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

Sixteenth meeting of the Conference of the Parties
Bangkok (Thailand), 3-14 March 2013

CONSIDERATION OF PROPOSALS FOR AMENDMENT OF APPENDICES I AND II

A. Proposal

Transfer of the species *Cuora galbinifrons* from Appendix II to Appendix I, in accordance with Res. Conf. 9.24 (Rev.CoP15), under criteria C i) and C ii) (patterns of exploitation, intrinsic vulnerability) of Annex 1.

B. Proponent

Viet Nam*

C. Supporting statement

1. Taxonomy

1.1 Class: Reptilia

1.2 Order: Testudines

1.3 Family: Geoemydidae

1.4 Genus, species or subspecies, including author and year: *Cuora galbinifrons* Bourret, 1939
Specifically including its subspecies
Cuora galbinifrons galbinifrons Bourret, 1939
Cuora galbinifrons bourreti Obst & Reimann, 1994
Cuora galbinifrons picturata Lehr, Fritz & Obst, 1998

1.5 Scientific synonyms: *Cyclemys flavomarginata hainanensis* Li, 1958 =
Cuora galbinifrons galbinifrons

Cuora galbinifrons serrata Iverson & McCord, 1992 – documented by Parham *et al* (2001) to be a hybrid between *Cuora galbinifrons* and *Cuora mouhotii*.

Note: the species *galbinifrons* has on occasion been placed in the genus *Cistoclemmys*. The forms *bourreti* and *picturata* have been proposed to warrant recognition as full species (Stuart & Parham, 2004), and species rank has been recognized by some, but not all, subsequent authors. This proposal follows the Standard Reference for Turtles (Fritz & Havas, 2007), which recognizes *bourreti* and *picturata* as subspecies of *Cuora galbinifrons*. Fritz & Havas (2007) provide extensive documentation of genus and species name and rank permutation synonyms used in the literature.

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

1.6 Common names: English: Indochinese Box Turtle; Flowerback Box Turtle; Bourret's Box Turtle [*bourreti*]; Southern Vietnam Box Turtle [*picturata*]
French: Tortue-boîte à front jaune
Spanish: Tortuga caja de Indochina

1.7 Code numbers: ITIS TSN: 551910

2. Overview

Cuora galbinifrons is a medium-sized turtle that inhabits upland, moist, closed-canopy forest in PR China, Lao PDR, Viet Nam and possibly Cambodia. Three subspecies are recognized, which are treated as full species by some taxonomists. Animals take about 12 to 15 years to mature, and females produce a single clutch of 1-3 eggs per year; egg and hatchling mortality rates are high, and recruitment is slow. The species is challenging to establish and reproduce in captivity, and the great majority of trade concerns animals collected from the wild. Available field survey information shows that the species is at best uncommon, and that populations have been severely depleted in recent decades. Most records derive from observations of collected animals; field encounters are rare even during dedicated surveys.

The primary threat to *Cuora galbinifrons* is collection for trade. The species is in high demand in the international pet trade and the Asian consumption trade. Collection efforts include both casual encounters when collecting other forest products, and targeted searches for turtles involving trained dogs and/or burning undergrowth to drive and expose turtles. Turtles encountered are collected, regardless of legal protection status or location inside protected areas. Collected turtles are traded, mostly illegally, through a network of local middlemen before being exported or consumed locally. Documented market trade volumes may be several orders of magnitude greater than total reported legal trade volumes. Habitat loss and degradation is a secondary threat to the species.

Cuora galbinifrons is legally protected from exploitation (or under evaluation for inclusion under strict protective legislation) in all range countries, but enforcement may be insufficient. To address illegal trade in this species, its protection status in national laws and under CITES must be increased. This species is proposed for transfer to Appendix I of CITES, as it meets Criterion C i) of Annex I of Res.Conf.9.24(Rev.CoP15), by having been documented to have declined severely across its range as a result of collection for trade (see section 4.4), and meets criterion C ii) as the pattern of local, casual exploitation combined with unsustainable targeted collection for trade (see sections 5 and 6.4) will likely continue unless stronger measures are implemented, and the slow recruitment and late maturity make the species intrinsically vulnerable to exploitation (see sections. 3.3 and 6.5).

