

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



Eighteenth meeting of the Conference of the Parties
Colombo (Sri Lanka), 23 May – 3 June 2019

CONSIDERATION OF PROPOSALS FOR AMENDMENT OF APPENDICES I AND II

A. Proposal

Transfer of *Cuora picturata* from Appendix II to Appendix I, in accordance with Res. Conf. 9.24 (Rev.CoP17), under criteria A i) and A v) (small population in decline, intrinsic vulnerability), B iii) and B iv) (restricted area of distribution, declining population, intrinsic vulnerability) and C i) (past and ongoing severe decline due to exploitation) in 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 picturata* Lehr, Fritz & Obst, 1998

Cuora picturata was traditionally considered a subspecies of *Cuora galbinifrons* (e.g., Fritz & Havas, 2007); however, more recent research has treated *picturata* as a full species, including the nomenclature standard reference for the *Cuora galbinifrons* group adopted at CoP17, Spinks *et al.* (2012), which recognizes *Cuora picturata* (and *C. bourreti*) as full valid species for CITES purposes.

- 1.5 Scientific synonyms: *Cuora galbinifrons picturata* Lehr, Fritz & Obst, 1998; *Cistoclemmys galbinifrons picturata* (Lehr, Fritz & Obst, 1998); *Cistoclemmys picturata* (Lehr, Fritz & Obst, 1998)
- 1.6 Common names: English: Southern Viet Nam Box Turtle
French:
Spanish:
- 1.7 Code numbers: ITISTSN 949150

* 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. Overview

Cuora picturata is a medium-sized terrestrial turtle, to 18 cm shell length, and weighing nearly 1 kg. It was originally described and recognized as a subspecies of *Cuora galbinifrons* (e.g., Fritz & Havas 2007), but recent taxonomic studies have treated it as a full species, *Cuora picturata* (Stuart & Parham, 2004; Nguyen et al., 2009; Spinks et al., 2012; TTWG, 2017).

Cuora picturata is endemic to Viet Nam, inhabiting evergreen hill forest with bamboo forest on the eastern slopes of the Langbian Plateau of southern Viet Nam. It is likely restricted to this specific area, so that its total distribution range is under 25,000 square km. Within this area, suitable habitat covers much less, as the species appears to be limited to areas between 300 and 600 m altitude that have not been converted to agriculture. Available field survey information shows that the species is rare (less than one animal per square km, or requiring 60 person-hours or 45 dog hours of searching to find a single specimen. Available interview and trade observation data strongly suggest that populations have been severely depleted in recent decades. Most records derive from observations of collected animals; field observations are rare even during dedicated surveys.

The primary threat to *Cuora picturata* is collection for trade. The species is in high demand in the international pet trade and (previously) in the Asian consumption trade. Habitat degradation and loss are secondary threats to the species. *Cuora picturata* was assessed for the IUCN Red List of Threatened Species in 2016 and is categorized as Critically Endangered.

Females in captivity may produce a single clutch of 1-3 eggs per year; egg and hatchling mortality rates are high in nature, and recruitment is slow. The species is challenging to establish and reproduce in captivity, and the great majority of trade is understood to concern animals collected from the wild.

Cuora picturata is legally protected from exploitation in Viet Nam. It was listed in CITES Appendix II (as subspecies *Cuora galbinifrons picturata*) under Criteria B i and B ii, by unanimous adoption at CoP 11 (CoP11 Prop.36), effective 19 July 2000. A zero quota for wild specimens traded for commercial purposes was adopted for *Cuora galbinifrons* (including *bourreti* and *picturata* as subspecies at that time) at CoP16 (CoP16 Prop.32), effective 12 June 2013. At CoP17, a nomenclatural standard reference (Spinks et al., 2012) recognizing *bourreti* and *picturata* as full separate species was adopted as part of the revision of [Res. Conf 12.11](#).

Cuora picturata qualifies for transfer to Appendix I of CITES, as it meets the following criteria of Annex I of Res.Conf.9.24 (Rev.CoP17): Criteria A i) and A v): small population in decline, intrinsic vulnerability – see 4.2, 4.4, 3.3; Criteria B iii) and B iv): restricted area of distribution, declining population, intrinsic vulnerability – see 3.1, 3.3, 4.2, 4.4, and C i): past and ongoing severe decline due to exploitation – see 4.2, 4.4, 6.5. The past and ongoing pattern of local, casual exploitation combined with unsustainable targeted collection for illegal trade (see sections 5 and 6.4) in its highly restricted area of occurrence (see section 3.1) 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). Domestic and international enforcement of existing regulations may be insufficient to safeguard the long-term survival of this restricted-range species; transfer from CITES Appendix II to I is expected to more effectively address illegal trade in this species.

