Y. Kasa, O Turkozan – Pamukkale & Adnan Menderes Universities, pers. comm.). *Cyclanorbis elegans* has become rare across most of its range, with the possible exception of the middle Nile in South Sudan and Sudan (pers. comm. T. Diagne, Togo Workshop 2013). *Cycloderma aubryi* populations have declined significantly, at least locally and likely across much of the range, as a result of collection for local consumption. Fishermen in Gabon reported in 1996 that the species was no longer as abundant as it used to be, and restricted their hunting activities to the spring, rather than year-round. (Gramentz, 2008). Maran (2002) and Maran and Pauwels (2005) recorded capture rates of up to 30 *Cycloderma* per week per fisherman in Gabon.

Studies show that harvest, even a one-time event, can cause a turtle population to significantly decline and remain impacted for decades (UF, 2012)

4.3 Population structure

Data derived from studies of North American softshell turtles (*Apalone*) indicate that females have a larger body size than males and show sex ratios ranging from 1:1 to a greater number of males than females (Ernst and Lovich, 2009). In cases where females are larger than males, they may be differentially harvested for size and eggs, which further impacts population demography since there are fewer reproductive females in the population.

4.4 Population trends

This is hard to quantify given the lack of population studies done in Africa especially for these species. However a IUCN Red Listing Workshop in Togo in 2013 upgraded the status of 4 of the 6 species of evaluated softshell turtles from either not listed/least concern to threatened (VU or CR) which is indicative of declines in softshell turtle abundance and populations.

4.5 Geographic trends

Not only have downward population trends been noted in Middle Eastern and African species in the Family Trionychidae, but there has been a disappearance of some species from some waterways and river systems, such as the rarity/disappearance of *Cyclanorbis elegans* across most of its range, with the possible exception of the middle Nile in South Sudan and Sudan (pers. comm. T. Diagne, Togo Workshop 2013)

5. Threats

5.1 Softshell turtles are often locally consumed in Africa. Market/restaurant surveys in Lambaréné in Gabon from 2012-2015 showed 33 specimens of *Cycloderma aubryi*/ *Trionyx tringuis* sold for bush meat (pers. comm. H. Arrowood, OELO Gabon). Gramentz (1999) had earlier reported about 60 individuals of *Cycloderma* and 15 of *Trionyx* found on sale in the food market of Lambaréné in January-April 1996. However softshell turtles are particularly prized in the Asian aquaculture industry because of their rapid growth rates and because they are a preferred food source due to their highly valued gelatinous cartilage content (calipee, also found in sea turtles). Softshell 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 boom and bust pattern – once a species is depleted or regulated, the trade shifts to other species (Fig. 1). Chinese nationals started collecting *Cycloderma frenatum* from Lake Malawi in November 2013 about 5-6 months after many Asian Softshell turtles received greater CITES protection at CoP16 earlier that same year (B. Banda, Malawi National Parks, e-mail correspondence Nov 26, 2013). Meanwhile in 2014 the

same thing was seen with North American Softshell turtles which were not CITES listed (again less protection) with the arrest of Asian poachers in Florida (Robin des Bois, 2014).

The two species that occur in the Middle East are often killed by fishermen because of perceived competition for fish resources (Ghaffari et al. 2008; Turkozan, 2008). In addition, with continued human development and growth, turtle populations face pressure from habitat degradation and loss (Moll and Moll, 2004; Med-RLA, 2006). Below are some specific examples of the threats that species face.

- 5.1.1 *Cyclanorbis senegalensis* is widely collected for local subsistence consumption and traded at local markets (Gramentz, 2008). Evidence of recent international pet trade includes three Senegal Flapshell Turtle for sale on Kingsnake.com for \$600. The ad states they are “just in from West Africa” and “their shells are in rough condition but it is very common with imports of this species” indicating these are wild caught specimens (<http://www.firstchoicereptiles.com/>).
- 5.1.2 *Cycloderma aubryi* is extensively collected locally. The sustained collection of this species for consumption is understood to be the leading cause of decline (pers. comm. T. Diagne, Togo Workshop 2013; Maran and Pauwels, 2005). In the Congo Aubry's Flapshell Turtle are regularly collected or “fished” by locals for sale as bushmeat in Brazzaville and Pointe Noire (Maran and Pauwels, 2005). They may also be consumed by Chinese nationals working in the area (N. Honig, PALF, pers. comm.).
- 5.1.3 *Trionyx triunguis* has been long exploited for meat by peoples of Egypt and Mesopotamia. In addition, many areas of habitat have been degraded. Pollution (including oil spills), accidental capture and construction of dams have negatively affected populations. In Turkey the main threat is fishing -trawl-net and long-line fishing (Luiselli and Akani, 2003; Moll and Moll, 2004; Turkozan, 2008). Natives of Sudan have specialized in capturing this turtle when it comes ashore to nest (Moll and Moll, 2004). Evidence of illegal international pet trade includes four softshell turtles that were part of a larger shipment going from Nigeria to Europe that were seized at the Dakar Airport in Senegal in May 2014 (<http://www.turtlesurvival.org/blog/1-blog/287-turtles-seized-in-senegal>). In Israel one of the main threats to the species is nest predation by native carnivores such as red fox (*Vulpes vulpes*), Egyptian mongoose (*Herpestes ichneumon*) and golden jackal (*Canis aureus*). Survey data show that predation occurs at approximately 25-35% of nests (S. Nemtzov & D. Milstein – INPA, pers. comm.).
- 5.1.4 *Cycloderma frenatum* has historically been exploited for consumption by local tribes near Lake Malawi (Broadley and Sachsse, 2011) but may be more recently collected for international trade (see above and sect 6.4)..
- 5.1.5 *Rafetus euphraticus* in Iran is threatened by habitat destruction/degradation from construction of dams, sand mining, and ever-increasing pollution of the water, namely waste discharge of pesticides, fertilizers, oil, industrial chemicals, garbage and sewerage (Moll and Moll, 2004; Ghaffari et al. 2008). In Turkey, entanglements with fishing nets have been an issue (Y. Kasa - Pamukkale University, pers. comm.) Drying of the marshes in Iraq has contributed to destroying a huge part of its habitats in mid 1990s (A.O. Salman – MoE, pers. comm.).
- 5.1.6 *Cyclanorbis elegans* collection for local consumption has long occurred and likely is widespread and intensive, as the animals are large and their meat is highly esteemed (pers. comm. T. Diagne, Togo Workshop 2013).