3. Species characteristics

3.1 Distribution

Cuora galbinifrons inhabits P.R. China, Lao P.D.R., and Viet Nam. The species has been suggested, but not confirmed, to range into extreme northeastern Cambodia.

Cuora galbinifrons galbinifrons is confirmed to occur in Hainan and Guangxi in PR China, in northern Lao PDR, and in northern Viet Nam at least as far south as Nghe An province (Iverson, 1992; Stuart *et al.,* 2002; Stuart & Parham, 2004; Stuart & Platt, 2004; Fritz & Havas, 2007; Shi *et a*l., 2008a)

Cuora galbinifrons bourreti is known from central Viet Nam, as well as from adjoining Savannakhet Province in Lao PDR (Stuart *et al*., 2011).

Cuora galbinifrons picturata is apparently restricted to the eastern slopes of the Langbian Plateau, being known only from Khanh Hoa and Phu Yen provinces of southern Viet Nam (Ly *et al*., 2011).

3.2 Habitat

Cuora galbinifrons inhabits upland, moist, closed-canopy forest, usually between 300 and 1700 m altitude. The species is predominantly terrestrial and is not specifically associated with forest streams, though animals can swim relatively well and can be seen, at least in captivity, wallowing in shallow water or swampy areas. It is considered a cool forest turtle, with temperatures exceeding 28ºC often resulting in stress and poor incubation success in captive animals (Stuart & Platt, 2004; Ly *et al*., 2011; Wang et al., 2011; T.McCormack, in litt. to VN MA, 29 Sept 2012).

3.3 Biological characteristics

Extremely little is known of the biology of *Cuora galbinifrons* in the wild; most observations on diet, growth and reproduction derive from animals maintained in captivity, either within or close to the species' natural range, or in artificially manipulated captive conditions such as terrariums.

The species appears to be omnivorous; its recorded diet includes earthworms, carrion and fruit. Research on movement patterns, microhabitat use and other aspects of natural history have been carried out at the population of Diao Luo Shan in Hainan, China (Wang *et al.,* 2011).

Slow growth (10-15 years) to maturity is combined with low fecundity; in captivity a single clutch of 1-3 eggs is seen each year in Cuc Phuong National Park where a small group is maintained (McCormack, in litt. To VN MA, 29 Sept 2012). Similar clutch sizes of 1 to 3 eggs have been reported from long-term captive animals kept in Europe and North America (Bruin, 1994; Fiebig & Lehr, 2000; Struijk, 2010).

3.4 Morphological characteristics

Cuora galbinifrons is a medium-sized turtle, reaching up to 19 cm carapace length at a weight of about 800 to 1200 grams. Males and females reach about the same size. Hatchlings measure about 45-50 mm and weigh 15-24 grams. The carapace (upper shell) is smooth, rounded and high-domed. The plastron (lower shell) has a very distinct hinge which allows the front and rear parts of the plastron to be raised up against the carapace, closing both front and back shell openings completely. All three subspecies have a very distinct yellow or orange area on each side of the carapace, contrasting strongly with the remainder of the shell which is mainly rich dark brown. The three subspecies are differentiated by differences in colouration and shell shape:

In *Cuora galbinifrons galbinifrons*, the shell is relatively long and oval when viewed from above. The middle of the carapace shows a broad brown band with black edges; the brown band splits on the first vertebral scute, and only two narrow extensions reach forward to the carapace margin, enclosing a yellow area above the neck. A fine yellow, black-edged vertebral line is normally present. The lower 2/3 of each costal scute area is uniform yellow (sometimes with small black markings), creating a distinct large yellow 'window'. Most of the marginals are dark brown or black, including upper area and underside. The plastron is uniform black, or in some older animals is mostly black with some irregular areas of less dense pigmentation appearing yellowish in the midline and/or along scute seams. The head colouration variable, and usually shows areas of bright yellow, orange and red and fine black speckling. The front limbs are generally dark, with some of the large scales being bright yellow or orange.