3. Species characteristics

3.1 Distribution

Cuora 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). This region covers an area of less than 250 x 100 km.

Cuora picturata was originally (at the time of its description, late 1990s) speculated to possibly occur in eastern Cambodia, as no confirmed field localities were known and specimens only showed up in turtle trade in southern Viet Nam, at points known to be part of the trade routes from Cambodia to Viet Nam and onwards. Surveys in Cambodia have failed to find any indication of the species there, while Ly *et al.*'s (2011) discovery of wild specimens on the Langbian Plateau explain how specimens became part of turtle trade in southern Viet Nam. (McCormack *et al.*, 2016).

3.2 Habitat

The only habitat details available in the literature are based on the locations of 9 animals in three surveyed localities: These animals were encountered on the forest floor of broadleaf evergreen forest mixed with bamboo forest, at altitudes between 346 and 561 m elevation (Ly *et al.*, 2011; McCormack *et al.*, 2016).

3.3 Biological characteristics

Extremely little is known of the biology of *Cuora picturata* 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. Mature females of *C. picturata* can produce a single clutch of 1–3 eggs each year, with large eggs measuring up to 60 x 35 mm (Blanck, in McCormack *et al.*, 2016).

3.4 Morphological characteristics

Cuora picturata is a medium-sized turtle, reaching up to 19 cm carapace (upper shell) length at a weight of up to 1.1 Kg (Ly *et al.*, 2011; Blanck, in McCormack *et al.*, 2016). Males and females reach about the same size. Hatchlings measure about 45-50 mm and weigh 15-24 grams. 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. *Cuora picturata* has a characteristic very short, steeply domed, high smooth shell, that appears 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.

3.5 Role of the species in its ecosystem

The role of *Cuora picturata* 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

Cuora picturata was assessed for the IUCN Red List at species level in 2016 and was categorized as Critically Endangered under criteria A2bd+4bd (McCormack *et al.*, 2016). Before 2016 it was assessed as part of the Critically Endangered assessment of *C. galbinifrons* since 2000. Ever since its description, *Cuora picturata* has been considered the most enigmatic and likely the most threatened taxon in the *Cuora galbinifrons* complex, and was consistently included in the list of 50 species of tortoises and freshwater turtles at highest risk of extinction (Turtle Conservation Coalition, 2011, 2018).

4.1 Habitat trends

Large areas of forest on the Langbian Plateau are being rapidly converted to coffee plantations and other agricultural lands. Only one of the three localities where *C. picturata* was found (Deo Ca Protected Forest) was protected at the time (Ly *et al.*, 2011).

4.2 Population size

Population density of *Cuora picturata* is considered to be low. Ly *et al.* (2011) carried out field surveys throughout representative periods of the year, and required 15 days of a 4-person team with three trained hunting dogs (60 man-days, or 480 man-hours; 45 dog days or 360 dog hours) to encounter 8 turtles, translating to 60 man-hours and/or 45 dog-hours per turtle.

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 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; McCormack *et al.*, 2016). 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 picturata* per square km, or one turtle per 280 dog hours.

The overall range of *Cuora picturata* is less than 25,000 sq km, of which much is likely unsuitable as a result of being below or above suitable altitude, as well as large areas of suitable habitat at suitable elevation having been converted to agricultural purposes. Consequently, the global surviving wild population is likely to be well below 25,000 individuals, and likely much less than this.

4.3 Population structure

Minimal population data, based on 8 wild observations, indicated a more or less balanced sex ratio of 3 males and 4 females. The proportion of a single subadult encountered versus 7 adults is not unusual for cryptic terrestrial box turtles (Ly *et al.*, 2011).

4.4 Population trends

Sustained survey work has been undertaken in Viet Nam between 2009 – 2012 focused on determining the range and priority habitat for the *Cuora galbinifrons* group, focusing on *Cuora picturata* and *Cuora bourreti*. Anecdotal information from interviews concluded that historic quantities of the species available for collection in the forest have been greatly reduced, with many hunters stating that while these box turtles were common 7-15 years ago, they are now increasingly difficult to find. 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 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 picturata* at this location.