6. Utilization and trade

6.1 National utilization

Turtles and their eggs have long served as an important source of nutrients for local peoples in Africa and the Middle East (see sections 5.1.1 to 5.1.6). The use of the Nile softshell turtle dates back to archeological middens in ancient Egypt. Nubian tribesmen used their large carapaces as war shields (Moll and Moll, 2004). *Rafetus* were used by ancient societies for funeral practices in Mesopotamia (Berthon et al., 2016). Turtles are eaten by local people around Lake Turkana, Kenya (Spawls et al., 2002).

There is no record of consumption of *R. ephraticus* as a meat in Turkey but it is consumed as a cure for various diseases (Berthon et al., 2016). In Iraq locals believe meat is unsafe to eat but the blubber [oil, fat] is suitable as a drug for the treatment of many skin diseases and Anti-infections, Rheumatism...etc. (A.O. Salman – MoE, pers. comm.).

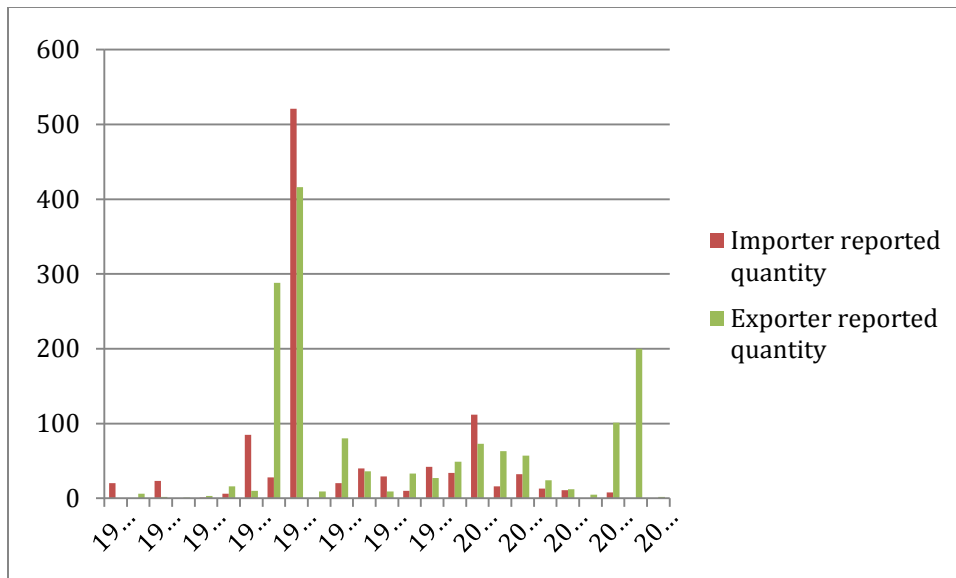
Cyclanorbis shells are used as basins by Bari tribesman in the Sudan and *Trionyx triunguis* carapaces with stretched fish skins over them are used as musical instruments (Moll and Moll, 2004).

6.2 Legal trade

Softshell turtles of the family Trionychidae are among the most highly valued freshwater turtle species in international trade, traded mainly for consumption in and to eastern Asia. African softshell turtles (*Cyclanorbis elegans*, *Cycloderma frenatum*) have been reported in pet trade markets in Hong Kong (Cheung & Dudgeon, 2006). Since African and Middle Eastern species are currently not listed in CITES no legal trade database exists. However the US Law Enforcement Database (LEMIS) kept by US Fish and Wildlife Service shows a total of 570 African Softshell turtles (no *Rafetus euphraticus*) imported into the USA between 1999 and 2014. 56% of these are *Trionyx triunguis*; 26% are *Cyclanorbis*; and 18% are *Cycloderma*. The major exporting countries for these African Softshell turtles include: Ghana (41%), Benin (22%), Mozambique (11%), Democratic Republic of Congo (8%), and Togo (7%).