Cuora galbinifrons bourreti also has a relatively long and oval shell. The carapace shows a fairly irregular pattern of black, brown and yellow: A broad brown band with black edges runs over the middle of the carapace, not always clearly distinct from the rest of the carapace; the brown band extends forward to reach a broad area of the carapace margin above the neck. A fine pale vertebral line is often vague, interrupted, or completely absent. A vague cloudy dark band extends across much of the middle of the costal scutes, leaving the remaining costal scute areas bright yellow both above and below this irregular band. The effect can create two sets of yellow areas, one along the upper costal scutes, the other in the lower areas of the costals. The marginal scutes are generally dark, at least their upper areas always has dark pigmentation. The plastron is yellow with a large black cloudy spot on each scute; these spots can be large enough to connect to each other, forming a black horseshoe-shaped mark or mostly black band around the plastron. The underside of the marginal scutes can vary from yellowish with small black markings to mostly black with some yellow along the margins. The head is bright yellow or orange to brown with some dark spotting, but never deep red. The soft parts of the legs and tail are generally grey with yellow.

Cuora galbinifrons picturata has a characteristic very short, steeply domed, high shell, that appears almost round when seen from above. The carapace appears pale yellow with dark marks, which are rather regular and sharply defined: A broad brown band with black edges runs over the middle of the carapace; this brown band splits on the first vertebral scute, and only two narrow extensions reach forward to the carapace margin, enclosing a yellow area above the neck. A fine yellow, black-edged vertebral line is normally present. The middle part of the costal scutes has a yellow ground colour, but as animals grow and age this usually shows some brown or black markings, obscuring the distinct clear yellow area shown by young animals. A dark band extends across much of the lower part of the costal scutes, and often extends onto the upper part of the marginal scutes, particularly on the

posterior part of the shell. The marginal scutes are generally uniform yellow in the region over the front legs, or with a single distinct black spot, with increasing dark markings in the bridge region, and with extensive brown or black markings over the hind legs and tail region. The plastron is yellow, usually with a small to large black blotch at the outer edge of each scute. The underside of the marginal scutes is generally uniform yellowish. The head is bright yellow, often with fine grey or black spots, streaks or networking, but no red on the head or throat. The soft parts of the legs and tail are generally yellow, the large scales on the front limbs are marbled grey and yellow.

Detailed information to differentiate the three subspecies was provided by Tabaka (2002, available online).

3.5 Role of the species in its ecosystem

The role of *Cuora galbinifrons* in its native upland forest ecosystems is unknown; by analogy with other forest turtles, the species likely plays a modest ecological role in the dispersal of plant seeds and mushroom spores, and as a consumer of invertebrates.

4. Status and trends

4.1 Habitat trends

Forest cover in Vietnam fell from 14.3 million ha (43% land area) in 1943 to 9.5 million ha (29%) in 1973, and since then the area under forest cover has appeared relatively stable at assessments in 1979-81 and 1995 (FAO, 1997; FSIV, 2009). Recent increases in forest cover since the early 2000 have largely been due to the 1998-2010 goal to reforest 5 million ha under national decision No. 661/QD-TTg (661 Programme: Decision No. 661/QD-TTg dated 29 July 1998 by the Prime Minister on objectives, tasks, policy and Organisation for implementation the 5 million hectares afforestation national programme) (ICEM 2003). Reforestation has mostly been monoculture, while the primary forests on which this species depends continues to be lost or degraded.

4.2 Population size

No absolute population size numbers or estimates are available, and only anecdotal relative population density data. All recent indications are that the species requires extensive search effort to encounter.

During field surveys in Lao PDR in 1993-1999, encounter rates were at the order of one turtle per three months in the field for a herpetologist, and one *Cuora galbinifrons* per day when working with a trained turtle hunting dog in prime turtle habitat (Stuart & Timmins, 2000).

During a field survey in May 2012 in Deo Ca – Hon Nua Special Use Forest (a traditional collecting area in Phu Yen province, Viet Nam), a team of five dogs (four local hunting dogs and one trained survey dog) found only a single *Cuora galbinifrons picturata* and two *Cuora mouhotii* during a week of searching in which dogs were actively used over 21.7km of transects (T.McCormack, in litt to VN MA, 29 Sept 2012). Assuming that a team of dogs works a strip of a minimum width of 100 m, and finds half of all exposed and hidden turtles, this calculates to an estimated density of less than one *Cuora galbinifrons* per square km.

4.3 Population structure

No population structure data are available. No distinct sex bias has been observed during field or trade surveys. All age classes except hatchlings are seen in trade; juveniles are normally kept at the village level as traders prefer not to buy very small individuals.