4.5 Geographic trends

No geographic trends in biology, population status, or exploitation have been reported, and given the restricted range of *Cuora picturata*, such trends are not expected.

5. Threats

The primary threat to *Cuora picturata* is collection for trade. The species is in high demand in the international pet trade and the Asian consumption trade. Collection efforts are targeted and occur mainly as searches for turtles involving trained dogs. 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; McCormack *et al.*, 2010, 2016; Ly *et al.*, 2011).

Habitat loss and degradation are considered a significant but more localized threat to the species (Ly *et al.*, 2011).

6. Utilization and trade

6.1 National utilization

Historically *Cuora picturata* have been consumed locally for food as part of a subsistence diet; in the last decade, however, 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) (T.McCormack, in litt to VN MA, 29 Sept 2012; McCormack et al., 2016).

Local residents collect and sell *Cuora picturata* to commercial traders; the species is usually collected with the assistance of hunting dogs, and very difficult to find without them. (Ly *et al.*, 2011; T.McCormack, in litt to VN MA, 29 Sept 2012; McCormack et al., 2016).

6.2 Legal trade

The UNEP-WCMC CITES Trade Database does not contain records of international trade in *Cuora picturata*, which is logical as *picturata* was recognized as a full separate species in 2013, at the same time that a zero quota for wild specimens traded for commercial purposes was adopted. Previously, trade in *Cuora picturata* would have been recorded as part of the trade in *Cuora galbinifrons*, for which records of legal trade of 3372 live specimens and 35 specimens are recorded during the period 1999-2013; only a small minority of these specimens have likely been *Cuora picturata*.

Searches of internet fora and bulletin boards occasionally yields offers of *Cuora picturata* for sale, often claimed bred in captivity; the veracity of such claims is often difficult to confirm without contacting the studbook keeper. *Cuora picturata* was not evident in visible retail trade in China or Hong Kong in the early 2010s (van Dijk, pers comm to VN SA, 22 June 2015). 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).

6.3 Parts and derivatives in trade

All turtle shells are bought in Viet Nam 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* and likely applies to *picturata*.

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

6.4 Illegal trade

Most illegal trade in *Cuora picturata* has been recorded as part of *C. galbinifrons*, without differentiating (sub)species. Visible trade in *Cuora galbinifrons* at Hanoi's principal wildlife market, Dong 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 understood that a large part of the *Cuora galbinifrons* traded in Viet Nam were exported to China and Hong Kong. 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 886 *C. galbinifrons* that were recorded in the CITES trade database as net 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 (Robertson, in litt to VN CITES MA). It is not clear whether specimens of *picturata* were contained among recent seizures recorded as *Cuora galbinifrons* in Viet Nam or China. An evaluation of reported seizures of tortoises and freshwater turtles for the period 2000-2015 ([CoP17 Doc.73 Annex](#)) recorded no specimens of *Cuora picturata* as seized; this is not surprising as *Cuora picturata* is not easy to differentiate from *Cuora galbinifrons*, with which it is usually traded, and was treated as a subspecies of *C. galbinifrons* for CITES purposes during most of the analysis period.

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 picturata*, 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 status and trend data in sections 4.2 and 4.4 strongly suggest that *Cuora picturata* has been subject to unsustainable collection for the past 15-20 years and this has resulted in the depletion if not collapse of its populations. 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 an independent, 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); given the limited area of distribution of *Cuora picturata*, its risk from international trade is likely to be even higher.

7. Legal instruments

7.1 National

Cuora picturata is protected from commercial exploitation in Viet Nam as a Priority Protected Rare, Precious and Endangered Species under the revised Decree 160/2013/ND-CP of the Government.

7.2 International

Cuora picturata was included, as a subspecies of *Cuora galbinifrons*, in CITES Appendix II under Criteria B i and B ii at CoP 11 (Proposal 36, Gigiri, Kenya, 2000). The proposal was adopted unanimously and came into effect on 19 July 2000. A zero quota on wild specimens traded for commercial purposes was adopted for *Cuora galbinifrons* (including *picturata* and *bourreti* as subspecies) at CoP16 (CoP16 Prop.32), which came into effect on 12 June 2013.