Trionyx triunguis was however listed on CITES Appendix III (Ghana) from 1976 to 2007. The UNEP-WCMC CITES Trade Database reports the export of 1051 (importer reported) or 1522 (exporter reported) all live wild caught (84%) *T. triunguis* from 14 range countries between 1982 and 2010. Sudan (49%) and Ghana (41%) were the major exporters with Egypt (48%) and USA (25%) being the major importers of these turtles.

Annual live trade in *Trionyx triunguis* from 1976 to 2007 (UNEP-WCMC CITES Trade Database)



In Israel no imports or exports of *T. triunguis* have been recorded since at least 1996 and there is little demand for softshell turtles as food or pets (S. Nemtsov & D. Milstein – INPA, pers. comm.).

6.3 Parts and derivatives in trade

Recent reports from South Asia have shown an increasing trend of trade in the dried calipee (the cartilaginous parts of a softshell turtle’s shell) to China where it is consumed in a soup that has rendered the turtle cartilage into a gelatinous substance. The Japanese manufacturer Nissin, who sells worldwide, released in March 2016 its new soup flavors of Cup Noodles which included “Luxury Broth Softshell Turtle Soup Flavor”. In the list of ingredients is “softshell turtle powder” (<http://en.rocketnews24.com/2016/03/30/cup-noodle-to-release-luxury-shark-fin-and-softshell-turtle-flavors/>). Because the dried cartilage can be stored and stockpiled for lengthy periods it can be difficult to ascertain not only if the dried substance is calipee but also which species the dried cartilage originated from (Horne et al., 2012). Calipee is also used in traditional medicines (Zhou and Jiang, 2008; Horne et al., 2012). Zambezi Flap-shelled turtles were specifically targeted for parts (calipee & shells) at Lake Malawi by Chinese nationals (see section 6.4 below).

6.4 Illegal trade

A Malawi anti-poaching operation arrested three nationals and one Chinese national for running an illegal turtle butchery for Zambezi Flap-shelled Terrapins (*Cycloderma frenatum*) in Bara near Lake Malawi. The operation confiscated 1007 dried turtle shells (including calipee – dried cartilage margin of shell), 11 live turtles as well as the dried skin from the belly and flaps for export, the actual turtle meat was left for the villagers (B. Banda, Malawi National Parks, e-mail correspondence Nov 26, 2013).

Four African softshell turtles (*Trionyx triunguis*) that were part of a larger shipment going from Nigeria to Europe were seized at the Dakar Airport in Senegal in May 2014 (<http://www.turtlesurvival.org/blog/1-blog/287-turtles-seized-in-senegal>).

Illegal trade in both live animals and parts and products (as evidenced above) has been documented and appears to involve exporting animals to Asia and elsewhere. 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 (also often easier to conceal) such as ground turtle paste, calipee, and bone powder (AC25 Doc. 19; SC61). Yet such shipments are rarely reported, indicating that this aspect of the illegal trade is largely unknown. There are significant challenges with identification of turtle species traded alive, and more so with processed turtle parts and products in trade. Many 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 African and one Middle Eastern species of the Family Trionychidae because they are currently the only softshell turtles that are not protected and are therefore at risk of trade and are a priority for conservation action. Trade in 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 African species in Appendix II is needed to ensure sustainable trade.

7. Legal instruments

7.1 National

The table below lists national legal instruments of the parties that responded to our consultation or attended a CITES CoP 17 Coordination Workshop between West and Central African countries held in Senegal March 15-17, 2016:

Country	Law/Regulation/Action	Year	Explanation
Burkina Faso	Loi N° 003-2011 AN du 05 avril 2011 Portant Code Forestier	2011	Total protection
Central African Republic	Code de Protection de la faune Loi 84.045	1984 (currently being revised)	Complete Protection
Congo	Arrêté du Ministère de l'Économie Forestière et du Développement Durable sur les espèces complètement et partiellement protégées	2011	Complete Protection
Côte D'Ivoire	Loi N° 94-44 du août 1994 modified to Loi 65-255 1995 relative à la protection de la faune et à l'exercice de la chasse	1994 / 1995	All fresh water turtles and tortoises in Annex III which allows hunting but all hunting stopped in 1974 (Arrêté 003/SEPN/CAB)
Gabon	Décret N° 0164/PR/MEF	2011	FW Turtles & Tortoises are not protected