4.4 Population trends

A great deal of survey work has been undertaken in Viet Nam between 2009 – 2012 focused on determining the range and priority habitat for *Cuora galbinifrons,* with a focus on *Cuora g. bourreti* and *Cuora g. picturata.* Anecdotal information from interviews throughout the range has found that historic quantities of the species available for collection in the forest have been greatly reduced, with many hunters stating that while the species was common 7-15 years ago, it is now increasingly difficult to find.

Similarly during surveys in 2006 in and around Song Thanh Nature Reserve, Quang Nam province local hunters at that time claimed that numbers of *Cuora g. bourreti* had already been seriously depleted, from being able to catch 20 animals a day in the in the mid 1990's to only a few animals a week. However the increasing economic value of the species to an average of US$15.00 per kg is an increase from 2006, when surveys found an average value of US$9.00 around Song Thanh Nature Reserve, Quang Nam province.

During a survey around Deo Ca – Hon Nua Special Use Forest in May 2012, local hunters claimed they still caught 50 individuals of the species annually (during a six month hunting season) using large packs of hunting dogs, even when a pack of five dogs found just a single *Cuora galbinifrons picturata* and two *C. mouhotii* during a week's hunting, when 21.7 km of trails and transects were searched (T.McCormack, in litt to VN MA, 29 Sept 2012). Given the low fecundity and slow growth of the species, this level of collection is likely unsustainable and decimating populations of *Cuora g. picturata* at this location.

Similar reports of reductions in wild populations, and corresponding increases in wholesale prices paid, have been documented during interviews throughout the species range in Viet Nam (T.McCormack, in litt to VN MA, 29 Sept 2012).

4.5 Geographic trends

All available information indicates that the species is intensively collected throughout its range in PR China, Lao PDR and Viet Nam.

5. Threats

The primary threat to *Cuora galbinifrons* is collection for trade. The species is in high demand in the international pet trade and the Asian consumption trade. Collection efforts include both targeted searches for turtles involving trained dogs, or occasionally pitfall traps, as well as capitalizing on casual turtle encounters when collecting other forest products. Turtles, of any species, are collected whenever and wherever encountered in the region, regardless of legal protection status or location inside protected areas. Collected turtles are traded, mostly illegally, through a network of local middlemen before being exported or consumed locally. Increasing economic value has ensured that hunting pressure is sustained despite the increasing rarity of the species (Hendrie, 2000; Stuart & Timmins, 2000; McCormack *et al*., 2010).

Habitat loss and degradation are considered a significant but more localized threat to the species.

Cuora galbinifrons was assessed as Critically Endangered for the IUCN Red List of Threatened Species in 2000, based on an assessment of prevailing trade impacts at that time. It is currently in the process of re-assessment, and preliminary findings indicate that the species will be retained as Critically Endangered (TTWG, 2011; Horne *et al.,* 2012). *Cuora galbinifrons* is listed as Endangered in the Viet Nam Red data Book, and also as Endangered in the *China Red Data Book of Endangered Animals* (Zhao, 1998).

6. Utilization and trade

6.1 National utilization

Historically *Cuora galbinifrons* have been consumed locally for food as part of a subsistence diet, however in the last decade consumption has largely ceased with most animals now sold into the trade due to the high economic incentive. Juvenile animals are often kept at the village level in attempts to raise them to sell on into the trade (often unsuccessful, with animals dying).

The species does not have specific local medicinal uses as is seen in other species, e.g. *Cuora trifasciata* or *Mauremys annamensis* but bones are often sold to traders for production of bone glue. In some areas turtles of all species are consumed as broad "health invigorators".

6.2 Legal trade

The UNEP-WCMC CITES trade database recorded a total of 2529 net exported animals or specimens of *Cuora galbinifrons* during the period 2000-2011 (Gross exports amounted to 2569 animals or specimens). The table below documents declared net exports for the countries which

exported more than 10 animals in total during this period (another 19 animals or specimens were exported from a total of 8 countries).