The genus *Cuora*, including *Cuora picturata*, is included in Annex B of EU Commission Regulation no. 709/2010 (amending EC Regulation 338/97), which requires that the country of import must issue a corresponding import permit 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 picturata* are not managed for sustainable offtake or other purposes.

8.2 Population monitoring

No population monitoring programs are in place for *Cuora picturata* anywhere in its limited range

8.3 Control measures

8.3.1 International

Since its inclusion in CITES Appendix II, international shipments of *Cuora galbinifrons* (including *C. picturata* as subspecies) 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 seizures of illegally traded turtles in the countries of the region (AC25 Doc.19, Annex C; CoP17 Doc. 73 Annex 2).

8.4 Captive breeding and artificial propagation

Cuora picturata is maintained in small numbers in captivity by hobbyists and institutions 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 (Struijk, 2010). A European studbook exist for *Cuora picturata* since the late 1990s, with 57 registered animals maintained at three institutions and private keepers in 2009; of these, 31 were born in captivity (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), and likely included some specimens of *picturata*. The *galbinifrons* group 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

Only one of the three localities where *Cuora picturata* is confirmed to occur is currently protected (Deo Ca Protected Forest). Additional field surveys on the plateau are needed to determine whether *C. picturata* occurs within any additional established protected areas that will safeguard it from deforestation and overharvesting, and if not, what can be done to mitigate its extinction in the wild (Ly *et al.*, 2011).

8.6 Safeguards

No specific safeguards are in place beyond standard legal, regulatory and enforcement processes governing collection and trade of biodiversity, 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 species *bouretti*, *galbinifrons* and *picturata* are unique among all turtles in possessing a large yellow to

orange area on each side of the carapace. The species *picturata* can easily be separated from *galbinifrons* by its plastron colouration, which is solid black in *galbinifrons* and bony yellow with a large black blotch on each scute in *picturata* (and in *bourreti*). Separating *picturata* from *bourreti* is most easily done by looking at the side of the head, which shows a unique pattern of delicate cream-coloured, finely black-edged lines and vermiculations on a greenish-yellow background. In addition, in *picturata* the pale yellow area of the side of the carapace is located high up, adjoining the vertebral scutes (on the lower part of the costal scutes in *bourreti*) and while it may contain fine dark speckling, it does not show extensive dark cloudy markings that seem to divide the pale area into two parallel bands (as is typical of *bourreti*). Finally, *picturata* usually has extensive pale areas on its upper marginal scutes, whereas *bourreti* has generally dark upper marginals. Detailed information to differentiate these three forms was provided by Tabaka (2002, available online).

10. Consultations

Cuora picturata is endemic to Viet Nam and therefore no other range states can be consulted.

11. Additional remarks

Soon after its inclusion in CITES Appendix II at CoP11, *Cuora galbinifrons* including the subspecies *C. g. picturata* was selected for the Significant Trade Review process, eventually resulting in a recommendation to suspend trade from Lao PDR and Viet Nam in 2009; these recommendations were withdrawn respectively at SC 62 (July 2012, for Viet Nam, as no commercial exports had taken place since 2001 [see [SC62 Doc.27.2 \(Rev.1\)](#)]) and SC70 (October 2018, for Lao PDR, on the basis that Lao PDR confirmed to the Secretariat that it has no intention of resuming trade in the species [see [SC70 Doc.29.2](#), para. 18]).

An earlier proposal to transfer *Cuora galbinifrons*, including *Cuora picturata* at subspecies rank, to Appendix I was prepared and submitted by Viet Nam for CoP16 ([CoP16 Prop.33](#)) but this was defeated in a procedural vote following the adoption of [Proposal 32](#) which placed a zero quota on trade in wild specimens of *Cuora galbinifrons* for commercial purposes. At the request of Viet Nam at CoP16, *Cuora galbinifrons* was included in the Periodic Review of Animal Species in the Appendices, conducted by the Animals Committee (Decision 16.124). The review of the species was prepared by Viet Nam and presented in document [AC28 Doc.20.3.8](#). The Animals Committee agreed with the recommendation in the Periodic Review document to transfer *Cuora galbinifrons* including the taxa / subspecies *bourreti* and *picturata* to Appendix I ([AC28 Sum. 2 \(Rev. 1\)](#); [CoP17 Doc. 73](#) para.11).

12. References

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