Ghana	National Wildlife Act	1961	Protection against trade. Also protection for turtles at RAMSAR Sites
Guinea	La Législation Forestière et de Protection de la Faune	1999 (currently being revised 2016)	
Guinea-Bissau	Bulletin Officiel No 21/1980 and Législation sur la Faune 2010	1980, 2010	Total protection
Liberia	No Legislation		
Mali	Loi N° 95-031 Fixant les conditions de gestion de la faune sauvage et de son habitat	1995	Partial Protection (C senegalensis and T triungus)
Mauritanie	No Legislation that protects turtles		
Niger	La Loi 98-07 du 29 Avril 1998 fixant le Régime de la Chasse et de la Protection de la Faune.	1998	Complete Protection
Nigeria	Endangered and Threatened Wildlife Species (Control of International Trade and Traffic) Amendment Act	2007 (under amendment 2012)	Softshell turtles are also endangered in Nigeria due to habitat fragmentation and water pollution. <i>Cylanorbis senegalensis</i> is on the First Schedule of the 2012 Act. This indicates that international trade in it is absolutely prohibited in Nigeria.
Senegal	Code de la chasse et de la protection de la faune	1986	Total protection
Sierra Leone	Wildlife Conservation Act	1972 (revised 2015)	All turtles protected. RAP-SL no trade
Togo	Code Forestier Title 4 - Wildlife Management. There is a Decree in discussion	2008	Decree will protect softshell turtles but not yet enacted
Chad	Loi 14/PR/2008 et Décret 380 pour application Portant Régime des Forêts, de la Faune, et des Ressources Halieutique	2008	Permit needed (price depends on use of animal: for trade, local, or scientific)
Iraq	Wildlife Protection Act No. 17	2010	• Articles (1) and (2) and (3) and (4) to protect the wild animals as a national treasure and the citizens and official bodies protect and avoid hurting or attacking them and they cannot be caught only for the purposes of scientific experiments.

			<p>Only after obtaining the approvals in accordance with the provisions of this law with the organization of their hunting grounds; procedures for granting recreational fishing; identifying types of permitted animals caught; and forbidden hunting and fishing seasons.</p> <p>•Article (9) of the law punishes the offender with the provisions of this law and regulations issued there under imprisonment for a term not exceeding three years or a fine of no more than 3 three million dinars (around 2500 USD),</p>
Israel			<p><i>T. triunguis</i> is protected by national legislation and may not be harmed, disturbed, captured, or kept in Israel. The species is artificially maintained in the wild.</p>
Turkey	Land Hunting Law No. 4915		<p>Both species (<i>Re & Tt</i>) are under protection according the Turkish laws. Their trade, killing and disturbing their habitats are forbidden. Ministry of Forestry and Water Affairs, The General Directorate of Nature Conservation and Natural Parks are the top authority for protection of these species and their habitat. Distinct managers are in charge of responsibilities in the provinces.</p>

7.2 International

Trionyx triunguis (population of Ghana) was included in CITES Appendix III from 1976 to 2007.

Twenty-one species of the family Trionychidae are currently listed in the CITES Appendices (Appendix I=6, Appendix II=16, Appendix III=0). Iraq has been working on the inclusion of the marsh areas such as Houaizah ,East Hammar, West Hammar and Central Marshes on the World Heritage list, which will be voted on in Istanbul in July 2016 to will increase protection of various wildlife, including Euphrates soft shell Turtles (A.O. Salman – MoE, pers. comm.).There are no other known international trade controls or management measures.

8. Species management

8.1 Management measures

Turkey has developed a national action plan for *Rafetus euphraticus* due to the very low number of adult specimen records. The Dalyan (Turkey) population of *T. triunguis* is a tourist

attraction, where marine turtle protection measures assist *Trionyx*. Turtle tourism in Dalyan is a good example of livelihood alternatives already in place and more are needed (Y. Kasa - Pamukkale University, pers. comm.) Israel actively manages *T. triungus* in the Mediterranean river systems by working to increase nesting success: by clearing riverside areas of plant overgrowth to increase nesting sites, and by setting up fenced nesting areas to protect the nests from carnivore predation. In 2003 the Israel National Parks Authority began a project to remove the population of African softshell turtles from the Jordan River Basin where they are considered invasive, especially those in the Hula Valley Nature Reserve (which is a “Ramsar” site), and to translocate them to the Mediterranean rivers in order to augment the population there. Although it is clear that the translocation project has reduced the size of the invasive population in the Jordan River basin, it remains undetermined if the translocated individuals have had any influence on the size of target population in the Mediterranean rivers (S. Nemptov & D. Milstein – INPA, pers. comm.).

8.2 Population monitoring

Very little population monitoring is known to occur for African softshell turtle species. Softshell turtles, unlike the hard-shelled pond turtles, largely do not bask and spend more of their time in the water, which can make them harder to detect. However *Rafetus euphraticus* presences were recorded by specialists in bio-diversity at the Ministry of Environment in large numbers of the Iraqi marshlands areas, specifically, cross- sections of rivers that are used in fish farming (A.O. Salman – MoE, pers. comm.).

8.3 Control measures

8.3.1 International:

None known. CITES does not control trade for any of the six 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 caused by international trade. *Trionyx triunguis* has been designated as locally Critically Endangered (C2a), in Israel’s Red Book (Dolev & Perevolotsky, 2004).