Taxon	Term	Country	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Total
Cuora galbinifrons	live	CN	0	0	24	0	6	0	0	5	0	0	3	0	38
Cuora galbinifrons	live	HK	287	62	281	174	40	0	0	0	0	12	11	0	867
Cuora galbinifrons	specimens	HK	0	0	0	14	0	0	0	0	0	0	0	0	14
Cuora galbinifrons	live	JE	0	0	0	0	0	1	0	0	8	3	0	0	12
Cuora galbinifrons	live	LA	0	0	0	0	0	0	1500	0	0	0	0	0	1500
Cuora galbinifrons	live	LB	0	0	0	0	0	13	0	0	0	0	0	0	13
Cuora galbinifrons	live	VN	33	16	0	0	0	0	0	0	0	0	0	0	49
Cuora galbinifrons	specimens	VN	0	0	0	14	2	0	0	0	0	1	0	0	17
			320	78	305	202	48	14	1500	5	8	16	14	0	

6.3 Parts and derivatives in trade

All turtle shells are bought in Vietnam by traders to make into a generic bone glue, plastrons are normally preferred. In some areas shell fragments are discarded. In many areas shells considered beautiful are kept as household decorations, this is often seen with *Cuora galbinifrons* and *Manouria impressa*.

Some shells or shell fragments are traded internationally: Chen *et al*. (2009) recorded that *Cuora galbinifrons* were rare but present among imported turtle shells for Chinese traditional medicine in Taiwan Province of China.

6.4 Illegal trade

Visible trade in *Cuora galbininfrons* at Hanoi's principal wildlife market, Don Xuan, stopped by about 2006 due to better market enforcement. Prior to this, dozens of *Cuora galbinifrons* were regularly available each week, these were often juvenile animals and intended for the pet market, not food.

It is believed that most *Cuora galbinifrons* traded in Viet Nam are exported to Chinese markets. The species was present in nearly every reported market survey that looked at turtle trade in China and Hong Kong since recording began in 1993. All these animals appeared wild caught and most were offered in the food markets (Lau et al., 1995; Artner and Hofer, 2001; Wang et al., 2005; Gong et al., 2005, 2006, 2009; Cheung & Dudgeon, 2006; Wu, 2007). Cheung and Dudgeon recorded over 15,000 *Cuora galbinifrons* traded in Hong Kong markets alone during the period 2000-2003; comparing this to the total of 905 *C. galbinifrons* that were recorded in the CITES trade database as exported during this same period worldwide (see 6.2, above) hints at the scale of illegal and unrecorded trade. The volume of *C. galbinifrons* in visible trade continues to be highly significant in recent years; market surveys by the Wildlife Conservation Society during 2008-2011 in Guangzhou, China, documented 1826 animals observed in food markets, and another 1944 animals recorded in the local pet trade (Roberton, in litt to VN CITES MA).

6.5 Actual or potential trade impacts

Long-lived, late-maturing species with limited annual reproductive output and high juvenile mortality, as exemplified by *Cuora galbinifrons*, have proven to be highly susceptible to overexploitation, particularly of adult animals (Doroff & Keith, 1990; Gibbons, 1990; Congdon et al., 1993; O'Brien *et al.*, 2003). The population trend data in section 4.4 strongly suggests that *Cuora galbinifrons* has been subject to unsustainable collection for the past 15-20 years and this has resulted in the depletion if not collapse of each populations that has been surveyed. Of particular significance is that commercial turtle farms in East Asia create a specific demand for animals collected from the wild,

being considered the primary purchasers of wild-collected turtles and driving the collection of the last remaining wild animals through increased trade prices (Shi *et al*., 2007).

In a separate, innovative analysis of risk posed by international trade, *Cuora galbinifrons* emerged with a relatively high score (1.5 out of a maximum of 2.0) of endangerment from trade (Zhou & Jiang, 2008).

7. Legal instruments

7.1 National

P.R. China: The People's Republic of China Wild Animals Protection Law (1989) forms the national cornerstone of protection of wildlife species. The Wild Animals Protection Law also covers important economic and scientific species; *Cuora galbinifrons* is included in the list of *National Protected Terrestrial Wild Animals that are Beneficial, or with Important Economic and Scientific Research Value*, which was published by the State Forestry Administration in 2000. For terrestrial species, the State Forestry Administration is responsible for the administering and enforcing of this law, while the Fisheries Ministry is responsible for the aquatic species. The collecting of state major protected species is only allowed for scientific research, captive-breeding, exhibition and other special reasons. The transport of state major protected species across county boundary needs the permission from the provincial Forestry or Fisheries Department. The import and export of these state major protected species and CITES-listed species need the permission from the Forestry or Fisheries bureau in the central government and a certificate issued by the Endangered Species Import and Export Management Office of the People's Republic of China (Shi & Lau, 2000; Endangered Species Import and Export Management Office of the People's Republic of China, 2002a).