8.4 Captive breeding and artificial propagation

It is possible for large-scale (commercial) captive breeding of turtles to alleviate pressure on wild populations; such is the case for *Pelodiscus sinensis* which is excluded from this proposal. However, some captive-breeding operations rely heavily on wild-sourced parental stock or need more attention focused on genetic management and containment to ensure that wild populations are not affected by disease and genetic pollution or outcompeted by non-native species in range. For the African species being proposed for inclusion in CITES status in this proposal, minimal 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). TSA has programs throughout the world (<http://turtlesurvival.org/>). In Senegal in conjunction with TSA Africa / African Chelonian Institute there is a preliminary effort taking place to establish *ex situ* assurance breeding colonies for *Trionyx triunguis* (<http://www.turtlesurvival.org/blog/1/287>) and *Cyclanorbis elegans* (<http://africanchelonian.org/projects/nubian-flapshell-turtle-survival/>).

8.4.2 *Individuals:*

There are hundreds of individual breeders/hobbyists around the world who have had success breeding some of the turtle species 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:*

Softshell turtle species grow and reproduce significantly faster than hardshell turtle species while fetching similar or higher market prices per kg. The farming softshell turtles is thus larger market in the general food trade (AC19Doc 15.2 [Rev. 1]). A large danger with commercial turtle farming is that farmers are always seeking wild breeders because successive generations of farm-raised turtles show a marked decrease in reproductive capability (Shi H. T. et al, 2007). There is no known farming of softshell turtles in Africa.

8.5 Habitat conservation

Several species of Trionychid turtles are passive beneficiaries from protected areas established for the conservation of other species, such as water birds, elephants and others. In Gabon, *Cycloderma aubryi* and *Trionyx triunguis* are recorded from one and two national parks, respectively, but are certainly present in more (Pauwels and Maran, 2007).

In Iraq recent regulations from 2014 sets aside tracks of land as nature reserves to protect their biodiversity and environmental sustainability in light the development of economic and social activities with considerations for future generations without exhausting natural resources. (A.O. Salman – MoE, pers. comm.).

9. Information on Similar Species

African/Middle Eastern species in the Family Trionychidae are similar to Asian species in appearance (e.g. African *Cyclanorbis* & *Cycloderma* versus Asian *Lissemys*) and subsequently can be used in international trade, as food, medicine, to supply aquaculture operations and for pets just as regional species. This proposal submits that, because of the similarity of their biological vulnerabilities and in the ways that they are used in international trade, these remaining species warrant inclusion in CITES at a higher taxa level under Annex 2a Criterion B.

Two other species of turtle may be confused with members of the Trionychidae because they also have characteristic leathery shells. *Dermochelys coriacea* (Leatherback sea turtle; included in Appendix I since 1977) may be differentiated from softshell turtles because it is much larger (largest

turtle in the world), shows seven longitudinal keels on its carapace and is only found in a marine environment. *Carettochelys insculpta* (pig-nosed turtle; included in Appendix II since 2005) has 2 claws on the forelimbs (softshell turtles have 3), the snout is shorter and faces laterally giving it its pig-like appearance, it has a complete bony shell under its velvety skin so that its shell margins are completely inflexible, and it is only found in Australia (no Trionychidae in Australia), Indonesia, and Papua New Guinea.

10. Consultations

Consultation letters have been sent to all 42 range countries with the following responses regarding Trionychidae (with respect to species found in that country). Information provided through consultation was incorporated into this proposal where appropriate.

Gabon: Gabon supports the inclusion of these two and the other species listed here in Appendix II.

Iraq: Iraq provided biological, conservation, and legal information on the status of *Rafetus euphraticus*. Iraq supports the inclusion of *R. euphraticus* on Appendix II of CITES to ensure its preservation and presence in the Iraqi aquatic environment.

Israel: Israel provided data on trade, protection and management actions for *Trionyx triunguis* (only species in country). Israel would be very happy to support an Appendix II listing which they believe would be for the good of this important species.

Nigeria: Softshell turtles are also endangered in Nigeria due to habitat fragmentation and water pollution. *Cylanorbis Senegalensis* is on the First Schedule of their 2012 wildlife act indicating that international trade in it is absolutely prohibited. Therefore the Management Authority is fully in support for the upgrading African softshell turtles.

Turkey: Turkey provided biological, conservation and legal information on the status of their softshell turtles. Turkey recommend both *Rafetus euphraticus* and *Trionyx triunguis* populations are categorized as “critically endangered” as it is facing an extremely high risk of extinction in the wild in the immediate future. Turkey supports this proposal.

In addition to the letters a CITES CoP 17 Coordination Workshop between West and Central African countries was held in Senegal March 15-17, 2016. All countries at the workshop (Burkina Faso, Côte d'Ivoire, Ghana, Guinea-Bissau, Mali, Niger, Nigeria, Senegal, Togo, Liberia, Chad, Central African Republic, Congo, Sierra Leone, Mauritania, Democratic Republic of the Congo, Guinea and Gabon) agreed by consensus to support the proposal at CoP17.

Additional remarks

Exclusions:

The Genera *Apalone* (i.e. three species) is excluded from this proposal. *Apalone* trade has increased since 2001 (Fig. 1). However this genus is indigenous to the United States and was recently proposed for listed in Appendix III by the United States.

Pelodiscus sinensis is also excluded from this proposal because of the mass farming that is undertaken for this species in China. Given the extensiveness of the farming of this 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 et al., 2007, 2008).

All remaining Trionychidae are excluded from this proposal because they are already on the CITES Appendices, most of which were listed at CoP16 (CoP16 Prop 38, 2013; Table 1).

IUCN information:

Five of the six species of Softshell turtle proposed for inclusion in the CITES Appendices are in the threatened category for consideration in the Red List of Threatened Species according to a recent 2013 Red Listing Workshop or an evaluation by the Red-List Authority. One is Critically Endangered, one is Endangered, three are Vulnerable, and one was not evaluated. See Table 1 for a complete listing of IUCN status.

International Workshops/Congresses:

The IUCN/SSC Tortoise and Freshwater Turtle Specialist Group's Red-Listing workshop on *Conservation Status of the Tortoises and Freshwater Turtles of Sub-Saharan Africa* was held in Lomé Togo in August 2013. There were 22 chelonian specialists from across the continent and beyond – including at least 9 African nations. The goal of the meeting was to evaluate the status of all of the region's 43 tortoise and freshwater turtle species on the IUCN Red List and to identify priority conservation measures for their survival. Among the recommendations of the workshop were updates to the CITES statuses of turtles and in particular the need for higher protection of softshell turtles.

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Table1. Table showing current CITES and proposed CITES status for all Trionychidae species world-wide.

Trionychidae considered in this proposal						
Common Name	Scientific Name	Range States	Current CITES Status	Proposed Position	IUCN Status	Note
Nubian Flapshell Turtle	<i>Cyclanorbis elegans</i>	BJ CM CF TD ET GH NG SD TG	Non CITES	Appendix II	NT (1996) <i>draft CR</i>	Red-List evaluation Togo 2013
Senegal Flapshell Turtle	<i>Cyclanorbis senegalensis</i>	BJ BF CM CF TD CD ET GA GM GH GW CI ML MR NG SN SD TG	Non CITES	Appendix II	NT (1996) <i>draft VU</i>	Red-List evaluation Togo 2013
Aubry's Flapshell Turtle	<i>Cycloderma aubryi</i>	AO CF CD CG GA	Non CITES	Appendix II	Not Listed <i>draft VU</i>	Red-List evaluation Togo 2013
Zambezi Flapshell Turtle	<i>Cycloderma frenatum</i>	ML MZ TZ ZM ZW	Non CITES	Appendix II	LR/NT (1996) <i>draft not evaluated</i>	Red-List evaluation Togo 2013 not evaluated
African Softshell Turtle	<i>Trionyx triunguis</i>	AO BJ CM TD CD CG EG GQ ER ET GA GM GH GN GW IL CI KE LB LR MR NA NE NG SN SL SO SD SY TZ TG TR UG	Non CITES (formerly App III from 1976 to 2007 – Ghana)	Appendix II	Not Listed <i>draft VU</i>	Red-List evaluation Togo 2013
Euphrates Softshell Turtle	<i>Rafetus euphraticus</i>	IR IQ SY TR	Non CITES	Appendix II	EN (1996), <i>draft EN</i>	Red-List Authority evaluation
Status of other Trionychidae not considered in this proposal						
Florida Softshell Turtle	<i>Apalone ferox</i>	US	Non CITES	Excluded from this proposal	LC (2011)	Excluded – US App III in progress
Midland Softshell Turtle	<i>Apalone mutica</i>	US	Non CITES	Excluded from this proposal	LC (2011)	Excluded – US App III in progress
Spiny Softshell Turtle	<i>Apalone spinifera</i>	CA MX US	Non CITES	Excluded from this proposal	LC (2011)	Excluded – US App III in progress

Asian Narrow-headed Softshell	<i>Chitra chitra</i>	ID MY TH	Appendix I	Excluded from this proposal	CR (2000), draft CR	No change
Burmese Narrow-headed Softshell	<i>Chitra vandijki</i>	MM	Appendix I	Excluded from this proposal	NE, draft CR	No change
Indian Softshell Turtle	<i>Nilssonina (Aspideretes) gangetica</i>	AF BD IN NP PK	Appendix I	Excluded from this proposal	VU (2000), draft EN	No change
Indian Peacock Softshell Turtle	<i>Nilssonina (Aspideretes) hurum</i>	BD IN NP PK	Appendix I	Excluded from this proposal	VU (2000), draft EN	No change
Black Softshell Turtle	<i>Nilssonina (Aspideretes) nigricans</i>	BD IN	Appendix I	Excluded from this proposal	EW (2002), draft CR	No change
Asiatic Softshell Turtle	<i>Amyda cartilaginea</i>	BN KH IN ID LA MY MM SG TH VN	Appendix II	Excluded from this proposal	VU (2000)	No change
Indian Narrow-headed Softshell	<i>Chitra indica</i>	BD IN NP PK	Appendix II + Zero quota	Excluded from this proposal	EN (2000), draft EN	Zero quota until reviewed by AC from CoP16
Malayan Softshell Turtle	<i>Dogania subplana</i>	ID,MY,MM,PH,SG	Appendix II	Excluded from this proposal	LR/LC (2000), draft LC	No change
Sri Lankan Flapshell Turtle	<i>Lissemys ceylonensis</i>	LK	Appendix II	Excluded from this proposal	NE	No change
Indian Flapshell Turtle	<i>Lissemys punctata</i>	BD IN MM NP PK	Appendix II	Excluded from this proposal	LC (2000), draft LC	No change
Burmese Flapshell Turtle	<i>Lissemys scutata</i>	MM TH	Appendix II	Excluded from this proposal	DD (2000), draft NT	No change
Leith's Softshell Turtle	<i>Nilssonina (Aspideretes) leithii</i>	IN	Appendix II	Excluded from this proposal	VU (2000), draft CR	No change
Burmese Peacock Softshell	<i>Nilssonina formosa</i>	MM	Appendix II	Excluded from this proposal	EN (2000), draft CR	No change
Wattle-necked Softshell	<i>Palea steindachneri</i>	CN, LA, VN,MU,US	Appendix II	Excluded from this proposal	EN (2000), draft EN	No change