Lao P.D.R.: Principles, regulations and measures for the protection and management of wildlife are governed by the Wildlife and Aquatic Species Law (No07/NA 24 December 2007); *Cuora galbinifrons* is listed under Prohibited Category I, the highest the protective category, banning hunting and collection year-round.

Viet Nam: *Cuora galbinfrons* is presently not protected under Vietnam's principal wildlife protection law Decree 32/2006/ND-CP, but a proposal to include the *Cuora galbinifrons* group under this law is currently under consideration. The Law on Forest Protection and Development, last updated in May 2011, states under article 41 that the hunting, catching, trapping and caging of forest animals must be permitted by competent State bodies and comply with law provisions on wildlife conservation. Therefore, hunting permits are required under this law, and the regulatory framework to implement a system of monitored hunting permits is presently being compiled. Wildlife does need permits to be transported nationally; such transport permits can be issued by provincial Forest Protection Department offices. A veterinary health certificate may also be required.

Operations engaged in farming of wildlife species can be registered at the provincial level for species that are not registered under Decree 32, the principal wildlife protection law. Decree 82/2006/ND-CP provides guidance on farm laws and template documents to complete registration. As *Cuora galbinifrons* is not IB or IIB under decree 32, it can be registered for farming at present. Wildlife to be registered has to be collected under permit, bought from an existing "breeding farm" or bought from a Forest Protection Department (FPD) sale.

Cambodia: *Cuora galbinifrons* has not yet been confirmed to occur in Cambodia, and is currently not specifically listed in Cambodian protective wildlife legislation or regulations.

7.2 International

Cuora galbinifrons was included in CITES Appendix II at CoP 11 (Proposal 36, Gigiri, Kenya, 2000), and was selected for the Review of Significant Trade (RST) at AC17; its progress through the RST process was detailed on pages 21-22 of document AC25 Doc. 19.

The genus *Cuora*, including *Cuora galbinifrons*, is included in Annex B of EU Commission Regulation no. 709/2010 (amending EC Regulation 338/97), which requires that a corresponding import permit must be issued by the country of import before a shipment of the species can enter the European Union.

Health inspection certification is required by a number of countries before live animals, including turtles, may be imported.

The recommended conditions for transport of live turtles by air are detailed in the IATA Live Animals Regulations; compulsory adherence to these Live Animal Regulations has been adopted by legislation in a number of countries, and is required by a number of international airlines.

8. Species management

8.1 Management measures

Populations of *Cuora galbinifrons* are not known to be managed or manipulated in any part of its range. A conservation initiative to focus on *Cuora g. bourreti* through improved protected area management, community engagement and enforcement capacity building has been initiated at Song Thanh Nature Reserve, Quang Nam province in Central Viet Nam (McCormack *et al.,* 2006).

8.2 Population monitoring

No population monitoring programs are known to be in place for *Cuora galbinifrons* anywhere in the species' range.

8.3 Control measures

8.3.1 International

Since its inclusion in CITES Appendix II, international shipments of *Cuora galbinifrons* are required to be accompanied by appropriate export permits, and subject to the customary checks by customs and wildlife authorities at the points of export and import.

8.3.2 Domestic

No control measures are in place beyond those described in section 7.1, national legislation and regulations.

Wildlife authorities, customs and enforcement authorities of the range and trading countries have made great efforts to ensure that turtles traded within their jurisdiction are legal and regulated, as evidenced by extensive record of confiscations of illegally traded turtles in the countries of the region (AC25 Doc.19, Annex C. However, resources such as officers trained in wildlife identification and identification materials in local languages remain limited, and in many cases the judicial system does not give high priority to wildlife crimes.