Turtle						
Striped New Guinea Softshell Turtle	<i>Pelochelys bibroni</i>	ID,PG	Appendix II	Excluded from this proposal	VU (2000), draft VU	No change
Northern New Guinea Softshell Turtle	<i>Pelochelys signifera</i>	ID,PG	Appendix II	Excluded from this proposal	NE, draft DD	No change
Hunan Softshell Turtle	<i>Pelodiscus axenaria</i>	CN	Appendix II	Excluded from this proposal	NE, draft DD	No change
Northern Chinese Softshell Turtle	<i>Pelodiscus maackii</i>	CN KR KP RU	Appendix II	Excluded from this proposal	NE, draft DD	No change
Lesser Chinese Softshell Turtle	<i>Pelodiscus parviformis</i>	CN VN	Appendix II	Excluded from this proposal	NE, draft DD	No change
Swinhoe's Giant Softshell Turtle	<i>Rafetus swinhoi</i>	CN VN	Appendix II	Excluded from this proposal	CR, draft CR	No change
Asian Giant / Cantor's Giant Softshell	<i>Pelochelys cantorii</i>	KH,CN,IN, ID,LA,MY,MM, PH,SG,TH,VN	Appendix II	Excluded from this proposal	EN (2000), draft CR	No change
Chinese Softshell Turtle	<i>Pelodiscus sinensis</i>	CN HK VN JP	Non CITES	Excluded from this proposal	VU (2000), draft VU or EN	Mass Farm Production

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

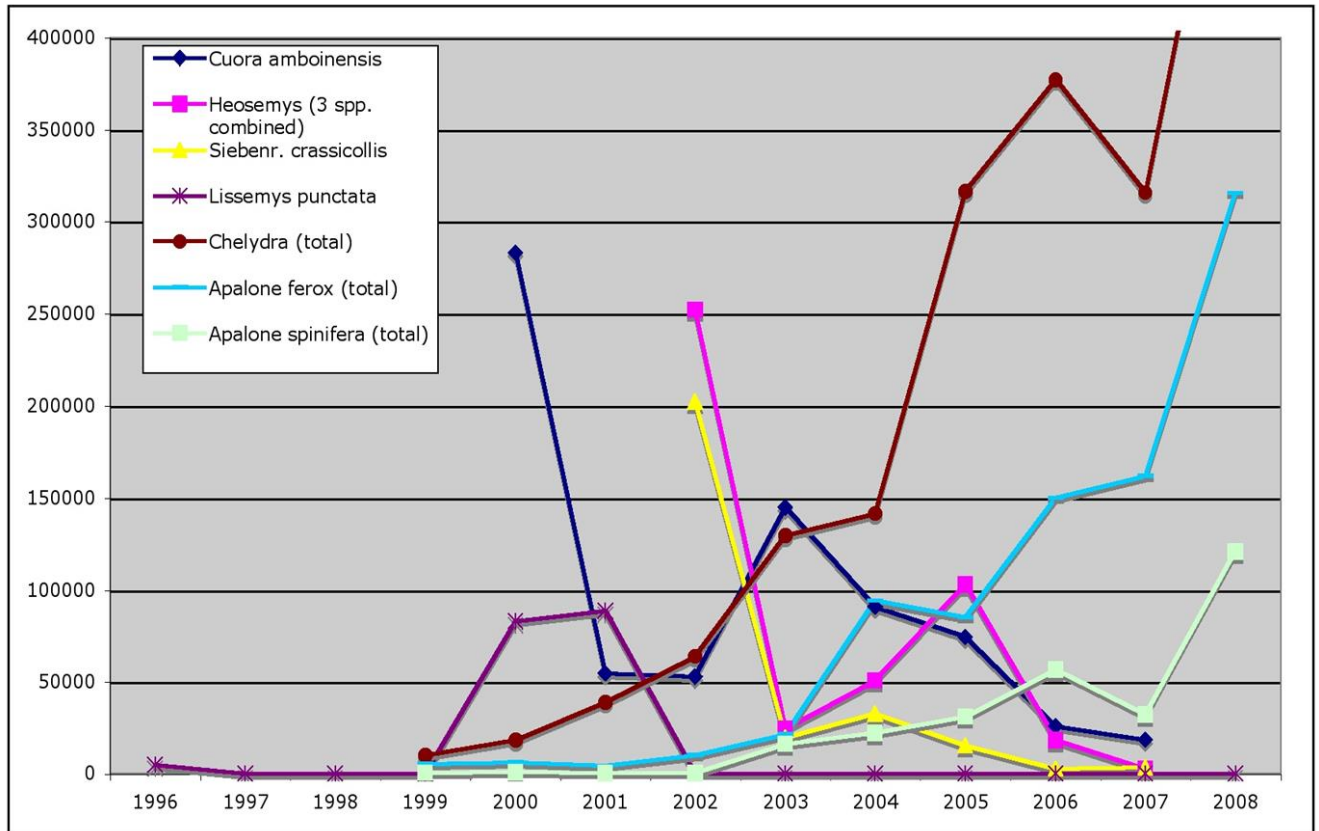
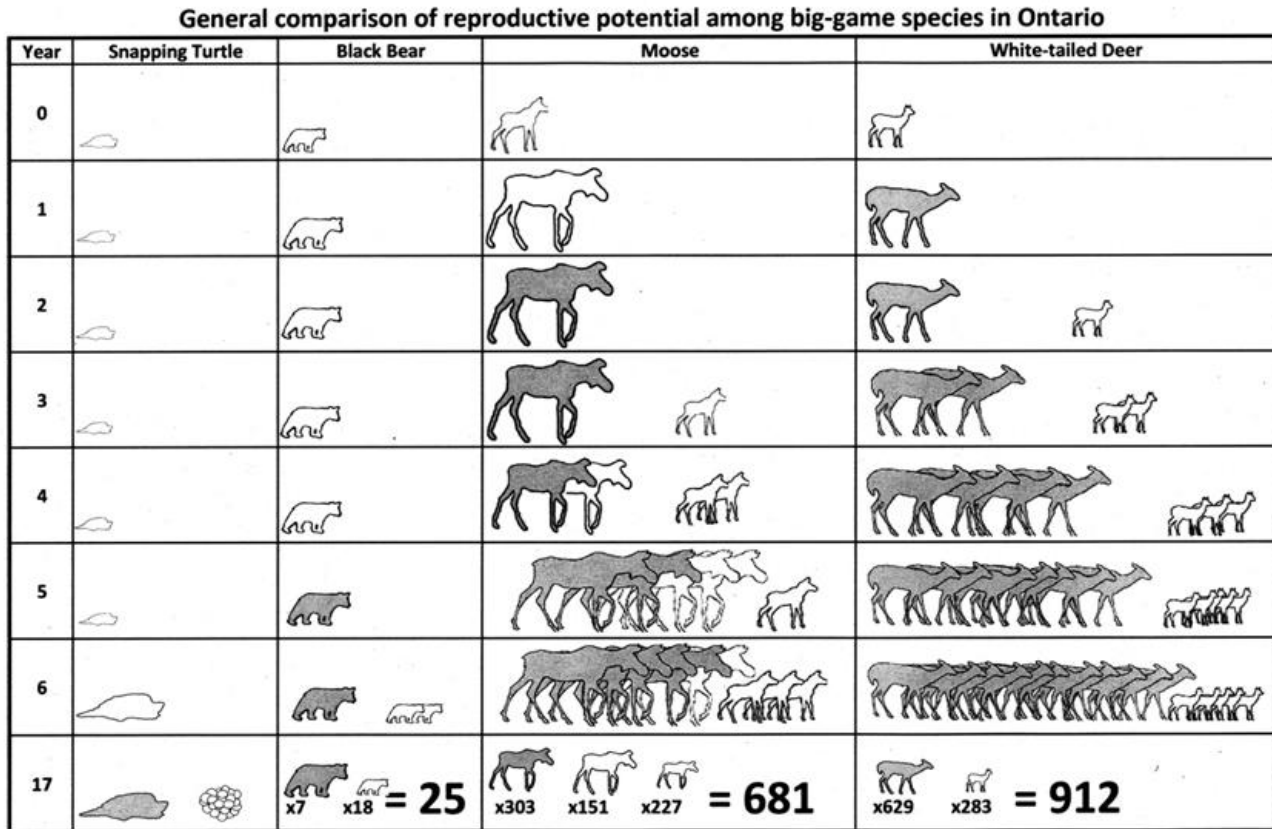


Figure 2. Comparison of reproductive output of a North American Snapping turtle to Managed North American Game Species: Bear, Moose, and Deer (Credit Ron Brooks Co-Chair of OMSTARRT (Ontario Multi-Species of Turtles At Risk Recovery Team)).



Note this chart does not take mortality into consideration.
 This chart was developed by the OMNR Black Bear Technical Team in 2005 based on an original idea by George Kolenosky.
 Snapping Turtle column was added by the Ontario Multi-Species Turtle Recovery Team in 2008.
 Please note that up to 1400 eggs need to be laid by a snapping turtle before one offspring reaches maturity. This may not occur until year 50.

= young of the year = sexually immature = sexually mature