8.4 Captive breeding and artificial propagation

The Turtle Conservation Centre at Cuc Phuong National Park has been breeding *Cuora galbinifrons* (subspecies *bourreti* and *galbinifrons*) with limited success; survival in eggs is low and long term survival of hatchlings is lower. Some early hatchlings are now (2012) nearing seven years of age. Low incubation temperatures, 25-28ºC, are an important factor for successful reproduction, as are cool, humid environmental conditions for juveniles and a high protein diet. Around 30 *Cuora galbinifrons* of all three subspecies are maintained at the centre.

Cuora galbinifrons is maintained in modest numbers in captivity by hobbyists in Asia, Europe, North America and elsewhere, and has been bred in captivity, but continues to be regarded as a difficult, sensitive species that is challenging (but not impossible) to establish and reproduce consistently in captivity (Buskirk, 1989; de Bruin, 1994; Fiebig & Lehr, 2000; Struijk, 2010). A European studbook exist for the species since the late 1990s, with over 150 registered animals maintained at institutions and private keepers in eight countries in 2009 (Struijk, 2010).

Cuora galbinifrons was recorded among the stock kept at commercial turtle farms in China in the early 2000's (Parham *et al.,* 2001; Germany SA, 2003), but is understood not to breed successfully (i.e., production exceeding mortality) in commercial captive conditions and is no longer included in inventories of turtle farms in recent years (Endangered Species Import and Export Management Office of the People's Republic of China, 2002b; Zhou *et al.,* 2005, 2008; Shi *et al*., 2008b).

8.5 Habitat conservation

Habitat conservation, in the form of National Parks, Special Conservation Areas, and other protected areas, is in place across much of the range of *Cuora galbinifrons galbinifrons* and *C. g. bourreti*, and several records of these turtles originate from inside protected areas (Stuart & Platt, 2004; McCormack *et al.,* 2006; Stuart *et al.,* 2011; Wang *et al.,* 2011). However, designation as protected area does not necessarily lead to effective restrictions on the collection of turtles and other 'forest products', and is insufficient by itself to safeguard viable populations of the species in its natural habitat. The *picturata* population has not been confirmed to occur in protected areas near the areas of known occurrence, but further surveys may document the form inside protected areas (Ly *et al*., 2011).

8.6 Safeguards

None applicable beyond legal, regulatory and enforcement processes in place, including the need for non-detriment findings for shipments in international trade.

9. Information on similar species

Cuora box turtles can be separated from all other turtles by the combination of possessing a single hinge on the plastron allowing them to effectively close their shell, their distinctly domed to highly domed shell, and generally bright facial colouration that includes a strip of granular skin between the eye and tympanum. The three subspecies of *Cuora galbinfrons* are unique among all turtles in possessing a large yellow to orange area on each side of the carapace. Detailed information to differentiate the three subspecies was provided by Tabaka (2002, available online).

10. Consultations

The MA of Viet Nam sent out consultation notifications to the other confirmed Range States of *Cuora galbinifrons* on October 2nd, 2012, and on October 3rd received a response from the CITES MA of the Lao PDR that they have no objection to the transfer of *Cuora galbinifrons* to CITES Appendix I. At the time of submission, no response has been received from P.R. China yet.

11. Additional remarks

At its 5th World Conservation Congress, IUCN passed a Resolution (Motion 028 – Addressing the Turtle Extinction Crisis) that, among others, called upon CITES Parties to a) Evaluate that turtle species subject to international trade are appropriately included in the CITES Appendices; b) Ensure that international trade adheres to CITES regulations, including detailed Non-Detriment Findings being made, and including complete reporting of trade in parts (e.g. shell) and derivative products (e.g. jelly) of turtles; c) Ensure that domestic laws and regulations adequately address both the requirements of CITES and safeguard native turtle populations from over-exploitation, that all pertinent laws and regulations are diligently enforced, and that appropriate awareness and capacity are developed within the government agencies concerned with turtle offtake and trade; and d) Collaborate with competent NGOs to effectively and humanely triage confiscated live turtle specimens.

A major workshop of Asian turtle specialists, held in Singapore in February 2011, evaluated possible CITES listing needs for Asian turtles. These specialists recommend that *Cuora galbinifrons* warrants to be transferred to Appendix I in CITES and retained at Critically Endangered in the IUCN/SSC Red List of Threatened Species. These measures would help conserve the survival and viability of remaining populations, through increased enforcement efforts and higher penalties for those convicted of illegally trading in the species (Horne *et al.* 2012).

12. References

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